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Barriers for hiring personnel

What barriers do Dutch small-business owners perceive in the decision-making process with respect to the hiring of personnel?

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Abstract

The central question in this paper is how many small-business owners employ fewer personnel than they really need, and what factors can provide an explanation for this phenomenon. Data on more than 3000 Dutch small-business owners show that about 18% of them hire fewer personnel than needed.

To explain this phenomenon, two types of factors are taken into account, i.e. economic factors and socio-psychological factors. Most research up until now concentrated solely on the economic dimension, stressing the importance of time and money. This study examines whether factors such as the personality and attitudes of the business owner and the perceived cost of personnel by the business owner might explain the decision not to hire new personnel.

A structural model is introduced to estimate the effects of both factors on the decision-making process, taking into account relevant background characteristics, such as company size, age and the educational level of the business owner.

The most important conclusion in this paper is that perceived costs more readily explain the decision to hire new personnel than socio-psychological factors. The two factors cannot completely explain why personnel are not hired when needed. Other characteristics, such as education, company size, and business returns, are also important in this respect.

1 Introduction

Running a small enterprise is often hard work. It is well known that small-business owners generally have to work longer hours than the average employee in order to keep their businesses up and running. This poses the question why small-business owners do not ask for help by hiring employees. An obvious reason, of course, is the lack of money to take on extra staff, but this is not the only explanation.

It is assumed that small-business entrepreneurs perceive certain barriers in making the decision whether or not hire new employees. This means that a large number of small-business owners employ fewer personnel than possible. Thus, although business owners can financially afford to hire more employees, many of them choose not to do so.

Recent research in the Netherlands showed that about 27% of the new, starting enterprises felt the need for hiring new employees, but did not do so. (Elsendoorn & van der Hoeven, 1996). The same report states that about 22% of these companies mentioned the high labour costs as the main reason. 56% of the entrepreneurs stated the lack of skills of potential employees as the main reason for not hiring. Other less recent research states that returns are increasing in 37% of Dutch companies, while the number of employees remains unchanged. (Tillaart et al., 1981).

The main aim of this article is to investigate how many small-business owners indeed perceive certain barriers that prevent them from hiring new employees and to determine what these barriers are. Nevertheless, even when the cost of hiring personnel is in fact low, business owners might feel discouraged to hire employees because they have the idea that the cost incurred is high. The perceived costs and other beliefs of small-business owners are the point of interest in this paper, not the actual cost of hiring personnel.

2 Problem and hypotheses

2.1 Economic factors

As mentioned in the introduction, one obvious reason for not hiring new employees, even if there is enough work for extra employees, is the cost of hiring, keeping and firing personnel. In other words, if potential employers have the impression that the costs involving hiring employees are too high, they choose to work a little bit harder themselves. Examples of such costs are the time required to fill in all kinds of forms to administer new employees, the cost of employees when they get sick or become disabled, or the difficulty to dismiss employees if they do not live up to expectation.

Procedures to dismiss employees can be very costly and take a lot of the business owners' time. In order to avoid problems, employers have to state many reasons to prove that the employee does not function properly. However, most employers, especially in small businesses, think that they can cope with these kinds of conflicts by means of informal communication, and therefore refrain from documenting personnel records (Koch & van Straten, 1997). If a conflict between employer and employee increases and one of the parties goes to court, the judge is often unable to find sufficient reasons for dismissing the employee. As a consequence, the employer can either stick to the employment contract or buy out the employee.

Dutch regulations concerning sickness and employee disability have changed a couple of times during the past few years. Since January 1998, employers are obliged to pay at least 70% of the employees' original wage for 52 weeks. In case one or more employees are disabled, the premium rates for the employer increase. Many of the risks which employers are responsible for (such as sports injuries) are beyond their control (RMK, 1998). In the Netherlands, there is no difference between 'risqué social' and 'risqué professional' where health insurance is concerned.

In summary, there are several objective reasons why small-business owners might perceive barriers with regard to hiring personnel. Business owners have to administer new personnel, rules for dismissing personnel if they do not function properly are very strict, and regulations concerning the sickness and disability of personnel in the Netherlands can be very costly for employers. In

this paper I will refer to these types of barriers as the *economic factors* which are related to the willingness to hire personnel.

The first hypothesis to be tested in this article, based on the above-mentioned arguments, reads as follows:

- *Opinions of small-business owners with respect to formal rules and costs involved in hiring personnel (perceived costs) will have a negative effect on the likelihood of hiring new personnel.*

2.2 Socio-psychological factors

A second type of barrier to hiring personnel is perhaps not so obvious, but is expected to be as important as the economic factors. These barriers are related to the personality and attitudes of the entrepreneurs.

An entrepreneur needs to have confidence in his personnel, in such a way that he knows that the work his personnel is doing is carried out in a proper manner. If the entrepreneur feels a structural suspicion towards other people, especially people with backgrounds different than his own, the decision to hire new personnel will be negatively affected.

In the socio-psychological and sociological literature, the phenomenon of having a positive attitude towards 'ingroups' and a negative attitude towards 'outgroups' is known as ethnocentrism. Outgroups can be defined as people with different beliefs, different political preferences, different life-styles, etc.

One of the most important roots of ethnocentrism is so-called authoritarianism. Members of the 'Frankfurter Schule' developed a measurement instrument for authoritarianism in the 1920s and 1930s. Fromm (1929, 1983) and Horkheimer (1936) developed the concept of the Authoritarian Personality. In the 1950s Adorno et al. (1950, 1982) introduced the F-scale that measures authoritarianism.

In summary, Fromm and Adorno hypothesized that the authoritarian personality is attracted by conservatism and nationalism, because of their need to submit to, or identify with, authorities. To compensate for this submission, the authoritarian personality would have a negative and disdainful view towards other groups in society. Authoritarianism is seen as the main predictor of ethnocentrism (Eisinga & Scheepers, 1989).

