

## Why are some medical specialists working part-time, while others work full-time?

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### Abstract

Although medical specialists primarily work full-time, part-time work is on the increase, a trend that can be found worldwide. This article seeks to answer the question why some medical specialists work part-time, while others do not although they are willing to work part-time. Two approaches are used. First, we studied reported reasons and as a second approach we used a theoretical model, based on goal-directed behavior and restrictions. A questionnaire was sent to all internists ( $N = 817$ ), surgeons ( $N = 693$ ) and radiologists ( $N = 621$ ) working in general hospitals in The Netherlands. Questions were asked about personal traits, characteristics of the work situation, and motives for working full-time or part-time. Frequencies were reported for the reasons given, and multilevel analysis was used to test the theoretical model. The results show that the reported reasons for working part-time and being willing to work part-time are the same: the importance of family and leisure pursuits. The second approach showed that medical specialists working part-time tend to be female, older, and have children below the age of five. Surgeons are least likely to work part-time. A willingness to work part-time is purely individual and not related to any of the explanatory variables. We conclude that working part-time is related to both professional and personal circumstances. Policy should be aimed at removing the organizational difficulties that obstruct the realization of part-time work. Alternatively, perhaps there should be a change in working hours for all medical specialists. As the majority of all full-time working medical specialists are willing to work part-time, this might indicate that most medical specialists actually prefer “normal” working hours.

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### 1. Introduction

Part-time work has become relatively common in The Netherlands, and there are hardly any differences in conditions of employment between part-time and full-time jobs. This makes The Netherlands different

from the USA, UK, France and Germany, where part-time work is often second-rate employment [1]. Nonetheless, in The Netherlands, not everyone who prefers to work part-time is doing so, and the percentage of women with a part-time job exceeds the percentage of men in part-time work [2]. What are the reasons for this? That is the subject of this article, which seeks an answer to the question why some people are working part-time while others are working full-time. The focus will be on medical specialists in

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### **Box 1: Medical specialists in The Netherlands [30]**

- Mutual dependency between hospitals and specialists:  
     Medical specialist cannot practice without the hospital  
     Hospitals cannot exist without medical specialists
- Separate payment for hospitals and specialist
- In 2000, 71% of the medical specialists are not in the employ of the hospital
- It is most common for medical specialists to be associated with only one hospital
- Facilities of the hospital are used for outpatient care; outpatient care is part of the hospital

The Netherlands. Medical specialists form a specific group within the country's work force because most of them do not work as salaried employees of a hospital (Box 1). This creates an organizational difficulty for the introduction of part-time work. Medical specialists in The Netherlands work in partnerships of liberal professionals, an organizational structure in which partners are mutually dependent, and defend their own interests as well as common resources [3].

We will first describe part-time work in general in The Netherlands, as background information, before dwelling on the specific situation of medical specialists.

#### *1.1. Part-time work in The Netherlands*

The Netherlands occupies a unique position with the highest percentage of men (19%) and women (71%) working part-time, compared to other countries in the European Union [4].

The number of people working part-time in The Netherlands has increased since the 1970s. Both the supply and demand side have played a role in this increase. During the early post-war period the majority of women left the labor market when they got married. This changed, and when (married) women joined the labor force they usually did so on a part-time basis. The

need to contribute to the household income, a change in attitudes to social roles, increased educational level, and a decrease in family size appear significant factors in this development [5]. Other explanations for the increase in part-time work are the high unemployment rate in the 1980s and the growing importance of the service industry [6]. Besides the majority of women who prefer a part-time job, a growing minority of men also prefer part-time work [6].

The introduction of part-time employment did not happen simultaneously in all sectors. In health care and education part-time work was accepted at an early stage [1]. However, there are also differences within these sectors; in health care it is primarily non-physicians who work part-time.

#### *1.2. Part-time work amongst physicians*

Although physicians still primarily work full-time, part-time work is on the increase, a trend that can be found worldwide [7]. Part-time work amongst physicians could be seen as a solution to a shortage of physicians in the future. Although this sounds contradictory, it is possible that physicians who might otherwise choose hospital work but cannot, or do not want to work full-time, are opting for a different career. The opportunity to work part-time could well bring about an increase in the number of doctors willing to have a hospital career. For this reason, it is important to study part-time employment. It is probably a development that will continue, and part-time work will steadily gain importance. This has been confirmed in a study on the career perspectives of medical specialists; it was found that women and younger men want to have the option of part-time work [8]. In combination with the increasing number of female medical students this may point towards an increasing importance of part-time work in the future. However, we do not yet know why some medical specialists are already working part-time and whether the medical specialists who are willing to work part-time (but work full-time) share the same reasons. In this article we address the question why some medical specialists are working part-time, while others are working full-time. Two approaches are used to answer this question. One approach is to ask medical specialists their reasons for working part-time – or not – as the case may be. It is interesting to study reported reasons for specialists who work part-time and for specialists

who are willing to work part-time, but work full-time. The other approach is to test a theoretical model to explain why some medical specialists are working part-time, while others are not, and why women are working part-time more often than men. This theoretical model explains the differences between full-time and part-time medical specialists. Besides these two groups there are full-time specialists who are willing to work part-time. Examining whether explanations for working part-time are the same as explanations for being willing to work part-time might help us explain the likelihood of realizing a preferred situation. An additional question will be answered in this article: if medical specialists are willing to work part-time, why do they work full-time? We will now introduce the explanatory model.

