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Abstract

What is the effect of female role models on the labour force participation decision of women?

This thesis investigates the relationship between female role models, attitudes towards working women and labour force participation, using individual data from the ISSP database. The findings reveal that female role models have a large impact on attitudes towards working women and labour force participation. A working mother explains the largest share of the effect of female role models. The effect of other role models is small and/or in the opposite direction. Another finding is that positive attitudes only have a positive effect on labour force participation for women who are currently working. Besides increasing the chance of participating in the labour force, positive attitudes also increase the weekly hours worked. Finally, the direct effect of role models on labour force participation is negative, which is unexpected.

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Introduction

Employment is an important criterion for economic performance. Especially paid jobs are critical to guarantee adequate living standards and socio-economic development and prosperity¹. Therefore, Europe is striving towards increasing economic growth and jobs in their Europe 2020 strategy. This strategy aims at overcoming structural weaknesses within the European economy, by improving competitiveness and productivity through smart, sustainable and inclusive growth. One of the targets of this strategy is to reach a labour participation rate of 75% of people aged 20-64 in all member states².

One of the European countries that has already achieved this target of 75% is the Netherlands. Even though it has come to the European target already, the Dutch government is still striving towards increasing the labour force participation³. Their aim is a labour force participation rate of 80% of the population between 20-64 years. This goal is already accomplished for men, but not yet for women⁴. Thus, to reach the increase in the labour force, employment rates should be raised primarily for women. This also holds for low-skilled people, young people and older people⁵. Besides the aim of increasing the female labour force participation in individuals, the Dutch government also strives toward increasing the female labour force participation in working hours. In 2015 the average working hours per week is 26,6⁶. As a consequence of that, women earn less and are financially vulnerable. Therefore, one of the reasons for focusing on increasing the labour force participation among women is to increase their economic independence. Currently, 47% of the women are not financially independent, which means that they earn less than 70% of the minimum wage⁷. Thus, the aim of the Dutch government is to increase female labour market participation, both in persons and working hours.

Since many (European) countries could gain economic benefits from having a higher rate of female labour force participation, it is important to understand the mechanisms behind female labour force participation. Balleer et al. (2014) find that both culture and social norms are important drivers of the trends in female labour force participation. Therefore it is suggested that policies aimed at increasing labour force participation should support positive changes in attitudes towards increasing female labour force participation.

In addition to that, my current research will investigate the mechanism between labour force participation and attitudes as well. The expected mechanism links positive attitudes towards female labour force participation with an increase in female labour force participation. While investigating the proposed mechanism, the focus is put on female role models. The expectation is that female role models will have a positive effect on the attitudes towards female labour force participation. Current literature has been investigating the effects of female role models in various situations, such as the effect of female role models on political participation, student achievement and career progression. I argue that the link between female role models and female labour market participation is missing. Therefore this thesis will investigate whether female role models can act as a nudge towards increasing the female labour force participation. The aim of this paper is to answer the following research question: "What is the effect of female role models on female labour market participation?". To answer this question, certain specifications are made. First of all, this thesis will focus on the Netherlands. The labour force participation among women in the age of 20 till 65 years in the Netherlands in 2015 is 71%, from which 73% worked part-time⁸. Since a lot of women work part-time, a separation is made between labour market participation in persons and

working hours, i.e. a separation between the extensive and intensive margin. Nonetheless, the Netherlands will be compared to an average of 17 European countries, to analyse the potential differences. I have chosen to select the Netherlands since many women in the Netherlands work part-time. As a consequence of this, their decision to participate in the labour force might depend on other factors than the decisions of women to participate in the labour force in countries where most of the women work full-time. In addition to that, the Dutch government wants to increase the working hours of women to make women more economically independent. This thesis could provide useful insights on how to achieve this.

Second, the potential role models that will be taken into account in this thesis are working mothers, female politicians, female researchers, female presidents of large corporations and female board members of large corporations.

Finally, variation at the country level is necessary, since the female role models at the national level cannot be compared otherwise.

The additional value of the current research provided by this paper is the use of a multilevel analysis, which combines individual-level data with aggregated country-level data. Fortin has performed a similar study in 2005 but uses individual-level data from a period between 1990 and 1999. This thesis will use more recent individual-level data from the year 2012. In addition to that, four different types of possible role models are being investigated, compared to just one. Fortin (2005) uses the mother as a role model, and I will add female politicians, female presidents of large corporations, female board members of large corporations and female researchers.

A preview of the results shows that working mothers and female politicians lead to an increase in positive attitudes towards working women, whereas female presidents of large corporations result in a decrease in positive attitudes. In addition to that, positive attitudes have a positive effect on labour force participation. The direct effect of all female role models apart from female politicians, on labour force participation is negative.

This thesis will continue with describing the previous literature followed by a discussion of the method used to test the hypotheses. Afterwards, the results will be analysed and discussed. Subsequently, a conclusion will be presented.

Literature overview

This section will establish a theoretical framework in which the relevant theories and concepts that are related to attitudes, role models and labour market participation will be discussed. The focus will be put on female role models and female labour market participation. Concerning the female labour market participation, especially Europe and The Netherlands are being examined.

Drivers behind labour force participation

As mentioned in the introduction, previous research has investigated what the principal drivers behind labour force participation are⁹.