In sociological theories a relationship is assumed between a person's socio-economic position and their personality (Eisinga &

Scheepers, 1989). More specifically, it is thought that authoritarianism is caused by feelings of status anxiety (insecurity about maintaining social status in the future) and status frustration (the idea of having succeeded in achieving status), which in turn are closely connected to the socio-economic position. Research has shown that of all social categories, small-business owners and farmers suffer the most from anxiety connected to their objective class position and feelings of status anxiety (Scheepers, Felling & Peters, 1990). More than others they depend on factors that cannot be controlled, such as government intervention on prices and wages.

If it is true that small-business owners more than others possess ethnocentric attitudes, it is to be expected that this explains a part of the decision not to hire personnel. Ethnocentric business owners are more likely to think that personnel cannot be trusted, that employees are generally lazy, that they cannot entirely commit themselves to the company, etc.

McGrath et al. (1992) found significant differences in value orientations between entrepreneurs and non-entrepreneurs. Entrepreneurs had high scores on three of Hofstede's cultural indicators (Hofstede, 1980), they had high power distance values, high individualism values, and a high degree of masculinity. High individualism scores imply a preference for individualistic rather than for collective action.

The second hypothesis to be tested in this article reads:

- *Beliefs of small-business owners concerning personnel and other people in general have a negative effect on the likelihood of hiring new personnel.*

2.3 Other effects on the decision-making process

The effects of economic and socio-psychological factors on the decision to hire new personnel might differ between certain business groups. It is likely that the smaller the company, the more likely it is that employers find it difficult to reach a decision to actually hire an employee. There are several reasons for this expectation. Firstly, the costs of hiring new personnel, and the costs of keeping them, are relatively lower for a company with 100 employees than for a company with no or just a few employees. Secondly, recent research suggests that a lot of entrepreneurs with small businesses do not feel the need to grow, and therefore are unlike-

ly to hire new personnel (Elsendoorn & van der Hoeven, 1996). Thirdly, many starting entrepreneurs have other priorities than finding suitable personnel. Only 8% of the starting entrepreneurs thought about this issue when preparing to establish their business. Making a business plan is a priority for 35% of the starters, and consulting an accountant for 31% (Brouwer et al., 1996).

These considerations lead to the third hypothesis to be tested:

- *The greater the company size the less likely it is that business owners perceive barriers for hiring new personnel.*

Another factor that might influence the decision to hire new personnel is the educational level of the entrepreneur. Sociological research has convincingly shown that people with a higher level of education tend to have more liberated and open ideas about other people and societal issues than people with a lower educational level (see for example: Inglehart, 1990; Selznick & Steinberg, 1969). The educational level of entrepreneurs is therefore expected to negatively affect perceived socio-psychological barriers, and to indirectly have a positive effect on the chances of hiring new personnel.

A second reason why educational level might have a positive effect on hiring new personnel is that higher educated people tend to have less difficulty in completing all the necessary paperwork and need to spend less time on the administration of their personnel than their colleagues with a lower educational level. Therefore, educational level will presumably reduce the perceived economic barriers for hiring personnel and, because of this, positively affect the chances of hiring new employees.

In summary, the following hypothesis concerning entrepreneur's educational level will be tested:

- *The higher the educational level of business owners the less likely it is that they perceive barriers for hiring new personnel.*

A third variable that might have some implications for the decision-making process of hiring personnel is the age of the business owner. Young business owners are less experienced in managing their business than their older colleagues. Because older business owners have more experience with personnel they might perceive fewer barriers than younger entrepreneurs, at least as far as economic barriers are concerned. Where the socio-psychological barriers are concerned, I do not expect differences between young and older business owners. The same expectation holds for the age of the company. The age of the company is certainly an indication of

the age of the business owner, although this is not always the case. In many cases, the company is older than the owner, for example when the company passed from father to son, or when somebody took over an existing company. In such cases the entrepreneur might be young, but still have the benefit of the experience accumulated in the company.

Therefore, where the age of the business owner and the age of the company are concerned, my hypothesis is as follows:

- *The older the business owner and the older the company the less likely it is that economic barriers for hiring new personnel are found.*

3 Research methods

3.1 Data

To test our hypotheses we use data on 3,006 Dutch entrepreneurs collected by EIM at the beginning of 1998¹. In selecting the respondents, two choices had to be made. One concerns the economic sector of the firm and the other concerns the company size. Because we expected the problem of 'fear for employees' to be the highest in small firms, only businesses with 0 to 50 employees were included in the sample.

The first companies taken from the sample were those which were expected to have problems with hiring personnel. We therefore selected eight sectors in which the quantity of work is relatively higher than the number of personnel and we then compared the productivity in certain sectors with other comparable sectors. This might not be the best measure, but it was the best one available. If companies hire fewer personnel than they could on the basis on their business returns, labour productivity increases. It is therefore assumed that businesses with a high level of productivity are more likely to have insufficient personnel. This is why eight sectors are selected in which the average level of productivity is relatively high. Of course, this does not mean that barriers for hiring personnel only appear in those sectors.

In choosing the company size, account was taken of the fact that smaller businesses probably perceive more barriers in hiring personnel than larger businesses. It is expected that these barriers will particularly be found in companies with no employees. We therefore made sure that the sample included a large number of companies with no employees. The reverse of this assumption is that larger companies probably perceive fewer barriers than smaller companies. Because of this assumption we did not approach companies with more than 50 employees.

These selections, based on sector and company size, do have a number of consequences for the external validity of the research presented here. For example, the number of companies with less than 50 companies in the food and retail sector is higher than in the industrial sector. In order to be able to generalize the research findings we weighted the data by sector and company size based

¹ The data used in the analyses here were collected for a research project called 'Angst voor Arbeid', commissioned by the Dutch Ministry of Economic Affairs.

on figures provided by the Netherlands Central Bureau of Statistics (CBS, 1993). Table 1 shows the number of respondents by sector and company size.