## 2. Explanatory model

People do not make their choices independently of their social environment. The decision to work part-time or not is the result of a choice process that occurs under certain restrictions. To explain these choice processes, and to answer the research questions we will use an explanatory model developed by Kortenhoeven

[9] (see Fig. 1). This model is based on goals and restrictions. We will apply the model to full-time and part-time medical specialists. The basic idea is that physicians (as do people in general) choose the option that maximizes benefits, depending on costs, chances of realization, and values attached to alternatives.

The choice between part-time or full-time work depends on the expected benefits. The goals of specialists include status amongst colleagues, appropriate care for patients, income and leisure time—defined as the time not devoted to paid work. High status amongst colleagues as well as a high income is most easily reached when working full-time. Leisure time is greatest when working part-time. Both part-time and full-time working specialists want appropriate care for patients. Whether this goal can be reached depends on the definition of appropriate care, and the characteristics of the specialty. We will now outline our expectations of which medical specialists are more likely to work full-time or part-time, in terms of the different goals and restrictions.

### 2.1. Status

Status amongst colleagues is dependent on what is valued most by those colleagues. This can change over

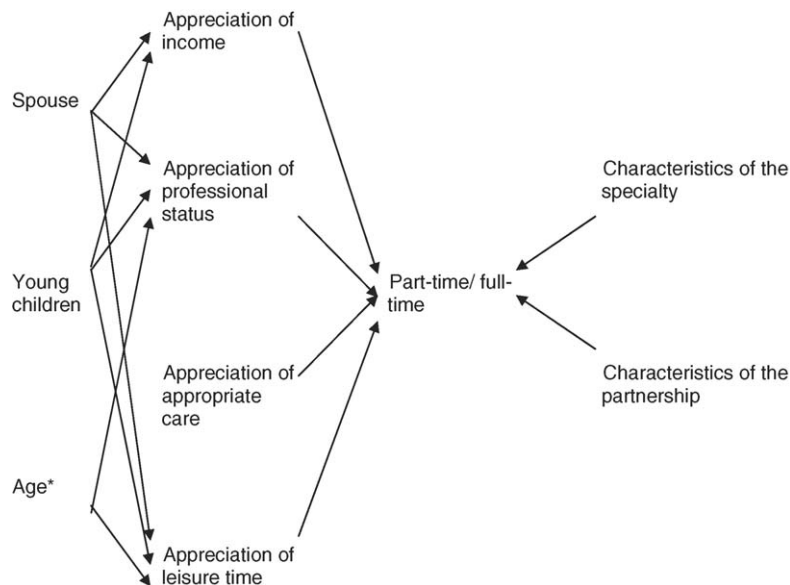


Fig. 1. Theoretical model to explain why some medical specialists are working part-time, while others are working full-time. The relations differ between men and women. (\*) The influence of age is the same for men and women; adapted from Kortenhoeven (1990) [9].

time. Working long hours used to be considered very important in gaining status; the more hours you worked, the more doctor you were [10]. Over the years, attitudes towards work have changed. This may be attributable to a difference in the value of working, and the importance of other sources in gaining status. Besides female specialists, an increasing number of younger male specialists opt for part-time work [11]. *We expect younger physicians to work part-time more often than older physicians.*

The occupation of a spouse can be a source of status too. Women gain more status from the occupation of their male spouses, than do men from their female spouses. Highly educated women often have highly educated spouses, with high-status occupations. This makes work a more important source of gaining status for men than for women. Assuming that status is higher for full-time medical specialists than for those who work part-time, we expect that *women with a spouse work part-time more often than men with a spouse.*

## 2.2. Well-being: income and leisure time

A higher income is attained in full-time rather than in part-time work. Both age and gender have an influence on the value attached to income. Increasingly, households consist of two people with an income, which has an influence on the balance between work and leisure time. This situation will occur most often for younger specialists. Therefore, younger specialists – men or women with a spouse – will work part-time more often than older specialists. With regard to gender, although duties in the home are divided between the male and the female spouse, this division is still not equal for both physicians and non-physicians [10,12]. Women have more tasks at home, and therefore attach greater value to leisure time, defined as the time not devoted to paid work. *We expect women with a spouse to work part-time more often than men.* Part-time work can be used as a strategy to combine personal and professional duties [10,13]. Besides, male specialists will be more likely than female specialists to have a spouse who does not have a paid job. For this reason, male specialists with a spouse will have a lower total family income. This will result in a higher value attached to income by male specialists, and they will be more likely to work full-time.