Cipollone, Patacchini and Vallanti (2013) investigated what factors influence the female labour market participation within Europe. The female labour force participation rate has increased quite significantly over the past decades, and many factors have contributed to this increase. These factors are the following; “a) changes in cultural attitudes towards work especially in countries where participation is traditionally lower, b) changes in the characteristics of the female population such as fertility decisions and elderly care responsibilities, education choices and demographic changes and c) reforms of the welfare state and changes of labour market institutions and policies specifically targeted at groups with lower attachment to the labour market such as family-related subsidies and fiscal reductions”¹⁰. When analysing the potential effects, the authors find that the change of the individual characteristics of women has had a significant effect. For example, the family care burden. The increase in childcare subsidies and child-friendly policies has led to a decrease in women’s family care burden, which caused women’s labour market participation to increase. In addition to that, the authors find that other policies and institutional settings also have a substantial effect on the labour force participation of females. Furthermore, a symmetric combination of flexibility and security in the institutional framework will also increase female labour force participation. This combination yields flexible forms of employment, such as flexible working times and part time structures and security measures, such as unemployment benefits¹¹. The authors conclude by describing a decomposition exercise, which quantifies the factors responsible for the observed trend in the female labour force participation.

The combination of institutional and policy changes are responsible for a near 25% increase in the workforce participation of young women and even 38% for the labour force participation of highly educated women. The findings also suggest that female labour force participation rates are driven by changes in specific characteristics of their country, for example by cultural attitudes towards work¹². Concerning the individual characteristics, their effects differ across welfare regimes. For example, marriage has an adverse effect on female labour force participation, but this effect is stronger in countries with more traditional values. Education has a positive effect on female labour force participation. Not only the level of education of the women herself matters but also the level of education of her partner. Lastly, there is also an age effect, in which the probability of participating in the labour force increases for the age group 35-44 and a decreasing probability for elder groups¹³.

Christiansen, Lin, Pereira, Topalova and Turk (2016) confirm these results. In their study, the determinants of female labour force participation in Europe are re-examined. The results suggest that “individual demographics, attitudes towards gender roles, and policies are all important drivers of women’s decision to work outside the household.

More education, lower fertility, exposure to working mothers, and favourable attitudes towards woman working are of particular importance¹⁴. Besides investigating extensive margins of female labour force participation (whether or not a female is working), intensive margins (how many hours females are working) are also examined. The results show that education does not predict the number of working hours for females who already entered the labour force¹⁵. Furthermore, married women tend to work shorter hours than unmarried women, although both are equally likely to get into the labour market. Finally, the results show that policies can affect both the intensive and extensive margin at once or solely affect the intensive or extensive margin. Policies related to fiscal disincentives tend to affect both the margins, whereas policies related to childcare and family allowance tend to be mainly important for the extensive margin¹⁶.

When specifically looking at the Netherlands, one can see that attitudes also play a significant role. Stam, Verbakel and de Graaf (2014) are using data from the LISS panel which contains data of 5,000 households comprising 8,000 individuals located in the Netherlands. The panel study that is used is conducted between 2007 and 2010 and consists of three waves¹⁷. The aim of their study is to investigate what the effect of work ethic and traditional gender roles on female labour market supply is. The results show that the effect of work ethic on the chance to work is insignificant unless the effect of traditional gender roles is added to the model. Once both variables are included, there is a slightly significant positive impact of work ethic and a strong negative effect of traditional gender roles¹⁸. Therefore, the authors conclude that this might be suggestive evidence for “the assumption that women who hold more traditional gender role values, view work more in terms of unpaid household work and also give meaning to work ethic by that”¹⁹. Besides that, it also suggests that when women opinion their work ethic on paid employment compared to unpaid household work, a strong work ethic encourages female labour market participation. Concerning the structural characteristics, the results indicate that higher educated and younger women have greater chance to participate in the labour market²⁰. Gender role values do not only have an impact on the decision to take part in the labour market or not, but also on the exit of the labour market and the amount of working hours. If women have more traditional gender role values, they have a higher chance of exiting the labour market or decreasing the number of working hours. However, when women have a strong work ethic, they have a greater chance of increasing their working hours²¹.

Attitudes

The previously described studies find that cultural attitudes of men and women towards gender roles can change the female labour force participation. But what are attitudes and how are these formed? “An attitude is simply a predisposition to approach or avoid an idea, event, person or object”²². Attitudes are shaped by cognitive, affective and behavioural influences. Cognitive influences capture for example the information that one has available about an attitude object’s attributes and properties. In addition to that, the cognitive reaction one has towards persuasive information is a determinant of subsequent attitudes²³. Besides being shaped by cognitive information, attitudes can also be shaped by affective information. This process can happen via exposure conditioning or observational conditioning. “Exposure conditioning describes the repeated presentation of an attitude object paired with an emotional sensation”²⁴. This process is different from mere exposure since the object is paired with an emotional stimulus.

Nevertheless, mere exposure also elicits positive attitudes²⁵. Observational conditioning prevails when a person views and experiences or empathises with the emotional response that occurs to another individual when he or she performs a particular behaviour²⁶. One example of observational conditioning is observing a role model²⁷. Bandura (1997) introduces the concept of observational learning. In his social learning theory, he describes how people can learn certain forms of behaviour. One type of learning is observational learning. This way of learning occurs when someone observes a role model and learns a new behaviour as a consequence of this observation²⁸. This theory is also confirmed by other authors. "There is clear evidence that individuals learn attitudes and behaviours through the observation and imitation of those role models who come into frequent contact with them –most notably parents"²⁹. In the study by Shim et al. (2010) the authors provide evidence for the relationship between role models and attitudes in the domain of finance. The results demonstrate that parents can shape and influence the financial behaviour and attitudes that adolescents have. This influence is greater than the impact of work experience and high school financial education together³⁰.