The interviews were held, using Computer Assisted Telephonic Interviews (CATI), in January 1998.

table 1 number of respondents by economic sector and company size (n=3006)

Sector	Company size					total
	0 employees	1-5 employees	6-10 employees	11-25 employees	26-50 employees	
Electrical engineering	99	102	63	34	13	311
Transport	3.3%	3.4%	2.1%	1.1%	0.4%	10.3%
Construction	130	113	59	43	18	363
	4.3%	3.8%	2.0%	1.4%	0.6%	12.1%
Wholesale	136	96	61	44	16	353
	4.5%	3.2%	2.0%	1.5%	0.5%	11.7%
Retail	129	95	59	43	13	339
	4.3%	3.2%	2.0%	1.4%	0.4%	11.3%
Telecommunications	60	214	64	18	17	373
	2.0%	7.1%	2.1%	0.6%	0.6%	12.4%
Architects-firms	215	96	43	28	11	393
Services	7.2%	3.2%	1.4%	0.9%	0.4%	13.1%
	235	109	47	20	4	415
	8.3%	3.6%	1.6%	0.7%	0.1%	13.8%
	251	144	46	18	0	459
	8.3%	4.8%	1.5%	0.6%	0%	15.3%
Total	1,255	969	442	248	92	3,006
	41.7%	32.2%	14.7%	8.3%	3.1%	100.0%

3.2 Variables

Two questions were asked in the questionnaire to find out how many business owners had not hired new personnel during the past three years, but had felt the need to do so. It is assumed that especially this group of entrepreneurs perceive barriers when making the decision whether or not to hire new employees. We first of all asked how many business owners had hired new personnel during the past three years. Of all companies, 54% had not hired any new personnel. The second question was whether or not the business owners with no personnel or those who said that they had not hired any new employees during the past three years felt the need to hire new employees. This variable will be used as the dependent variable in the analyses presented in this paper. There are two categories:

- 0 'no need for personnel, or hired personnel, during the past three years'
- 1 'needed new personnel, but did not hire new personnel during the past three years'.

Of the companies included, 18% stated that they did feel the need to hire new personnel but had not done so.

In order to test the hypotheses about the economic and socio-psychological barriers for hiring new personnel, the respondents were asked to give their opinion on 20 statements concerning personnel. These statements were given as Likert-type items, meaning that respondents could score on a five-point scale, ranging from (1) 'very much disagree' to (5) 'very much agree'. These 20 items are shown in table 2, together with the mean scores of the respondents. To avoid the possibility of a set response, a number of statements in the original questionnaire were reversed. The first 10 items have to do with more or less 'subjective' matters (prejudice, insecurity, group identity), while the items 11 to 20 are the more 'objective' items (regulations, costs, administration).

table 2 mean scores on twenty items concerning attitudes and beliefs about personnel for all companies (N=3006), and those who did require new personnel but had not hired any (N=541)

Item	mean score	personnel required, but not hired
1. I do not like working with other people at all	2.19	2.17
2. The unemployed are mostly lazy people who do not want to work	2.36	2.31
3. Employees care less about the company	2.37	2.46
4. If you give an employee an order you have to continually check whether it is carried out correctly	2.55	2.70
5. Most people turn out badly when you get to know them better	2.62	2.73
6. I can't stand being together with a stranger in my company day after day	2.63	2.56
7. People who like to work as hard as I do are hard to find	2.99	3.15
8. The mentality of employees used to be much better	3.11	3.21
6. New personnel keeps the company dynamic*	3.34	3.38
9. You never know whether you hired the right person	3.63	3.58
10. Hiring new personnel takes too much time	2.69	2.72
11. The fun of having personnel cannot be compared to the trouble they bring	2.82	2.95
12. I am too busy to deal with the recruitment and selection of personnel	2.89	2.86
13. The costs of recruiting new personnel cannot outweigh the benefits	3.12	3.18
14. If there were fewer rules I would hire more personnel	3.13	3.53
15. After employees are given a permanent contract they become ill more often	3.18	3.22
16. Personnel are too expensive nowadays	3.52	3.60
17. The government is not doing a great deal to make the recruitment of personnel attractive	3.56	3.74
18. When you hire personnel you have to comply with too many rules and laws	3.77	4.04
19. The financial risk of an employee becoming disabled or sick for a long period is very high	4.01	4.19

* This item is coded in the reverse direction, compared to the other items.

The second column in Table 2 shows the mean score of all business owners in the dataset, the third column shows the mean scores of those business owners who said that they did require new personnel, but had not hired them. With a few exceptions, the mean scores of the latter group are higher than those of all companies together. This indicates that our assumption about this group is correct. Business owners who had not hired new personnel, but did require them, perceive or believe that there are more barriers than those owners who had hired new personnel.

On average, the scores for all respondents on the 'subjective' items are lower than those on the 'objective' items. Of the 'objective' items, the financial risks of employees becoming disabled or sick for a long period of time, and the number of rules and laws employers have to comply with, are seen as the most important factors for not hiring new personnel (4.01 and 3.77 respectively). The uncertainty about whether or not the right person is hired is the most important 'subjective' item (3.63). The group of business owners who had not hired any new personnel during the last three years, but who did feel the need to do so, scores significantly higher on the item indicating that less rules would lead to an increased willingness to hire new employees than the average business owner (3.13 versus 3.53).

Because our hypotheses concerns two dimensions, economic and socio-psychological, we used factor analysis on the twenty Likert-type items. The factor analysis clearly revealed the two factors as expected. However, the factor-loadings of some items were too low to keep them in the analysis. Items with factor-loadings below .40 have been omitted. Table 3 shows the factor-loadings of each item (after deleting the low loading items) on their respective factor.

Both factors consist of 7 items loading higher than .40. The correlation of .37 between the two factors is acceptable, and is lower than the correlation between the items and the scale. A reliability analysis on the two factors revealed a Cronbach's alpha of .69 for both the socio-psychological and the economic factor. The factor scores are saved and used as indices in the analyses described below.

In the analyses described in this paper, the following variables will be used as control and background variables in order to explain the perceived barriers:

- Age of business owner: from 19 to 82;
- Age of company: from 0 to 59;
- Educational level, from: 1 'elementary school not finished' to 10 'postgraduate education';

- Gender: 0 'male', 1 'female';
- Business returns: 1 'negative', 2 'equal over time', 3 'positive';
- Company size: from 0 to 50 employees.