## 2.3. Appropriate care

All medical specialists aim at appropriate care for their patients. Continuity of care is important in reaching this goal. Continuity of care might help us explain why there are differences between specialties; because of the nature of their work, continuity of care is more important for internists and surgeons than for radiologists. Accordingly, *we expect that radiologists will work part-time more often than internists and surgeons.*

## 2.4. Personal and professional restrictions

Besides the values attached to goals, restrictions are important. Both personal and professional circumstances impose restrictions. Firstly, women are more influenced by factors related to family responsibilities than men: marriage and child-rearing are associated with reduced working hours, while for men the effects of marriage and children are quite the opposite. This effect has been found both for professionals and non-professionals [10,12,14–16]. In addition, the number of children and the presence of children aged under five were negatively related to women's working hours, both in the USA and The Netherlands [17,18]. Accordingly, *we expect women with young children to work part-time more often.* Professional circumstances are the characteristics of the specialty and characteristics of the partnership; these can influence the introduction of part-time work. Characteristics of the specialty, like the need for special rooms, the proportion of direct patient care, and acute care, influence the organization of part-time work. One characteristic of the partnership that is expected to influence the organization of part-time work is size of the practice. Because it is probably easier to organize part-time working in a larger partnership, we can expect that *part-time physicians are more likely to work in larger partnerships than in smaller partnerships.*

In summary we have five expectations. Starting with the last: part-time work will occur more often in larger partnerships; younger specialists work part-time more often than older specialists; women with a spouse will work part-time more often than men with a spouse; women with young children will work part-time more often than men with young children; radiologists will work part-time more often than internists and surgeons.

### 3. Data and methods

#### 3.1. Data

Three different specialties – internal medicine, surgery, and radiology – were chosen on the basis of differences in procedures and organization of work, linked to the characteristics of tasks, patient contacts and cooperation with other disciplines. A questionnaire was sent by mail to all internists ( $N=817$ ), surgeons ( $N=693$ ) and radiologists ( $N=621$ ) working in general hospitals in The Netherlands. Questions were asked about personal traits, characteristics of the work situation, and motives for working full-time or part-time.

Initially the response was 31% for internists, 34% for surgeons and 17% for radiologists. After sending a reminder and additionally calling all radiologists by telephone, the final response was 53% ( $n=411$ ) for internists, 52% ( $n=359$ ) for surgeons, and 36% ( $n=213$ ) for radiologists. Radiologists were called by telephone because the response after the reminder was only 30%. It was unknown for 39 internists, 22 surgeons, and 24 radiologists whether they worked full-time or part-time. They were excluded from the analyses. Medical specialists working in academic settings were not included in our survey, because their work arrangements differ markedly from specialists in general hospitals. In academic settings, specialists are employed by the hospital whereas physicians working in general hospitals usually work in partnerships. The Dutch situation is described in [Box 1](#). The responding internists, surgeons and radiologists were compared to all medical specialists in their specialty with respect to age and gender. We did not have all of this information for the same year in which we collected the data, consequently there is lack of up-to-date information. Only for surgeons and radiologists we have data on gender for all of those we sent a questionnaire. We compared the internists in our study to the population in 1996 and found that the mean age of male internists is 1.03 years higher in our study population. For female internists the mean age is the same in the population of 1996 and our sample. In 1996, 83% of the internists were male, while 17% were female, in our sample this is 77% and 23%, respectively. For male surgeons the difference in age is 2.62, while female surgeons are 1.78 years older in our study population than in the population of 2001. In that year 94% were male and 6% were female; in our study

90% are male and 10% are female. Of the surgeons we sent the questionnaire 92% were male and 8% female. For radiologists we compared our study population to the population of 1997. The difference in age is 1.49 for men and there is no difference in age for women. In 1997, 93% were male and 7% were female; in our study population 85% are male and 15% are female. Of the radiologists we sent the questionnaire, 85% were male and 15% were female.

These differences can be due to demographic shifts. However, based on the non-response analysis, there might have been a slight over representation of female medical specialists in our sample, primarily for surgeons.

#### 3.2. Examining reported reasons

Three questions were asked to collect reported reasons for working part-time, working full-time and for being willing to work part-time ([Appendix A](#)). Respondents were asked to mark the importance of each reason, given in the questionnaire, for their choice to work part-time or full-time, and for being willing to work part-time.