One study that specifically examines the effect of attitudes and gender roles on labour market participation is done by Farré and Vella (2007). They are examining if attitudes towards gender roles are passed from a woman to her children. The results show that there are several links. There is a strong relationship between the answers of a woman concerning her opinion about the female role in the family and the labour market and the answers of her children. This relationship remains when the measures of the individual's economic and cultural background are conditioned for³¹. In addition to that, the attitudes that are present in 1979 can partially explain the decision of the women with respect to attending the labour market 25 years later. An equivalent relationship holds for a male's attitudes about employed women and the employment decision of his wife³². Thus, "cultural attitudes towards female workers are passed from generation to generation, and this cultural transmission has important implications for the economic behaviour of the younger cohorts"³³.

The previously described findings of Farré and Vella (2007) are confirmed by Johnston, Schurer and Shields (2013). In their paper, the intergenerational transmission of gender role attitudes is examined as well. The dataset that is used to do so is retrieved from the British Cohort Study. In this study, the attitudes of mothers with respect to female labour force participation and mothers' current work status are measured in 1975. In 1975, the cohort child had the age of 5 years old. In addition to that, data from the child when he or she has reached adulthood (2000-2008) is also gathered. This data contains information about gender role attitudes and labour supply, besides other characteristics such as educational attainment and marital status³⁴. The authors are examining the correlation between mothers' attitudes towards women's role in the labour market and their children's opinion when they have reached adulthood. In addition to that, they are investigating if the attitudes and labour supply decisions of the mother can predict her children's future labour supply choice. The results show that the gender role attitudes of mothers and children are highly positively correlated³⁵. The correlation has the same size for both mother and sons as mothers and daughters. Despite this similarity, the attitudes of mothers do only predict the labour supply of daughters and not the labour supply of sons. The less traditional the attitudes of the mother are, the higher the probability of her daughter having a full-time job³⁶.

A possible alternative explanation for this relationship, besides behavioural observation, is that non-traditional mothers are more likely to devote time and resources towards their daughters' education than traditional mothers. This explanation could be reflected by a negative relationship between maternal attitudes and school dropout expectations and actual school dropouts. The more traditional the attitudes of the mother are, the higher the chance that her children drop out of school. Moreover, daughters from non-traditional mothers reduce their labour supply substantially less than daughters from traditional mothers. This decrease in labour supply is reflected by both weekly hours worked and the probability of working at all³⁷.

Another paper that is exploring the relationship between attitudes and labour force participation among women is written by Fortin (2005). Data from the World Value Surveys (WVS) is used to compare labour market outcomes between 25 OECD countries. The results suggest that gender role attitudes are strongly related to the female labour force participation rates³⁸. There are a few statements of the WVS that predict the differences between the countries the most powerful. Perceptions of the man as a breadwinner and the women as a homemaker both have significant explanatory power, but the opinions of the man as a breadwinner has the strongest power. This result holds for attitudes held by both men and women. In addition to that, inner conflicts that are measured by the statement whether or not a mother who works can establish a similar relationship with her children as a mother who does not work is also important for the female labour force participation rates³⁹. Fortin (2005) concludes by calling out for more research to study the relationship between gender role attitudes and the female labor-market outcomes. Especially the processes that underly the evolution of the gender role attitudes are interesting to investigate further since their development is not entirely clear yet.

Thus, the previously described papers explain why attitudes matter concerning female labour force participation. One specific theory that also links attitudes with female labour force participation is the preference theory, established by Hakim (2006). Even though Hakim (2006) uses the term preference instead of attitude, her findings describe a similar relationship. According to Druckman and Lupia (2000), preferences are derived from attitudes, via different rankings of objects. Put differently, women can evaluate the various roles based on their own experiences and beliefs, and this leads to a particular preference. Nevertheless, other authors are taking it one step further and claim that preferences and attitudes are equivalent to each other. Warren, McGraw and Van Boven (2010) argue that preferences "denote a latent tendency to consider something desirable or undesirable" (para. 2). If preferences are defined in this way, they basically measure the same as attitudes. The preference theory of Hakim (2006) remains relevant because of this. The theory clarifies and predicts the decisions that women make with respect to paid and unpaid work. Those decisions depend on the sex-role preferences that a woman has. The sex-role preferences that women possess have been influenced by some historical changes that created new options for women. Hakim (2006) lists five important societal changes that affected both society and the labour market. These five are "the contraceptive revolution, equal opportunities revolution, expansion of white-collar occupations, creation of jobs for secondary earners and the increasing importance of attitudes, values and personal preferences in lifestyle choices"⁴⁰. Due to the available set of options, women choose between three types of lifestyles: home-centred, work-centred or adaptive. The home-centered women prefer not to work and instead spend more time with their family. The number of children they have is unaffected by employment policies but is influenced by social policy and family wealth.

Family values, such as caring, are most important to these women. The work-centred women prefer to work and are highly responsive to economic opportunities. Contrary to this, they are insensitive towards social policies. These women have marketplace values, such as individualism and achievement orientation. Adaptive women want to combine their family life with work, although they are not completely committed to their career. As a consequence of this, these women are highly reactive to both social and employment policies. Since there are conflicting sets of values, women need to make a compromise between the two⁴¹. Since the majority of women choose for the adaptive lifestyle, they are more inclined to work part-time.