The dependent variable in the analyses is the question whether personnel were hired, or needed but not hired during the past three years, ranging from 0 'no need for personnel, or hired new personnel' to 1 'needed new personnel, but did not hire new personnel'. In the next paragraph I will explain how these variables will be used to estimate the effects on the two factors and on the decision to hire new personnel. Appendix A shows the correlations between the variables used in the analysis presented below.

table 3 factor loadings on economic and socio-psychological factors*

Items	socio-psychological barriers	economic barriers
• You never know whether you hired the right person	.430	
• The mentality of employees used to be much better	.702	
• Most people turn out badly when you get to know them better	.694	
• If you give an employee an order you have to continually check whether it is carried out correctly	.605	
• People who like to work as hard as I do are hard to find	.596	
• The unemployed are mostly lazy people, who do not want to work	.452	
• Employees care less about the company	.647	
• When you hire personnel you must comply with too many rules and laws		.585
• The financial risks of someone becoming disabled or sick for a long time are very high		.571
• The costs of recruiting new personnel cannot outweigh the benefits		.548
• After employees are given a permanent contract they become ill more often		.570
• The fun of having personnel cannot be compared to the trouble they bring		.675
• If there were fewer rules I would hire more personnel		.566
• Personnel is too expensive nowadays		.617
Cronbach's α	.691	.690

* Oblique rotation, $r = .367$.

3.3 Structural model

The final analysis of this paper concerns the question of the extent to which the economic and socio-psychological factor explains the decision to hire new personnel. For this purpose, a LISREL model (**L**inear **S**tructural **REL**ations model) will be used. For more information about this type of analysis reference is made to the literature on these models.¹

The model to be estimated is shown in Figure 1. The model consists of three parts.

1 See for example, Jöreskog & Sörbom (1993), Bollen (1989) or for a basic introduction Duncan (1975).

1. The independent variables or indicators (X_1 to X_6) are shown on the right-hand side of the model. These variables are used to explain the two intervening variables, and to control for the effects of the two factors on the need for employees variable.
2. The indices for the economic and socio-psychological barriers (η_1 and η_2) are shown in the middle of the model. These two variables are expected to explain a great deal, if not all of the direct effects of the indicators on the right-hand side of the model.
3. The dependent variable (η_3), the need for new personnel but not hiring them. This variable is shown on the left-hand side of the model.

To correct for measurement error in the two indices (η_1 and η_2), the effects of the two indices (λy_1 and λy_2) are fixed to the value of the root of Cronbach's α of the relevant scale (Verschuren, 1991: pp. 512-514).

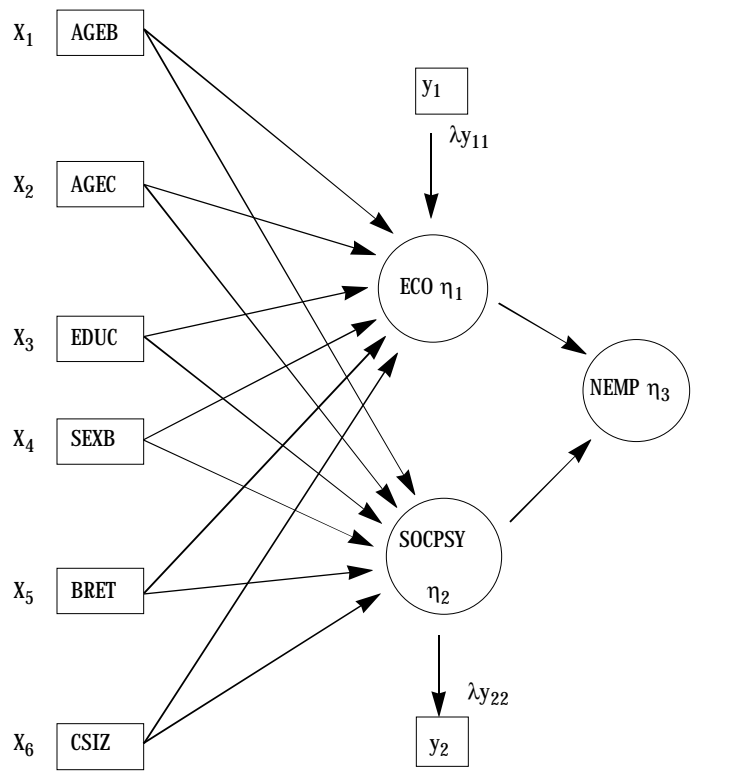
Based on the theoretical considerations earlier in this paper, we have the following expectations concerning the parameter estimates in the LISREL model.

1. *Economic and socio-psychological factors* have a positive effect on the need for employees variable.
2. *Educational level* of the business owner has a negative effect on both the economic and socio-psychological factor, and indirectly (and perhaps directly) a negative effect on the need for employees variable.
3. *Company size* will have a negative effect on the economic and socio-psychological factor, and therefore indirectly a negative effect on the need for employees variable.
4. *Age of the business owner, age of the company, and the business returns* will have a negative effect on the economic factor.

Another analysis in this paper concerns differences in the effects of the variables in the LISREL model for varying company sizes. Our third hypothesis stated that the larger the company the less likely it is that the business owner perceives barriers for hiring new personnel. In the LISREL model the effect of company size on both indices will give an indication whether this hypothesis holds. However, comparing different size groups will show how much the estimates differ between groups. For this analysis I will make use of the LISREL multi-group option (Jöreskog & Sörbom, 1993), and divide the data into three company size groups:

1. Companies with no employees (N= 1235)
2. Companies with 1 to 10 employees (N= 1410)
3. Companies with 11 to 50 employees (N= 342).

figure 1 LISREL model to estimate the effects of economic and socio-psychological effects on the decision to hire new personnel



AGEB = Age of business owner, AGECE = Age of company, EDUC = Educational level of business owner, SEXB = Gender of business owner, BRET = Business returns, CSIZ = Company size, ECO = Economic barriers, SOCPSY = Socio-psychological barriers, NEMP = Need for employees.

The multi-group option in LISREL makes it possible to see whether differences in the size of the parameter estimates between groups are real differences, i.e. whether they are statistically significant. For this purpose, Chi-square tests will be performed for all parameters in the model.