#### 3.3. Testing the explanatory model with multilevel analyses

Physicians working in the same hospital are similar with regard to hospital characteristics, and, within the same specialty, have similar partnership characteristics. For example, if one partner works in a partnership of five, the partners do so too. Therefore, there are similarities between physicians working in the same hospital and partnership. Their behavior is not independent and this should be taken into account. The data are hierarchical: individual specialists are nested within partnerships, and partnerships are nested within hospitals. Multilevel models are used to analyze hierarchical structured data [[19–21](#)]. Multilevel analysis is an extension of general linear models. For instance, logistic regression analysis allows us to estimate the relationship between part-time work and age in the study population, assuming that there is no partnership or hospital effect in addition to the characteristics of physicians. With multilevel analysis total variation in part-time work is separated into two parts: a part due to differences between physicians,

Table 1  
Characteristics of physicians and their organization

	Internist		Surgeon		Radiologist	
	Full-time ( <i>n</i> = 262)	Part-time ( <i>n</i> = 110)	Full-time ( <i>n</i> = 277)	Part-time ( <i>n</i> = 60)	Full-time ( <i>n</i> = 136)	Part-time ( <i>n</i> = 53)
Male <sup>a</sup>	232 (89%)	55 (50%)	262 (95%)	43 (72%)	130 (96%)	31 (60%)
Age <sup>b</sup>	48.8 (7.0)	47.7 (7.7)	49.6 (7.7)	49.8 (8.6)	49.0 (7.1)	49.9 (8.1)
FTE <sup>b</sup>	1.0	0.76 (0.16)	1.0	0.75 (0.16)	1.0	0.72 (0.14)
Partnership size <sup>b</sup>	9.1 (5.7)	9.1 (5.8)	7.6 (4.5)	6.6 (4.4)	6.3 (5.1)	5.9 (4.9)
Having a spouse <sup>a</sup>	244 (96%)	91 (88%)	254 (97%)	52 (87%)	127 (97%)	46 (92%)
Children (0–4) <sup>a</sup>	40 (22%)	36 (49%)	50 (45%)	27 (56%)	25 (47%)	12 (71%)
Children (5–12) <sup>a</sup>	95 (49%)	46 (55%)	85 (63%)	20 (65%)	49 (73%)	20 (87%)

<sup>a</sup> Absolute numbers, and percentage based on the number of respondents who answered the question in parentheses, missing values are left out.

<sup>b</sup> Standard deviation in parentheses.

and a part due to differences between hospitals. The partnership might also be considered a level between the physician and the hospital, but we modeled this differently. A variable for each specialty was added to the model, and was allowed to vary between hospitals. This was done to compare the specialties within one statistical model. The partnership is now defined as all medical specialists with the same specialty working in the same hospital. The response variable in our model is dichotomous; a specialist either works part-time or not. Therefore, we created a multilevel logistic regression model, which is described in [Appendix B](#). For the analyses, the MLwiN software package was used [22]. A description of the data can be found in [Table 1](#).

## 4. Results

### 4.1. Reported reasons

There were no differences between specialties in the reasons stated in a questionnaire for working full-time or part-time. Because of this we will report the results for surgeons, internists and radiologists together.

#### 4.1.1. Why are some medical specialists working part-time, while others are not working part-time? What are their reported reasons?

There are medical specialists working part-time (*N* = 223), and medical specialists working full-time who are willing to work part-time (*N* = 444).

We found that the reasons for working part-time reported by those who work part-time and those who are willing to work part-time are similar. Both report family and leisure pursuits as important reasons for working part-time or being willing to do so ([Figs. 2 and 3](#)). The reasons for *not* working part-time are similar for those who work full-time, and are not willing to work part-time and for specialists who work full-time but are willing to work part-time: efficiency and continuity of care play a role in the decision ([Figs. 4 and 5](#)). An interesting difference is that the percentages of full-time medical specialists who are willing to work part-time are lower for these items than the percentages of the full-time medical specialists who are not willing to work part-time, indicating that they value the items differently. These findings could imply that for medical specialists who are working part-time efficiency and continuity are of less importance. If this were true, we still do not know why this is the case for these specialists. Furthermore, the findings do not help us explain why some did manage to work part-time and others did not. Instead of asking for reasons we can search for explanations, which we did with the explanatory model based on (social) circumstances.

### 4.2. Explanatory model

#### 4.2.1. Why are some medical specialists working part-time, while others work full-time?

As a first step we examined the data. It was found that medical specialists working part-time are female, older, and have children below the age of five ([Table 2](#)).



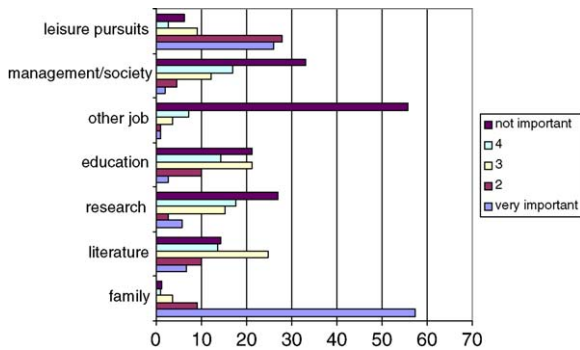


Fig. 2. Importance of a number of reasons for working part-time (for part-time medical specialists),  $N = 223$ .