The above-described preference theory of Hakim (2006) has been tested by Yerkes (2013). In her article, she is examining whether women's labour force participation is mainly explained by attitudes and personal preferences. To do so, she investigates the effect of women's preferences with respect to working on the average weekly working hours of these women. The countries that are being compared are the United Kingdom, Germany and the Netherlands. The explanation for this choice is that the three countries are similar concerning female labour force participation, but that they do have different institutional contexts⁴². The data that is used covers the period from 1992-2002 and contains a sample of women in the working age from 15 to 64 years. The results show that "after controlling for individual, household and job characteristics, a preference for more hours leads to a small, but significant increase in women's average weekly working hours across time in all three countries. However, a preference for fewer hours has no significant effect in the Netherlands and the United Kingdom, but a small, but significant increase in women's average weekly working hours in Germany"⁴³. Nonetheless, when the results are closer inspected, they do not confirm the preference theory. Both the individual and household characteristics have a stronger impact on labour force behaviour. Especially motherhood has a strong effect, in all three countries mothers decrease their working hours across time⁴⁴. This paper demonstrated that the social and structural factors, along with the institutional contexts matter a lot more than women's preferences. Therefore, one has to be careful in making claims about the relationship between women's preferences and labour force participation.

Female role models

In addition to papers studying the relationship between attitudes and labour force participation, there are several other studies which have investigated the direct effect of female role models. To define the term role model, a definition by Haveman and Wolfe (1995) will be used, though slightly modified. Role models are "adults or peers to whom children or adolescents relate and who set norms of behaviour and achievement to which they aspire"⁴⁵. Nonetheless, role models can also inspire adults. Therefore the definition that will be used throughout this paper is the following. Role models are adults or peers to whom someone can relate and who will set norms of behaviour and achievement to which he or she aspires.

The effect of female role models has for example been studied in the domain of politics. Wolbrecht and Campbell (2006, 2007) are investigating whether female politicians are viewed as role models who can motivate other women to engage in political activities. In their study, Wolbrecht and Campbell (2006) provide evidence for the expectation of female role models to change the political socialisation of young females. In particular, the exposure to female politicians in the media has a positive effect on females' engagement in politics.

In another study, they describe previous studies that investigated this hypothesis but note that there has not been extensive research outside the US⁴⁶. Therefore their research includes other countries as well. The evidence states that “women of all ages are more likely to discuss politics, and younger women become more politically active when there are more women in parliament”⁴⁷. Nevertheless, it should be further investigated whether these effects remain persistent over time. Furthermore, the direction of causality should also be investigated. There is potential for reverse causality if the number of female members of parliament within a country increased because of the increase in political activity among women⁴⁸.

A more recent study that also investigated whether political female role models affect young women is one by Mariani, Marshall and Mathews-Schultz (2015). In their research, they start with describing some studies that did find clear links between female role models and the political participation of women⁴⁹. In addition to that, they also describe studies that did not find this link⁵⁰. The study by Mariani et al. (2015) extends the research of Campbell and Wolbrecht (2006) by including specific role-model events and including ideology and partisanship. The three events that are included in the study are; “the election of Nancy Pelosi as the first female Speaker (2007), Hillary Clinton’s presidential run (2007-2008) and Sarah Palin’s nomination as the Republican vice-presidential candidate (2008)”⁵¹. The results showed that the expected political involvement of young females did not significantly increase compared to males. Nonetheless, anticipated political engagement levels of young female Liberals and Democrats were slightly higher during the years of the role-model events than previous years. This implies that both party and ideology condition the role-model effects, i.e. “young women express higher levels of anticipated political involvement when the female candidate shares their political ideology”⁵². In this case Hillary Clinton’s candidacy for the Democratic nomination and Nancy Pelosi as a liberal Democratic speaker. This result did not hold for Palin’s candidacy, which might be due to specific characteristics of the role model, such as her projection. The study concludes with suggestions for further research, to investigate how party and ideology condition the role-model effect⁵³.

Finally, a study by Latu, Mast, Lammers, and Bombari (2013) investigated what the effect of successful female leaders on women’s behaviour in leadership tasks is. To do so, they have created an experiment in which both male and female students of a Swiss university needed to give a convincing political talk in which they argued against the rise of student fees. The speech they gave took place in a virtual environment, in front of 12 avatars, of which six were male, and six were female⁵⁴. The experimental conditions varied by either having a picture of Bill Clinton, Hillary Clinton, Angela Merkel or no picture hanging on the virtual wall. The results showed that the duration of the speech of female students was significantly lower than male students in the presence of a poster of Bill Clinton or no poster. When a poster of Hillary Clinton or Angela Merkel was shown, this difference vanished. In addition to increasing the duration of the speeches of female students, the regarded quality of the speeches of female students also increased when female role models were exposed. No differences per treatment were found for the male students⁵⁵.

Naturally, there are also male role models. Do they have the same effect on females as male role models?

One study that investigates what the effect is from same gender role models is done by Lockwood (2006). To do so, she examines the impact of a gender matched role model on the self-perceptions of the participants of two experiments. The participants are all college students.