The final analysis in this paper is a multi-group analysis by economic sector. The LISREL model will be estimated for the eight sectors used in this paper. Chi-square tests will also be performed to test whether differences between sectors are statistical differences. Although no straightforward hypotheses have been mentioned with respect to differences in the effects of economic and socio-psychological barriers on not hiring personnel when needed between sectors, I think it is worthwhile to examine this.

4 Results

4.1 The LISREL model

The estimates of the parameters in the LISREL model, as shown in Figure 1, are presented in Table 4. The table only shows the statistically significant effects, and the coefficients are the standardized effects for reasons of comparability.

table 4 the effects of economic and socio-psychological factors on the decision to hire new personnel (N=3006, $\chi^2 = 12.4$, df. = 5).*

	economic barriers	socio-psychological barriers	personnel required, but not hired
Age			-.13
Age of company	.05	.06	
Educational level	-.12	-.18	.08
Gender	-.06		-.07
Business returns	-.06	-.10	.09
Company size	-.07		.04
Economic barriers			.18
Socio-psychological barriers			.04 ^{ns}
ψ	.97	.94	.93

* Insignificant estimates ($p < .05$) not in table, except for effect of socio-psychological barriers.

The final model, as shown in Table 4, fits quite well with the data, χ^2 is 12.40 with 5 degrees of freedom. A closer examination of the parameters gave no indication that other parameters should be removed from the model.

The most important conclusion based on these numbers is that the effect of economic factors on the need for personnel but not hire new personnel is much higher than the effect of the socio-psychological factors (.18 vs .04). The effect of socio-psychological factors on the need to hire new personnel but did not do so is statistically insignificant. This suggests that the first hypothesis, with respect to the effects of economic barriers on the decision to hire new personnel, does hold, while the second hypothesis, about the effects of socio-psychological factors, does not.

The age effect in the model (-.13) on the personnel required variable indicates that older business owners feel less inhibited from hiring new personnel than their younger colleagues. Age has no significant effects on the two intervening variables in the model.

In contrast to the age effect, the age of the company has no direct effect on the decision to hire new personnel, but only indirect effects via the economic and socio-psychological factors. The effects on both factors are not very high (.05 and .06), but they do suggest that the older the company the more barriers are perceived with respect to personnel.

The hypothesis concerning the age effects on the economic barriers is partly confirmed by the data. As predicted, the business owner's age has no effect on the economic factor, but the age of the company does have a small, but significant effect on both factors.

Where the educational level of the business owner is concerned, it was assumed that the higher the educational level the fewer the barriers perceived for hiring new personnel. The negative effects of educational level on the two factors confirm this hypothesis. The effect of education on the socio-psychological factor is higher (-.18) than on the economic factor (-.12). This means that higher education reduces prejudice towards personnel and promotes a more open view towards other people. To a lesser extent, higher educational levels reduce the feeling for economic barriers.

Contrary to the expectation formulated earlier in this paper, the direct effect of educational level on the personnel required variable is significantly positive. This means that the higher the educational level of the business owner the more the case that personnel is required but not hired. How can this be explained? There are several explanations for this effect. Firstly, more highly-educated business owners perhaps think they can manage their employee problems themselves. Secondly, they might have better connections, which makes it possible to put out the work to others. And thirdly, more highly-educated entrepreneurs may perceive certain barriers which are not measured in this paper.

The gender of the business owner is a variable for which no expectations have been formulated, but this factor is included in the model because more and more women are starting their own businesses. Gender has a negative effect on the economic factor and no significant effect on the socio-psychological factor. Thus there are no differences between male and female business owners with respect to socio-psychological barriers, but women seem to perceive rather more economic barriers than men. Women are also more likely not to hire new personnel when required than men, this being indicated by the direct negative effect (-.07).

As expected, the business returns have a positive effect on the personnel required variable. This is simply because the higher the business returns, the more likely it is that more personnel is needed, which in turn increases the likelihood that certain barriers are perceived. The effects of the business returns are negative on both factors (-.06 and -.10). Thus, the higher the business returns the less economic and socio-psychological barriers intervene in the decision to hire new personnel.

The final variable in the model to be discussed is the size of the company. It was hypothesized that the larger the company the fewer the barriers for hiring new personnel. This hypothesis is partly confirmed by the data. Company size has a negative effect on economic barriers (-.07), but no significant effect on socio-psychological barriers. In contrast to the expectation, company size positively affects the personnel-required variable. Although it is a small effect (.04), it is just statistically significant.

Overall, the model suggests that economic factors are much more important than socio-psychological factors in deciding whether or not to hire new personnel. This is confirmed by the information in Table 5 in which the effects in the model are divided into indirect and total effects. The indirect effect of, for example, educational level on the personnel required variable via the economic factor is $(.12 * .18) = .022$. The total effect of educational level on the personnel required variable is $(.12 * .18) + (.18 * .04) + .08 = .109$. Of the total effect of educational level on the need for personnel but not hired, 20% $(.022 / .109)$ is explained by the economic factor, while the socio-psychological factor explains 6% of the total effect of educational level. Table 5 shows that for all background variables the economic factor explains more of the total effect than the socio-psychological factor (except for age that has no indirect effects). However, large direct effects remain for most variables; the two factors together explain 26% of the total effect of educational level on the personnel required variable. 74% of the total effect cannot be explained by the two factors and is the direct effect of educational level.

table 5 total and indirect effects of background variables on employees required variable (see also Table 4)

	Indirect effect via economic factor		Indirect effect via socio-psychological factor		total effect on employees required variable	
Age	.000	(0%)	.000	(0%)	.130	(100%)
Age company	.009	(82%)	.002	(18%)	.011	(100%)
Educational level	.022	(20%)	.007	(6%)	.109	(100%)
Gender	.011	(14%)	.000	(0%)	.081	(100%)
Business returns	.011	(10%)	.004	(4%)	.105	(100%)
Company size	.013	(25%)	.000	(0%)	.053	(100%)

4.2 Multi-group analysis by company size

The final analysis in this paper concerns differences between company size groups in the effects of economic and socio-psychological barriers for hiring new personnel. I expect that the larger the company the fewer barriers are to be found. In Table 6 the parameter estimates are presented of the LISREL model for the three company size groups. Based on the hypothesis concerning company size, I expect the effects of both factors to decrease as company size increases. For economic barriers this is indeed the case; the effect of economic factors on the personnel required variable decreases from .21 in the group with no employees to .11 in the group with 1 to 10 employees, and finally to .01 (not significant) in the group with 11 to 50 employees.