Furthermore, it shows that there is significant variation between hospitals, meaning that in some hospitals part-time work is more common than in others. Medical specialists in larger partnerships do not work part-time more often than medical specialists in smaller partnerships (Table 2). Radiologists work part-time more often than surgeons, but not more often than internists (Table 2). Interaction effects in Table 2 show that the

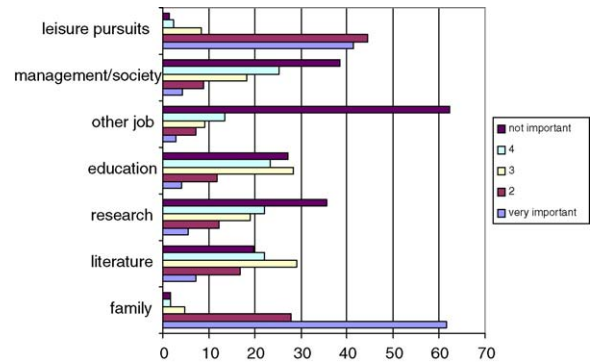


Fig. 3. Importance of a number of reasons for being willing to work part-time (for full-time specialists),  $N = 444$ .

effect for men and women in having young children is the same; both men and women work part-time more often with children below the age of five. For older children there is also no difference between men and women. The additional effect for women with children is the same as for men with children. In our model we did not find that having a spouse makes it more likely to work part-time, there is no significant effect, either

Table 2  
Working part-time: professional and personal differences

	Model 0 estimate	Full model estimate	Model with interaction effect estimate
Surgeon <sup>a</sup>	−1.90 (0.21)*	−1.73 (0.81)*	−1.73 (0.82)
Internist <sup>a</sup>	−0.94 (0.14)*	−1.20 (0.81)	−1.26 (0.83)
Radiologist <sup>a</sup>	−1.04 (0.20)*	−0.72 (0.81)	−0.72 (0.82)
Partnership size <sup>a</sup>		0.02(0.02)	0.02 (0.02)
Female <sup>a</sup>		3.32 (0.32)*	4.01 (0.87)*
Age			
43–49 <sup>a</sup>		1.00 (0.30)*	1.00 (0.29)*
50–55 <sup>a</sup>		0.65 (0.31)*	0.61 (0.31)
56–77 <sup>a</sup>		0.44 (0.31)	0.44 (0.31)
Spouse <sup>a</sup>		−1.44 (0.73)	−1.43 (0.74)
Children (0–4 years) <sup>a</sup>		0.68 (0.29)*	0.79 (0.34)*
Children (5–12 years) <sup>a</sup>		−0.68 (0.29)*	−0.74 (0.33)*
Women with children (0–4 years)			−0.62 (0.69)
Women with children (5–12 years)			−0.26 (0.87)
Hospital variance			
Surgeon <sup>a</sup>	1.85 (0.58)*	—	—
Internist <sup>a</sup>	0.93 (0.29)*	—	—
Radiologist <sup>a</sup>	1.30 (0.50)*	—	—
Residual variance <sup>a</sup>	0.73 (0.04)*	—	—

<sup>a</sup> Standard error in parentheses.

\*  $p < 0.05$ .

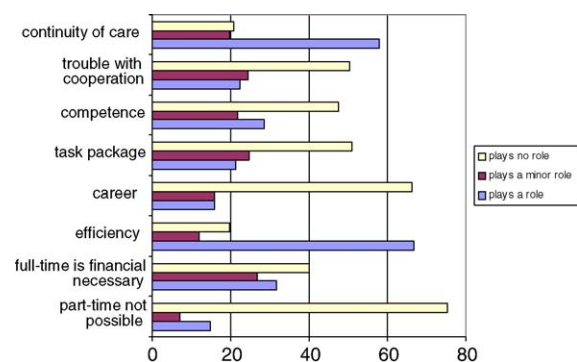


Fig. 4. Importance of a number of reasons for not working part-time (for full-time medical specialists who are not willing to work part-time),  $N=202$ .

for men or women. The interaction effect is not shown in Table 2, because a complete model could not be fitted. This is due to the fact that most medical specialists in our study have a spouse and there is a high correla-

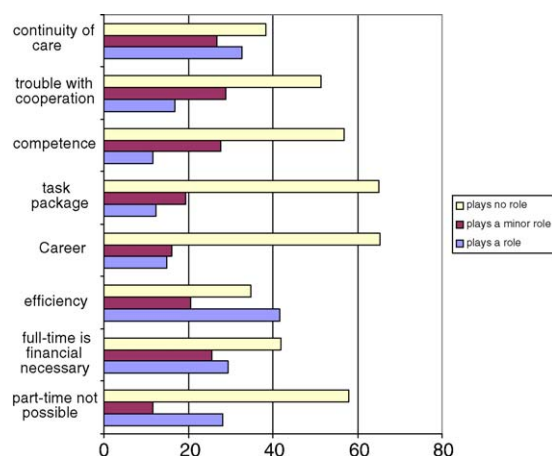


Fig. 5. Importance of a number of reasons for not working part-time (for those who are willing to work part-time),  $N=444$ .