In the first experiment, subjects are exposed to a successful career role model of the same gender or the opposite gender. In the second experiment, subjects are asked to depict an actual career role model who had encouraged them⁵⁶. The results of the first experiment show that women are more firmly inspired by female role models. Besides that, women are also more able to identify themselves with female role models. The results of the second experiment showed that women have a higher chance of selecting female than male role models. A striking result is that 27% of the women explicitly state that they wanted to choose a role model that had brought down the gender stereotypes⁵⁷. Regarding the male subjects, the results are less clear. In the first experiment, no significant difference is found between the responses towards male or female role models. In the second experiment, the male subjects did select a male role model more often than a female role model, but the reasons why are less clear. Thus, having a role model that is matched to your gender is of particular importance concerning role models for women⁵⁸.

Another paper that investigates the effect of female role models on students is written by Johnson (2014). The effect of female faculty on female and male student performance is studied. While doing so, a distinction is made between aggregated and non-aggregated measures of exposure to female role models. The aggregated model uses the proportion of subjects or credit hours that is taught by female instructors to see what the effect is on the first-semester grade point average. The non-aggregated models treat grades given to a single student or provided by an individual instructor as dependent instead of independent⁵⁹. The results suggest that there is a negative link between female instructors and female student performance at the aggregate level. However, when looking at the non-aggregated models, the relationship becomes positive. Thus, this paper concludes by stating that female instructors do have a significant positive effect on the grade performance of female students and not on the grade performance of male students⁶⁰.

An additional study by Nixon and Robinson (1999) examines what the effect of female high school faculty is on the educational attainment of the students. In their study, the authors use four measures to estimate educational attainment⁶¹. The authors controlled for additional school characteristics, personal background characteristics and family background characteristics, such as the education of both parents. The relationship between female faculty in high school and educational attainment of females in college is found to be positive, though the magnitude of the effect is small. Since there is no effect found between female faculty in high school and educational attainment of males in college, the evidence for the female role model hypothesis increases⁶². Besides looking at students, there are also studies that investigate the effect of female role models on working women.

Finally, a study by Durbin and Tomlinson (2014) is analysing the impact of mentors and role models in the domain of career development on female managers that work part-time. To do so, 27 managers are being interviewed. The results suggest that there is a lack of positive female role models and mentors and as a consequence of this, women who work part-time find it harder to progress in their career⁶³. Male and female role models are perceived differently. Male role models are seen as successful in the organisation while still being able to maintain a family life, though this is often made possible by an unemployed wife⁶⁴. Female role models are being assessed more critically. Especially female role models who are childless are being critically reviewed since they do not have to combine motherhood with their career. On the other hand, when female role models do have children but work full-time, they are also viewed as a bad role model sometimes, since they provide less childcare.

Only a few female role models were identified as being able to combine motherhood and career flourishingly. To conclude, female part-time managers find it hard to identify positive role models⁶⁵.

Even though many papers are analysing the positive effect of female role models, there are also studies that focus on the potential negative effects of female role models. For example the study by Cross, Linehan and Murphy (2017). To do so, the authors have conducted 30 interviews with female middle-level managers. The authors make a distinction between two types of role models, the departed role model and the realistic role model. The departed role models are female role models such as female managers who already left the organisation. Realistic role models are senior women who still work in the organisation⁶⁶. The results showed that the middle-level managers did not have many role models to be encouraged by since there were only three firms that had a female general manager or CEO. The few female role models who were identified as trying to balance their career and their family life were perceived as not being able to do so successfully. This holds especially for departed role models since managers believe that the reason why these senior female managers left the organisation is the struggle of combining family responsibilities with their management career⁶⁷. As a consequence of this, the female middle-level managers do not believe that they could manage the situation better themselves in the future. Thus, the evidence suggests that many middle-level managers think that they have to choose between their career progress or their family, due to negative role modelling behaviour by female senior managers. Therefore, female role modelling can also have negative consequences concerning female career progression⁶⁸. Nevertheless, the results and conclusion are based on a small sample, so further research should investigate whether these results hold for the entire population as well.

Compiling all studies together, many have investigated the relationship between attitudes and female labour force participation and the female role model effect. Nevertheless, the amount of research examining the direct link between female role models and female labour force participation is relatively small. The study by Fortin (2005) and Johnston et al. (2013) are examining the effect of gender role attitudes on labour-market outcomes, taking mothers into account as role models. But other role models are not taken into consideration. The same holds for the papers written by Cipollone et al. (2017), Christiansen et al. (2016) and Farré and Vella (2007). My paper tries to fill in the gap in current research by performing an empirical study, taking explicitly into account attitudes, multiple female role models and female labour force participation. It is important to study several role models at the same time since their effects might interact. In this way, it is easy to see the size of the effects of the different role models.

Thus, this paper will investigate the mechanism between female role models, attitudes and female labour force participation. The proposed mechanism is the following. Female role models are expected to have a positive effect on attitudes via mere exposure and observational conditioning. When someone experiences positive emotions by observing role models, this will lead to an increase in positive attitudes towards the behaviour of the role model. These positive attitudes towards working women in turn increase participation on the labour market. This expected relationship is reflected in a conceptual model, which can be seen in Fig. 1.

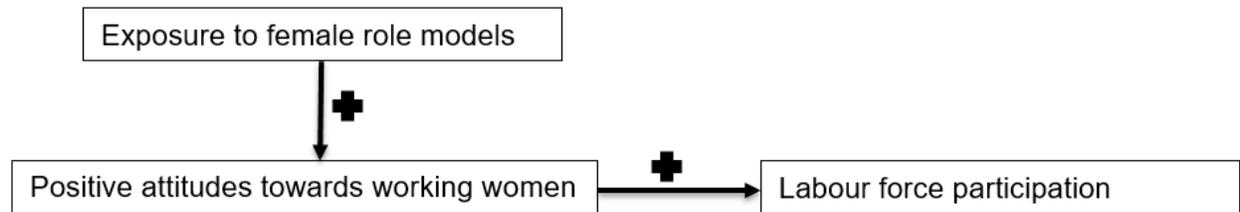


Fig. 1 Conceptual model.