Surprisingly, for the effects of the socio-psychological factor the direction over the size groups is opposite to that of the economic factor. As the company size increases the effect of socio-psychological factors increases. In the group with no employees the socio-psychological factor has no effect on the personnel required variable. In the group with 1 to 10 employees, the effect increased to a significant .09, and in the group with 11 to 50 employees, the effect became very large, .52. A close examination of the correlation matrix of this group (see Appendix 1) shows that the bivariate correlation between the socio-psychological factor and the personnel required variable is also fairly high: .45, compared to lower than .10 in the first two groups. Thus, while the effect of economic barriers decrease as company size grows, the effect of socio-psychological factors increases.

Other notable differences between the three size groups are:

- The effect of age on the personnel required variable. This effect is much stronger in the group with 11 to 50 employees (-.35) than in the two other groups (-.12 and -.13).

- The effect of educational level on the economic factor is stronger in the most sizeable group (-.24), while the effects are almost equal in the other two groups (-.09 and -.12). The direct effect of educational level on the personnel required variable increases with company size (from .05 to .12 and .15 in the last group).
- In the group with no personnel, females are more often tempted not to hire new employees even when they are needed (-.08), in the group with 11 to 50 employees the reverse is the case: men are more often tempted not to hire new employees when they need them (.23). A probable cause for this effect is that only 39 women are found in the group with 11 to 50 employees.

The question remains whether the differences in the effects between the company size groups are statistically significant. To test for differences between groups, the LISREL multi-group option offers the possibility of performing χ^2 tests. Appendix II shows the results of this test. I begin with the model in which all parameters have been equalized between groups. This leads to a χ^2 of 254.69 with 42 degrees of freedom (df.). Freeing the effect of the economic factor on required personnel leads to a χ^2 of 248.61 with df. = 40, the difference in $\chi^2 = 6.08$ with df. = 2. This means that freeing this effect leads to a statistically significant improvement of the model. Freeing the effect of socio-psychological barriers also leads to a significant improvement of the model (χ^2 difference is 58.51, df. = 2). Thus the effects of both factors differs significantly between the three size groups.

The differences mentioned in the effects of age, educational level and gender between the three groups turn out to be significant differences. For an overview of the χ^2 -differences, I refer to Appendix II.

table 6 the effects of economic and socio-psychological factors on the decision to hire personnel for three company size groups

0 employees	economic barriers	socio-psychological barriers	personnel required, but not hired
Age	-.06 ~	-.05	-.12 *~
Age company	.08 *	.14 *~	.02 ~
Educational level	-.09 *~	-.23 *~	.05 ~
Gender	-.10 *	-.09 *~	-.08 *~
Business returns	-.07 *	-.06 *	.08 *
Economic barriers			.21 *~
Socio-psychological barriers			.00 ~
ψ	.97	.91	.93 ~
1 to 10 employees	economic barriers	socio-psychological barriers	personnel required, but not hired
Age	.00 ~	-.04	-.13 *~
Age company	.07 *	.06 ~	-.02 ~
Educational level	-.12 *~	-.14 *~	.12 *~
Gender	-.03	.00 ~	-.02 ~
Business returns	-.08 *	-.12 *	.12 *
Economic barriers			.11 *~
Socio-psychological barriers			.09 *~
ψ	.97	.95	.93 ~
1 to 10 employees	economic barriers	socio-psychological barriers	personnel required, but not hired
Age	-.12 *~	-.02	-.35 *~
Age company	.05	-.01 ~	-.16 *~
Educational level	-.24 *~	-.23 *~	.15 *~
Gender	-.13 *	.01 ~	.23 *~
Business returns	-.01	-.08	.11 *
Economic barriers			.01 ~
Socio-psychological barriers			.52 *~
ψ	.92	.94	.44 ~

* = statistically significant ($p > .05$), ~ = parameter estimate differs significantly between groups ($p > .05$).

4.3 Multi-group analysis by sector

The use of LISREL's multi-group option for the eight sectors used in this paper gives us an idea of differences in the effects of the background variables and the two barriers on not hiring personnel when they are needed. Table 7 shows the results of the multi-group analysis by sector.

First of all, we see that the effects of almost all variables in the model, with the exception of business returns and company size

on the need for personnel variable, differ significantly between the sectors (for an overview of the Chi-square tests see Appendix III). The only other parameter estimates that differ significantly between sectors are the effects of the age of the company on the economic barriers (χ^2 -difference = 24.11, df= 7) and of the business returns on the socio-psychological barriers (χ^2 -difference = 14.93, df= 7).

The economic barriers have a positive effect on not hiring personnel when needed. Thus, these economic barriers are perceived in every sector by business owners. Beliefs about economic barriers have a considerable effect on the decision to hire personnel, especially for business owners in the wholesale sector. In the construction, retail and telecommunications sectors, the effect of economic barriers is statistically insignificant. In the other sectors, the effects of economic barriers are relatively high (between .19 and .31).

Socio-psychological barriers have lower effects on not hiring new personnel when needed than the economic barriers in all sectors. The effect is only significant in three of the eight sectors, i.e. transportation, retail and services. The significant effects range from .10 (services) to .14 (retail). This is in line with the earlier finding in the general LISREL model, where the socio-psychological barriers had no significant effect on not hiring personnel when needed. Although the effect of these barriers is significant in some sectors, these effects are fairly low overall.

Age has negative effects on not hiring personnel when needed, indicating that the older the business owner the less likely it is that he will hire personnel when needed. This is especially the case in architects firms (-.26) and the construction sector (-.23). In the electrical engineering sector, the wholesale sector and the service sector age has no significant effects on hiring personnel when needed. In the transportation sector business owners are less likely to hire new personnel in older companies (-.17).