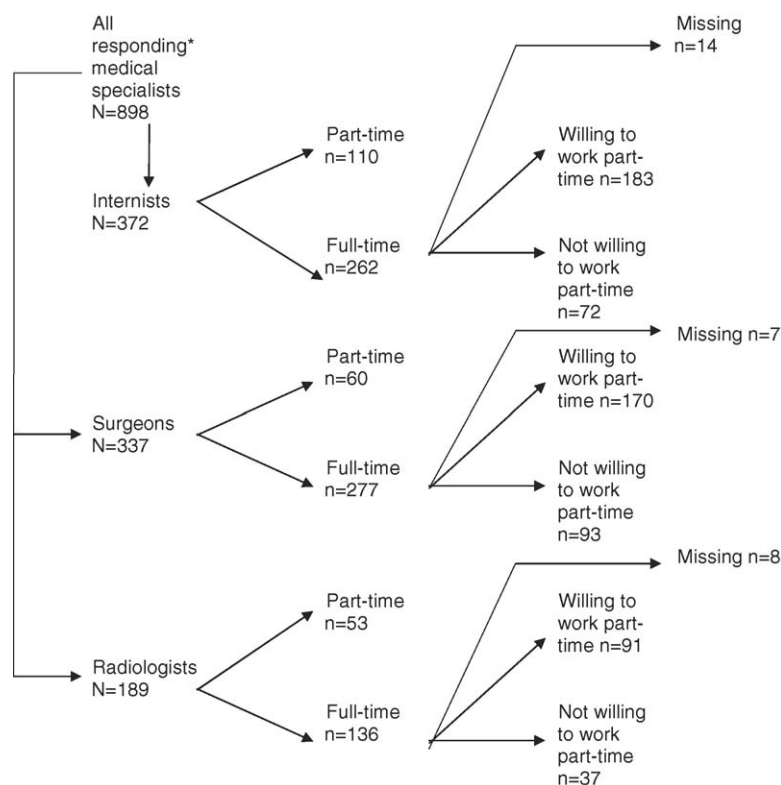


Fig. 6. Numbers of medical specialists. (\*) Only the responding medical specialists for whom it was known whether they worked full-time or part-time.



Table 3  
Willing to work part-time (for full-time working specialists): professional and personal differences

	Model 0 estimate	Full model estimate
Surgeon	0.58 (0.12) <sup>a,*</sup>	−0.39 (0.78)
Internist	0.86 (0.13) <sup>*</sup>	0.07 (0.79)
Radiologist	0.96 (0.22) <sup>*</sup>	−0.18 (0.83)
Partnership size	–	0.01 (0.02)
Female	–	1.38 (0.75)
Age		
43–49	–	−0.05 (0.29)
50–55	–	0.23 (0.32)
56–77	–	−0.08 (0.30)
Spouse	–	0.57 (0.73)
Children (0–4 years)	–	0.29 (0.29)
Children (5–12 years)	–	0.05 (0.27)
Hospital variance		
Surgeon	0.00 (0.00)	–
Internist	0.00 (0.00)	–
Radiologist	0.65 (0.56)	–
Residual variance	0.96 (0.06) <sup>*</sup>	–

<sup>a</sup> Standard error in parentheses.

<sup>\*</sup>  $p < 0.05$ .

tion between being female and being a woman with a spouse.

Why did some medical specialists manage to work part-time while others did not, although they were also willing to work part-time?

Of the full-time working specialists, 444 are willing to work part-time, as opposed to 202 respondents who do not want to work part-time (see Fig. 6). We added the same explanatory variables as in the model in the analyses in which we explained why some specialists are working part-time. This was done to be able to compare the effects, although variables that explain the realization of part-time work will probably differ from variables that explain the willingness to work part-time. It seems that the willingness to work part-time is not related to any of the explanatory variables (Table 3). Furthermore, willingness to work part-time seems to be purely individual, showing no hospital effect. We do not present the results of the model with interaction effects, because convergence could not be achieved. Separate analyses of the interaction variables, showed no significant effects.

## 5. Conclusion and discussion

In this article we used two approaches to answer the question why some medical specialists work part-time while others do not. First, we studied reported reasons. Since the reported reasons for working part-time or being willing to work part-time did not differ, we were not able to answer our question. Somehow, some medical specialists did manage to work part-time, while others did not, although they were willing to do so. In a second approach, we used a theoretical model based on (social) circumstances to explain why some medical specialists are working part-time while others are working full-time. We found that women, relatively older specialists, and specialists with children below five years of age work part-time more often. These findings are in line with studies on the total work force in The Netherlands as well as in other countries. Tijdens [23] described that in almost all industrialized countries women work part-time more often than men, and children influence working hours negatively for women and positively for men. The latter was not found in our study: children below the age of five show a statistically significant effect for both men and women; both men and women work part-time more often in these circumstances. This could imply that men and women with young children devote part of their time to child rearing. This is probably the result of a household with two incomes. Above the age of five when children go to school, having children is no longer a reason for working part-time.