To solve the research question of this thesis, “what is the effect of female role models on the labour force participation decision of women”, I derive the following hypotheses from the theoretical overview given above.

Hypothesis 1: the exposure to female role models will lead to an increase in positive attitudes towards working women.

Hypothesis 2: positive attitudes towards working women will result in an increase in female labour force participation.

Besides testing the hypotheses, I will investigate whether the effect of female role models on labour force participation is indirect, via positive attitudes towards working women, or if there is direct effect as well. The reason for doing this is that making a difference between direct and indirect effects has practical applications, for example when designing policy⁶⁹. If the positive effect of an independent variable is mainly mediated by a mediating variable, the government should focus their policy on the mediating variable instead of the independent variable.

Via mere exposure, there does not have to be an emotional response towards the behaviour of the role model, whereas via observational conditioning an emotional response, such as happiness, is occurring when the role model performs a specific behaviour⁷⁰. Observational conditioning is therefore expected to have a stronger effect. As a consequence of this, the effect of a working mother as a role model is expected to be the strongest. In addition to that, women are most exposed to working mothers as a role model. The exposure of the other role models happens less often. Women can see female politicians in the news or at political talk shows or events, but women are less exposed to the other types of female role models. Women are most likely exposed to female presidents and board members when they are working in a large company. Therefore, the effect of these role models is expected to be small. Women are probably only exposed to female researchers during their education. Therefore the expected effect is small.

To conclude, this literature review has explained the theoretical framework that will be used to answer the research question and accompanying hypotheses. In the next chapter, the methodology which will be used to do so is explained further.

Methods

This chapter will describe the methodology that will be used in the remaining of this paper to deal with the current investigation of the relationship between attitudes, female role models and female labour force participation.

The data sources used are composed of parts from the following data-sets: the ISSP, Eurostat, the World Bank and the European Institute for Gender Equality.

The ISSP stands for the International Social Survey Programme. The specific module that is used is the “Family and Changing Gender Roles” module. This module contains a survey that contains broad themes such as gender issues of which the most important one for this paper is the attitudes towards women’s employment. The data that is available includes answers to the survey in the years 1988, 1994, 2002 and 2012. The surveys are not replicated entirely, but always for a large part. The data is collected via face-to-face interviews, paper and pencil surveys via mail and web surveys, depending per country. In the Netherlands, data is collected via postal surveys. The method that is used to select a specific sample is different per individual country as well, either simple or multi-stage stratified random. In the Netherlands, a simple random sample is drawn. The age of the persons within the sample is 18 years or older in each country, except for Finland, where 15 is the youngest age⁷¹. Since the number of respondents in Finland under the age of 18 is so small, they were not taken into account in the analyses. This thesis focuses on the most recent survey from 2012. After removing countries that did not have all relevant data available, 17 European countries were included in the analysis. These countries were the following; Belgium, Bulgaria, Croatia, Czech Republic, Finland, France, Germany, Hungary, Ireland, Latvia, Lithuania, Netherlands, Poland, Portugal, Slovakia, Slovenia, and Sweden. The data is collected in the period 2011-2012⁷².

The data from Eurostat (2016) contains the data set “share of women researchers, by sectors of performance”. This dataset provides information about the share of female researchers by sectors of performance. The dataset uses the average of all sectors, which are business enterprise, government, higher education and private non-profit. The measure is the percentage of female researchers from the total researchers. Data is available for the years 2000 until 2014 for all European countries. The data that is used contains the 17 European countries previously mentioned in the year 2012.

The data from the World Bank contains the following series: “World Development Indicators”. The control variables and the measure of female politicians are retrieved from the dataset. Female politicians are measured as the proportion of seats held by women in national parliament. The dataset contains data from the years 1960 until 2016, but the used data is from the year 2012 for the same countries as mentioned before⁷³.

The data from the European Institute for Gender Equality comes from the statistic “Gender Statistics –Largest listed companies: presidents, board members and employee representatives”. The two measures that will be used in this paper are presidents and board members. The unit of measurement is a percentage of the total. Thus, the percentage of women who are presidents or board members in the largest publicly listed companies in each country (max. 50). Data is available from 2003 to 2016 for all European countries. The data that is used is from the year 2012 and contains the previously mentioned countries only⁷⁴.

An overview of the data source and measurement of the dependent and independent variables is given in table 2.1. The same overview for the control variables is given in table 2.2.

Table 2.1 Data source and measurement per dependent / independent variable

	Source	Type of measurement
Working mother	ISSP	Did your mother ever work for pay for as long as one year, after you were born and before you were 14? 1 Yes 2 No 6 Doesn't apply, mother not present 8 Don't know 9 No answer
Female politicians	World Bank	The proportion of seats held by women in national parliament in 2012.
Female researchers	Eurostat	The share of female researchers as a percentage of the total researchers in all institutional sectors in 2012.
Female presidents	European Institute for Gender Equality	The share of female board members in the largest publicly listed companies in each country in 2012.
Female board members	European Institute for Gender Equality	The share of female presidents in the largest publicly listed companies in each country in 2012.
Positive attitudes towards working women	ISSP	Factor analysis
Labour force participation at the individual level	ISSP	Are you currently working for pay, did you work for pay in the past, or have you never been in paid work? 1 Currently in paid work 2 Currently not in paid work, paid work in the past 3 Never had paid work 9 No answer
Labour force participation at the individual level in weekly hours worked	ISSP	How many hours, on average, do you usually work for pay in a normal week, including overtime? On average, I work ... hours a week, overtime included.