The educational level of the business owner has no significant effects on the need for personnel variable in the service sector and in the telecommunications, construction and electrical engineering sectors. This means that in these sectors the educational level of business owners has no effect on hiring personnel when needed. In architects firms (.11), the transportation (.14)-, wholesale (.16)- and retail sectors (.16) more highly-educated business owners are less likely to hire new personnel when needed.

In the effect of gender on the decision to hire new personnel when needed, there are some major differences between the sectors. The effects range from -.19 in the electrical engineering sector to .15 in architects firms. This suggests that female business owners in architects firms are more likely to hire new personnel when needed than male business owners. In the electrical engineering sector, the retail sector and the service sector the reverse is the case.

table 7 the effects on not hiring new personnel for eight sectors

	economic barriers	socio-psychological barriers	personnel required, but not hired
Age			
• Electrical engineering	-.15*	-.03	<u>-.06</u>
• Transportation	-.07	-.13*	<u>-.14*</u>
• Construction	.00	.03	<u>-.23*</u>
• Wholesale	-.12	-.09	<u>-.06</u>
• Retail	.10	.02	<u>-.18*</u>
• Telecommunications	.00	-.04	<u>-.14*</u>
• Architects firms	-.02	.02	<u>-.26*</u>
• Services	-.04	.10	<u>-.05</u>
Age company			
• Electrical engineering	<u>.20*</u>	.14*	<u>-.03</u>
• Transportation	<u>-.05</u>	.19*	<u>.17*</u>
• Construction	<u>.02</u>	.00	<u>.10</u>
• Wholesale	<u>.14*</u>	.07	<u>.01</u>
• Retail	<u>.03</u>	-.02	<u>-.03</u>
• Telecommunications	<u>.07</u>	.11*	<u>-.08</u>
• Architects firms	<u>.01</u>	.14*	<u>-.01</u>
• Services	<u>.15*</u>	.00	<u>-.09</u>
Educational level			
• Electrical engineering	-.11	-.19*	<u>.10</u>
• Transportation	-.07	-.11*	<u>.14*</u>
• Construction	-.05	-.10	<u>.06</u>
• Wholesale	-.05	-.21*	<u>.16*</u>
• Retail	-.09	-.06	<u>.16*</u>
• Telecommunications	-.22*	-.22*	<u>-.05</u>
• Architects firms	-.10*	-.18*	<u>.11*</u>
• Services	.03	-.08	<u>-.01</u>
Gender			
• Electrical engineering	-.05	.05	<u>-.19*</u>
• Transportation	.00	-.02	<u>.07</u>
• Construction	-.01	.00	<u>-.09</u>
• Wholesale	-.15*	-.05	<u>.07</u>
• Retail	.02	-.04	<u>-.11*</u>
• Telecommunications	-.05	-.08	<u>.06</u>
• Architects firms	-.08	-.07	<u>.15*</u>
• Services	-.14*	-.05	<u>-.12*</u>

table 7 the effects on not hiring new personnel for eight sectors (continued)

	economic barriers	socio-psychological barriers	personnel required, but not hired
Business returns			
• Electrical engineering	-.01	<u>.03</u>	.01
• Transportation	-.12*	<u>-.06</u>	.17*
• Construction	-.07	<u>-.03</u>	.02
• Wholesale	-.02	<u>-.17*</u>	.15*
• Retail	-.08	<u>-.22*</u>	.03
• Telecommunications	.02	<u>.05</u>	.12*
• Architects firms	.00	<u>.04</u>	.06
• Services	-.15*	<u>-.12*</u>	.01
Company size			
• Electrical engineering	-.20*	-.09	-.05
• Transportation	-.13*	-.10	.05
• Construction	-.10	-.03	.04
• Wholesale	-.05	-.02	-.04
• Retail	-.01	-.07	.04
• Telecommunications	-.07	-.04	.05
• Architects firms	-.17*	-.07	.18*
• Services	-.03	-.03	.06
Economic barriers			
• Electrical engineering			<u>.21*</u>
• Transportation			<u>.23*</u>
• Construction			<u>.10</u>
• Wholesale			<u>.31*</u>
• Retail			<u>.08</u>
• Telecommunications			<u>.09</u>
• Architects firms			<u>.23*</u>
• Services			<u>.19*</u>
Socio-psychological barriers			
• Electrical engineering			<u>-.04</u>
• Transportation			<u>.12*</u>
• Construction			<u>.07</u>
• Wholesale			<u>-.01</u>
• Retail			<u>.14*</u>
• Telecommunications			<u>-.06</u>
• Architects firms			<u>.04</u>
• Services			<u>.10*</u>

Underlined estimates differ significant between sectors ($p < .05$).

* Statistically significant ($p < .05$).

5 Conclusions

In this paper, the beliefs of small-business owners with respect to the hiring of new personnel were investigated, together with their role in the decision to hire new personnel. The central question was if and why small-business owners hire fewer employees than they need.

I hypothesized that there are two kinds of barriers, economic and socio-psychological, which negatively influence the decision to hire new personnel. A factor analysis showed that these two factors can indeed be separated. The causal model presented in this paper, however, showed that the socio-psychological barriers are far less important than the beliefs concerning economic factors that control some background characteristics of the company and the business owner.

A third hypothesis tested in this paper concerned the size of the company. I hypothesized that the larger the company the fewer barriers would be perceived for hiring personnel. Company size is indeed negatively related to the 'economic' barriers, but it has no significant effect on the socio-psychological barriers. In contrast with the expectation, larger companies are rather more likely not to hire new personnel when they need them.

Using LISREL's multi-group option, differences in the parameter estimates were found between three company size groups. In line with the estimates found with the LISREL analysis mentioned above, the effect of economic barriers decreased by company size and even became insignificant in the group with 11 to 50 employees. The socio-psychological factor surprisingly showed an increasing effect with company size. This is, however, not in line with the effect of the company size on the socio-psychological factor in the general LISREL model.

The educational level of the business owner was expected to have a negative effect on both barriers and also to be negatively related to the chance that business owners need personnel but do not hire them. Educational level does indeed have strong negative effects on the barriers for hiring personnel, meaning that more highly-educated business owners perceive fewer barriers than other business owners. Very surprisingly, educational level has a positive direct effect on the need for personnel variable. An obvious reason for this result is that the data do not cover all the possible reasons

business owners may have to not hire new personnel when needed. Thus more highly-educated employers might perceive certain barriers in hiring new personnel, which are not like the barriers investigated in this paper.