In this article we chose to divide medical specialist into two groups: those who work part-time and those who work full-time. Using these terms suggests differences in working hours. These differences exist and are significant, but for medical specialists being self-employed in The Netherlands, part-time working still means working on average forty hours a week. Therefore, it could be argued whether this division is appropriate, or that it would be better to study actual working hours. We chose not to do the latter, because the medical specialists answered questions like why they are working full-time or part-time and we did not ask them why they are working the amount of hours they work. Changing the analysis for part of the article (where explanations are sought) while it cannot be changed in other parts (where the analysis is based on

questions like why one is working part-time) would make the article more complex and the conclusions more difficult to understand. Besides, we do not think that it is necessary; additional analyses showed that it would not make a difference for the conclusions drawn from this study.

Due to lack of up-to-date information, we were not able to give a strong argument that our sample is representative of all internists, surgeons and radiologists. Differences found by comparing to the available data from some years ago can be due to demographic shifts. However, based on the non-response analysis, there might have been a slight overrepresentation of female medical specialists in our sample, primarily for surgeons.

Based on our finding that women are working part-time more often we can expect an increase of part-time work in the future, because the percentage of women among medical specialists is increasing [24,25]. In The Netherlands 50–60% of all medical students are female. This trend can be found in other countries as well, e.g. UK, Australia, and the USA [12,26,11,27].

Surgeons were the least likely to work part-time. We might cautiously conclude that this is because it is not so easy to organize part-time work for this kind of specialty. Furthermore, male specialists work full-time more often; having a spouse makes no difference between the sexes. We expected that having a spouse would differ between men and women and that women would be more likely to work part-time, while men would be more likely to work full-time. The explanation for our finding may be that most medical specialists in our study have a spouse, women work part-time more often than men and it is hard to ascertain whether this relates to having a spouse. In general we can conclude that working part-time is related to both professional and personal circumstances.

Another question was whether the same goes for full-time working medical specialists who are willing to work part-time. The answer is no. Willingness to work part-time has nothing to do with circumstances, it is purely individual. It is likely that medical specialists are willing to work part-time, but there are no circumstances that make part-time working necessary. Still, they do report the same reasons: time for family and time for leisure pursuits are important for working part-time, and for being willing to

work part-time. What makes the difference between those who do and those who are willing to but do not work part-time? This brings us to discussing the relative importance of willingness and circumstances for the probability of working part-time. Could it be true that willingness to work part-time is only translated into actual part-time work under the right circumstances? The relative costs for working part-time are different, under different circumstances. For physicians who work full-time, but are willing to work part-time there are no circumstances that force them to work part-time. For those who already work part-time there are. It might be that the relative costs for physicians who work full-time are higher. For example, physicians who work part-time because they have children, reduce their childcare arrangements and costs. Accordingly, by working part-time they earn less, but they also spend less. For physicians who work full-time but are willing to work part-time there is no such situation. Besides, it is easier to do what is usual (working full-time); arranging a new situation (working part-time) incurs costs. It might be that those who are working full-time do not think it is worth the costs. Costs are not only a lower income but also, and possibly more importantly, organizational difficulties. Fouarge and Baaijens [6] observed that people in several sectors of the labor market hold back in realizing their preference for working less hours. They present several arguments for this: loss of income, fears for their career and the idea that working less is not possible in their position, and an unequal division of full-time and part-time jobs on the labor market. Besides, social norms and values like the generally accepted idea that women work part-time when having young children make part-time work for women easier to realize than for men.

Two lines of reasoning follow from our findings. Whether or not medical specialists work part-time is related to circumstances, but whether or not medical specialists are willing to work part-time is purely individual. Both can be addressed. Policy can be aimed at those circumstances and make it less important to work part-time. Although we can imagine that there is policy with regard to childcare, there are still other reasons, which we could not uncover, why women work part-time and these might be less easy to address. In any case, policy aimed at getting physicians to work full-time, does not act on the physicians who are willing

to work part-time, because this was not related to any of the characteristics. We distinguished both personal and organizational difficulties. Fouarge and Baaijens [6] found that for employees in several sectors of the labor market the hourly wage was an important predictor of the realization of a preference for working less hours. Employees are not willing to give up a high income for more leisure time, or employees with a high income are in such positions for which it is less easy to realize a decrease in working hours. This may also be true for medical specialists. However, one could wonder whether these kinds of obstacles should be addressed. On the other hand, policy could be aimed at removing the organizational difficulties that impede the realization of part-time work. This might increase the attractiveness of realizing part-time work. When working part-time becomes more attractive, the number of people willing to become and work as a physician could increase. Gjerberg [10,28,29] found that female physicians in Norway chose a field and position in which they could best balance their work and family commitments. Policy could be aimed at making it possible to

better be able to balance work and family in all specialties. To make effective policy it should be decided what the organizational difficulties are and how they can be addressed. For example structural barriers in the combination of childcare and hospital work should be addressed. Examples of organizational difficulties are meetings, night and weekend shifts, and continuity of care. Introducing part-time work might increase the complexity of the organization. Probably, the organization should change from informal to formal, with more rules and agreements, to make part-time work effective. Alternatively perhaps there should be a change in working hours for all medical specialists. The discussion about part-time work amongst medical specialists might be different from part-time work in other occupations, since part-time work often still amounts to some 40 h a week for medical specialists. This would be full-time in most other occupations. As a majority of all full-time working medical specialists is willing to work part-time, this might also indicate that most medical specialists actually prefer “normal” working hours.