Table 2.2 Data source and measurement per control variable

	Source	Type of measurement
Individual level		
Age	ISSP	Each country is free to choose between asking BIRTH or AGE directly.
Highest education level completed	ISSP	<p>What is your highest level of education completed?</p> <p>0 No formal education 1 Primary school 2 Lower secondary 3 Upper secondary 4 Post secondary, non-tertiary 5 Lower level tertiary, first stage 6 Upper level tertiary 9 No answer</p> <p>Creation of new categories: 1: no formal or primary education. (contains 0 and 1). 2: secondary education. (contains 2, 3 and 4). 3 tertiary education. (contains 5 and 6).</p>
Partnership	ISSP	<p>Do you have a spouse or a steady partner and, if yes, do you share the same household?</p> <p>1 Yes, have partner; live in same household 2 Yes, have partner; don't live in same household 3 No partner 7 Refused 9 No answer</p>
Partner's employment status	ISSP	<p>(If you have a spouse/ partner) Is your spouse/ partner currently working for pay, did he/ she work for pay in the past, or has he/ she never been in paid work?</p> <p>1 Currently in paid work 2 Currently not in paid work, paid work in the past 3 Never had paid work 8 Don't know 9 No answer</p>
Country level		
GDP	World Bank	Current U.S. dollars

Female labour force participation	World Bank	The proportion of the female population ages 15 and older that is economically active
Female part-time working	World Bank	Percentage of the total female employment

Based on the conceptual model, which is described in the previous chapter, the relevant variables will be defined and discussed.

Dependent variable one (DV1): female labour force participation at the individual level.

Dependent variable two (DV2): female labour force participation in weekly hours at the individual level.

Dependent variable three (DV3) / Independent variable one (IV1): positive attitudes towards working women.

One of the most important variables at the individual level is the positive attitudes with respect to working women. A factor analysis has been performed to create a measure of attitudes of women towards paid employment. To do so, the following relevant questions of the ISSP module “Family and Changing Gender Roles” were selected:

To begin, we have some questions about women. To what extent do you agree or disagree...?

- Q1a. A working mother can establish just as warm and secure a relationship with her children as a mother who does not work.
- Q1b. A preschool child is likely to suffer if his or her mother works.
- Q1c. All in all, family life suffers when the woman has a full-time job.
- Q1d. A job is all right, but what most women really want is a home and children.
- Q1e. Being a housewife is just as fulfilling as working for pay
- Q2a. Both the man and women should contribute to the household income.
- Q2b. A man’s job is to earn money; a woman’s job is to look after the home and the family.

All statements were scored on a 5 point Likert scale, 1 representing ‘Strongly agree’ and 5 ‘Strongly disagree’, with two additional answer categories ‘Can’t choose’ or ‘Don’t know’. These questions were chosen because they are all related to gender roles. Half of the questions are the same as Johnston et al. (2013) have used in their attitudes questionnaire while creating an index of gender role attitudes. Only women who answered all questions within the range 1-5 were taken into account while creating the components. As described by Osborne (2015), two types of rotations can be used while doing a principal component analysis, namely orthogonal and oblique rotations. In the case of orthogonal rotations, components are uncorrelated. Whereas in the case of oblique rotations, components are allowed to be correlated.

Since I want to allow the produced factors to correlate, considering that they measure the same attitude, oblique rotations seem more appropriate. Fabrigar et. al (as cited in Osborne, 2015) showed that the different methods of oblique rotation all produce similar results and therefore there is no general favoured method. The type of rotation that has been used in this analysis is Oblimin with Kaiser Normalization. Two components were created after the factor analysis. The first component, positive attitudes, consists out of 5 questions that indicate whether women find it more favourable if the woman stays at home and takes care of the children or not (Q1b, Q1c, Q1d, Q1e and Q2b). The second component, equal contribution, indicates whether women think that children are disadvantaged if their mother works and whether both men and women should contribute to the household income (Q1a and Q2a). Before running the analysis, the answers to these two questions were reversed, so that Cronbach's alpha could be calculated.

Table 2.3 Results of Factor and Reliability Analysis.

Components	1	2
	Positive attitudes	Equal contribution
Eigenvalue	3,086	1,031
Proportion	0,441	0,147
Cumulative	0,441	0,588
Item		
Q1a. Working mom: Warm relationship with children as not working mom	-0,596	0,532
Q1b. Working mom: Pre-school child is likely to suffer	0,783	
Q1c. Working woman: Family life suffers when woman has full-time job	0,799	
Q1d. Working woman: What women really want is home and kids	0,702	0,443
Q1e. Working woman: Being a housewife is as fulfilling as working for pay	0,545	0,434
Q2a. Both should contribute to household income		0,548
Q2b. Men's job earn money, women's job look after home	0,748	

Tests

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0,804	0,804
Bartlett's Test of Sphericity	p=,000	p=,000
Cronbach's Alpha	0,791	0,396

The first two tests indicated that the data is suitable for factor analysis and that factor analysis is a satisfactory method⁷⁵. The values of Cronbach's Alpha show that only the first component is reliable. Only the items from component 1 measure the same concept. The Inter-Item Correlation Matrix shows that the correlation between the two questions of component 2 is roughly 25%, which is not sufficient⁷⁶. Therefore, the following analyses will be based on the component positive attitudes only. The higher a woman scores on this component, the more positive her attitudes towards working women are.