A final hypothesis stated that the older the business owner and the older the company the less likely it is that barriers for hiring new personnel are found. The analyses revealed that older business owners are more likely to hire new personnel when needed than younger business owners. The two types of barriers could, however, not explain this relationship. The age of a company, on the other hand, only has indirect effects on the need for personnel variable through both factors. Overall, the hypotheses concerning age effects are confirmed by the analysis presented in this paper.

An analysis of the LISREL model by sector revealed that some differences in the effects of not hiring personnel when needed do exist between sectors. Economic barriers seemed to be important in the wholesale sector, but not in the construction, retail, and telecommunications sectors. Socio-psychological barriers were of less importance than the economic barriers in most sectors, but are relatively important in the retail and transportation sectors.

Overall, the analyses presented in this paper show that the beliefs of small-business owners with respect to hiring personnel do have negative effects on the chances of hiring employees. Nevertheless, the barriers measured in this paper do not fully explain why business owners hesitate to hire more personnel. Characteristics of the business owner and of the company itself also explain a great deal of this phenomenon.

Thus, beliefs of small-business owners concerning the costs, rules and laws and social security (perceived costs) are much more important barriers to hiring new personnel than ethnocentric attitudes and prejudice. Especially business owners without personnel perceive these barriers, more than business owners who already have some experience with employees. Economic barriers are found more often among less well-educated business owners, as well as those with no employees and who are older. Socio-psychological barriers are more often found among the less well-educated, young business owners, with personnel. Thus, even though business owners have experience with working with employees, they still might object to working with them.

For future research on barriers for hiring personnel, it would be interesting to compare the perceived costs by business owners

with the actual costs of hiring and firing personnel. If the discrepancy between the perceived and actual costs is known, it is possible to take policy measures in order to reduce this discrepancy, for example by informing business owners about the actual costs and profits of hiring personnel.

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Appendix I: Correlation matrices

Correlation matrix of variables to be analyzed in the general LISREL model

	1	2	3	4	5	6	7	8	9
1	1.000								
2	.174	1.000							
3	.071	.367	1.000						
4	-.134	.026	.030	1.000					
5	-.066	.075	.099	.541	1.000				
6	.065	-.133	-.202	-.003	-.105	1.000			
7	-.079	-.044	-.015	-.108	-.070	-.105	1.000		
8	.108	-.100	-.132	-.206	-.248	.123	-.036	1.000	
9	.059	-.085	-.049	-.013	.140	.070	-.179	.157	1.000

1 = Need for employees, 2 = Economic barrier, 3 = Socio-psychological barrier, 4 = Age of business owner, 5 = Age of company, 6 = Educational attainment of business owner, 7 = Gender of business owner, 8 = Business returns, 9 = Company size

Correlations for group with no employees (N=1235)

	1	2	3	4	5	6	7	8
1	1.000							
2	.349	1.000						
3	.206	.053	1.000					
4	.001	.031	-.120	1.000				
5	.079	.153	-.055	.519	1.000			
6	-.090	-.239	.044	.050	-.068	1.000		
7	-.083	-.059	-.093	-.116	-.040	-.136	1.000	
8	-.091	-.126	.093	-.236	-.358	.129	-.020	1.000

Correlations for group with 1 to 10 employees (N=1410)

	1	2	3	4	5	6	7	8
1	1.000							
2	.359	1.000						
3	.098	.084	1.000					
4	.060	.027	-.154	1.000				
5	.105	.087	-.114	.590	1.000			
6	-.133	-.163	.115	-.013	-.124	1.000		
7	-.022	-.009	-.022	-.114	-.069	-.078	1.000	
8	-.110	-.143	.143	-.200	-.224	.118	-.017	1.000

Correlations for group with 11 to 50 employees (N=342)

	1	2	3	4	5	6	7	8
1	1.000							
2	.431	1.000						
3	.169	.456	1.000					
4	-.037	.029	-.480	1.000				
5	.040	.049	-.350	.506	1.000			
6	-.236	-.227	.140	-.180	-.231	1.000		
7	-.123	.001	.257	-.094	.064	.026	1.000	
8	-.012	-.077	.147	-.111	-.156	.018	.032	1.000

1 = Need for employees, 2 = Economic barrier, 3 = Socio-psychological barrier, 4 = Age of business owner, 5 = Age of company, 6 = Educational attainment of business owner, 7 = Gender of business owner, 8 = Business returns.

Appendix II: Company size differences

Parameter value differences between companies with 0 employees, 1 to 10 employees, and 11 to 50 employees *

MODEL	χ^2	df.	χ^2 -difference
A. All equal	254.69	42	-
B. A + β_{31}	248.61	40	6.08
C. B + β_{32}	190.10	38	58.51
D. C + γ_{11}	185.78	36	4.32
E. D + γ_{13}	177.10	34	8.68
F. E + γ_{22}	172.50	32	4.60
G. F + γ_{23}	168.03	30	4.47
H. G + γ_{24}	162.70	28	5.33
I. H + γ_{31}	121.30	26	41.40
J. I + γ_{32}	115.35	24	5.95
K. J + γ_{33}	110.84	22	4.51
L. K + γ_{34}	83.24	20	27.60
M. L + ψ_{33}	14.57	18	68.67

* Only statistically significant differences ($p < .05$).

Appendix III: Sector differences

Parameter value differences between eight sectors*

MODEL	χ^2	df.	χ^2 -difference
A. All equal	271.86	168	-
B. A + β_{31}	257.34	161	14.52
C. B + β_{32}	239.88	154	17.46
D. C + γ_{12}	215.77	147	24.11
E. D + γ_{25}	199.80	140	14.93
F. E + γ_{31}	183.36	133	16.44
G. F + γ_{32}	169.19	126	14.17
H. G + γ_{33}	151.57	119	17.62
I. H + γ_{34}	111.95	112	39.62

* Only statistically significant differences ($p < .05$).

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