## Appendix A

Questions asked in the questionnaire and used in this article.

1. Age ..... years
2. Gender ☐ male  
☐ female
3. How many fte and hours are you working every week?
4. Would you be prepared to work part-time in principle, despite a drop in income?  
☐ No  
☐ If no, what is your main reason for not wanting to work part time?  
☐ Yes
5. To what extent have the following factors had an impact on your choice to work full time as a surgeon /internist/medical radiologist?

	It has had an impact	It has had a slight impact	It has had no impact at all
In my organisation, part time jobs are not possible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A full time job is a financial necessity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can work more efficiently as a full timer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A part time job would harm my career at the moment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A part time job will lead to less interesting tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I will loose my skills and professional knowledge in a part time job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A part time job causes problems in the cooperation with my colleagues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can only guarantee continuity of care for patients in a full time job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. How important to you are the motives underneath to want a part time job?

	Very important				Not at all important
More time for family and family life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More time for professional literature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More time for research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extra time for supplementary study and further training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More time for my other job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More time for administrative tasks / working in leisure clubs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More time for sport, hobby and relaxing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other motives, i.e. ....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. If you have always preferred a part time job, how important to you are the motives underneath?

Very important

Not at all  
important

More time for family and family life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More time for professional literature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More time for research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extra time for supplementary study and further training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More time for my other job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More time for administrative tasks / working in leisure clubs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More time for sport, hobby and relaxing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other motives, i.e. ....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Do you have a spouse?

☐ No

☐ Yes

9. Do you have any children?

☐ No

Would you like to have children in the future?

☐ yes

☐ no

☐ I don't know

☐ Yes,

..... child(ren) aged 0-4

..... child(ren) aged 5-12

..... child(ren) aged 13-18

..... grown-up child(ren)

## Appendix B

The multilevel model.

$$\left. \begin{aligned} y_{ij} &\sim \text{Binomial}(n_{ij}, \pi_{ij}) \\ y_{ij} &= \pi_{ij} + e_{0ij}x_0^* \end{aligned} \right\}$$

$$\begin{aligned} \text{logit}(\pi_{ij}) &= \beta_{1j}x_{1ij} + \beta_{2j}x_{2ij} + \beta_{3j}x_{3ij} + \beta_{4j}x_{4ij} \\ &\quad + \beta_{5j}x_{5ij} + \beta_{6j}x_{6ij} + \beta_{7j}x_{7ij} \\ &\quad + \beta_{8j}x_{8ij} + \beta_{9j}x_{9ij} + \beta_{10j}x_{10ij} + \beta_{11j}x_{11ij} \end{aligned}$$

$$\beta_{1j} = \beta_1 + u_{1j}$$

$$\beta_{2j} = \beta_2 + u_{2j}$$

$$\beta_{3j} = \beta_3 + u_{3j}$$

$$\begin{bmatrix} u_{1j} \\ u_{2j} \\ u_{3j} \end{bmatrix} \sim N(0, \Omega_u) : \Omega_u = \begin{bmatrix} \sigma_{u1}^2 & & \\ \sigma_{u21}\sigma_{u2}^2 & \sigma_{u2}^2 & \\ \sigma_{u31}\sigma_{u32}\sigma_{u3}^2 & & \sigma_{u3}^2 \end{bmatrix}$$

$$x_0^* = x_0 \left[ \pi_{ij} \frac{1 - \pi_{ij}}{n_{ij}} \right]^{0.5}$$

$$[e_{0ij}] \sim (0, \Omega_e) : \Omega_e = [\sigma_{e0}^2]$$

Three means (probabilities or proportions) are measured: for surgeons ( $\beta_1$  in the equation); for internists ( $\beta_2$  in the equation); and for radiologists ( $\beta_3$  in the equation). The effects of the explanatory variables are given by:  $\beta_4$  partnership size (continuous),  $\beta_5$  female (dichotomous),  $\beta_6$  age (43–49) (dichotomous),  $\beta_7$  age (50–55) (dichotomous),  $\beta_8$  age (56–77) (dichotomous),  $\beta_9$  spouse (dichotomous),  $\beta_{10}$  children (0–4) (dichotomous),  $\beta_{11}$  children (5–12) (dichotomous). Furthermore, variance components are measured for the three specialties,  $\sigma_{u1}^2$ ,  $\sigma_{u2}^2$  and  $\sigma_{u3}^2$ . These components show the variance in the probability of part-time work between hospitals for surgeons,

internists and radiologists, respectively. The level one residual variance ( $\sigma_{\epsilon_0}^2$ ) is approximated by  $\pi^2/3$ , if the binomial assumption holds [20].

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