Independent variable two (IV2): female role models. First, a working mother. The reason for selecting this role model is that multiple authors have found a significant relationship between working mothers and female labour force participation and between attitudes of mothers regarding gender roles and the attitudes towards gender roles of her children⁷⁷. A working mother is the most valid role model since every woman in the dataset had a mother when she was younger than 14 years old. In addition to that, women are most exposed to their mother, compared to the other female role models. The other female role models are female politicians, female researchers, female presidents of large corporations and female board members. These role models are less valid since there is less exposure to them. As mentioned in the literature overview, women can be exposed to female politicians via different sources of media, such as debates on television or articles in newspapers. I have chosen for this female role model since previous research did find that female politicians can have a positive influence on the political engagement of young women⁷⁸. I want to investigate whether these role models can also have an impact on female labour force participation. I believe that this role model is the second most valid since exposure is relatively high compared to the other female role models. Female presidents and board members in large corporations are only exposed to other women who work for the same corporations. I am aware that this reduces their validity, but I still included them in the analysis to test if they have significant effects. The investigation can also add to the political debate on gender quota. Female researchers have a similar small degree of exposure. During secondary or tertiary education, women might be taught by female professors and read papers written by female researchers. In addition to that, female researchers might appear in scientific talk shows on television. Nevertheless, it is still interesting to test if female researchers have an effect on female labour force participation since it could provide further evidence on the exposure effect.

All variables in the analysis are measured in the year 2012. This has implications for the ability to establish a causal relationship. As mentioned by Fortion (2005), it could be that attitudes are formed in the youth of women or that attitudes are formed under the rationalisation of women their labour-market decisions.

Children can already develop gender stereotypes at the age of five years old and define these more rigid when they are between five and seven years old. This in turn will shape their attitudes and beliefs⁷⁹. However, as mentioned in the literature overview, there are different ways in which attitudes can be formed or changed. As a consequence of this, it is impossible to measure for every respondent when her attitude towards working women is created or changed.

Preferably, the effect of female role models on attitudes is measured before the effect of attitudes on female labour force participation is measured, since there is a causal lag¹. This lag is the period in which a change in attitude results in a change in behaviour⁸⁰. However, there is no data available that captures the effect of role models on attitudes at a specific age and the effect of attitudes on labour force participation for the same participants at a later age. In addition to that, it would be difficult to gather this data for different countries.

Control variables: at the individual level; age, highest education level completed, partnership and partner's employment status are controlled for. I have chosen to control for these variables since they are expected to have an effect on both women's attitudes towards working women and the decision to participate in the labour force or not. Attitudes can change over time. Therefore age can affect the attitudes towards working women⁸¹. Higher levels of education are expected to lead to an increase in labour force participation in general, however, for some levels of education the effects differ per age group⁸². Partnership and partner's employment status can affect the decision to participate in the labour force, via the income of partner (if any). As mentioned by Triebe (2013), married women participate less on the labour market. In addition to that, there is a negative relationship between women her partner's wage and the working hours of the women. At the national level; GDP, female labour force participation rate and the percentage of women who work part-time is controlled for. I have chosen to control for these variables because a country's economic situation could have an impact on labour force participation decisions. In addition to that, I expect that having a high female labour force participation rate and a significant share of women who work part-time can positively affect the decision to participate in the labour force. *Review previous sentences. Maybe find a source.* Since too many respondents did not want to provide information on their household income, this is not controlled for. In my opinion, the reduction in sample size was too large compared to the additional value of including this particular control variable. Another control variable that was not taken into account is the weekly working hours of the partner. Almost one-third of the respondents did not have this information available. Therefore the sample would also decrease too much in comparison to the additional value of the control variable. In addition to that, the partner's employment status is already included, which also provides relevant information. The reason why labour force participation was based on ages 15+ instead of 15-64 years is that politicians in many European countries are increasing the legal retirement age.

¹ To analyze if including data on female role models (apart from a working mother) from the year 2007 would significantly alter the results, table 3.1, 3.3 and 4.2 are recreated with data on the female role models from 2007. As a consequence, the effect of female presidents of large corporations becomes insignificant in all models. The effect of female researchers turns significant and negative in table 3.1, but significant and positive in table 4.2. In addition to that, the AIC and BIC values of the models decrease slightly.

This is due to ageing populations and increasing pressure on pension systems⁸³. I have chosen to exclude a maximum age since people can continue to work after they have reached their legal retirement age.

To answer the research question and the accompanying hypotheses, an empirical study is executed. As mentioned in the introduction, this thesis focuses on the Netherlands and will compare the Netherlands to other Member states of the European Union as well. Therefore a cross-sectional analysis is performed. The data set that is used to analyse the relationship between attitudes, role models and labour market participation contains the previously described data. The next section of this chapter will elaborate on the data that is used.

Descriptive statistics

Table 2.4 contains the descriptive statistics of the dependent variable, independent variables and control variables. The table shows the mean score, standard deviation, minimum, maximum per category. The table represents 11.737 respondents after deleting 11.718 respondents (57%). The majority of respondents who were deleted are male. A minor part of the deleted respondents were women who did not answer all the questions necessary for my analysis.

Table 2.4: Descriptive statistics

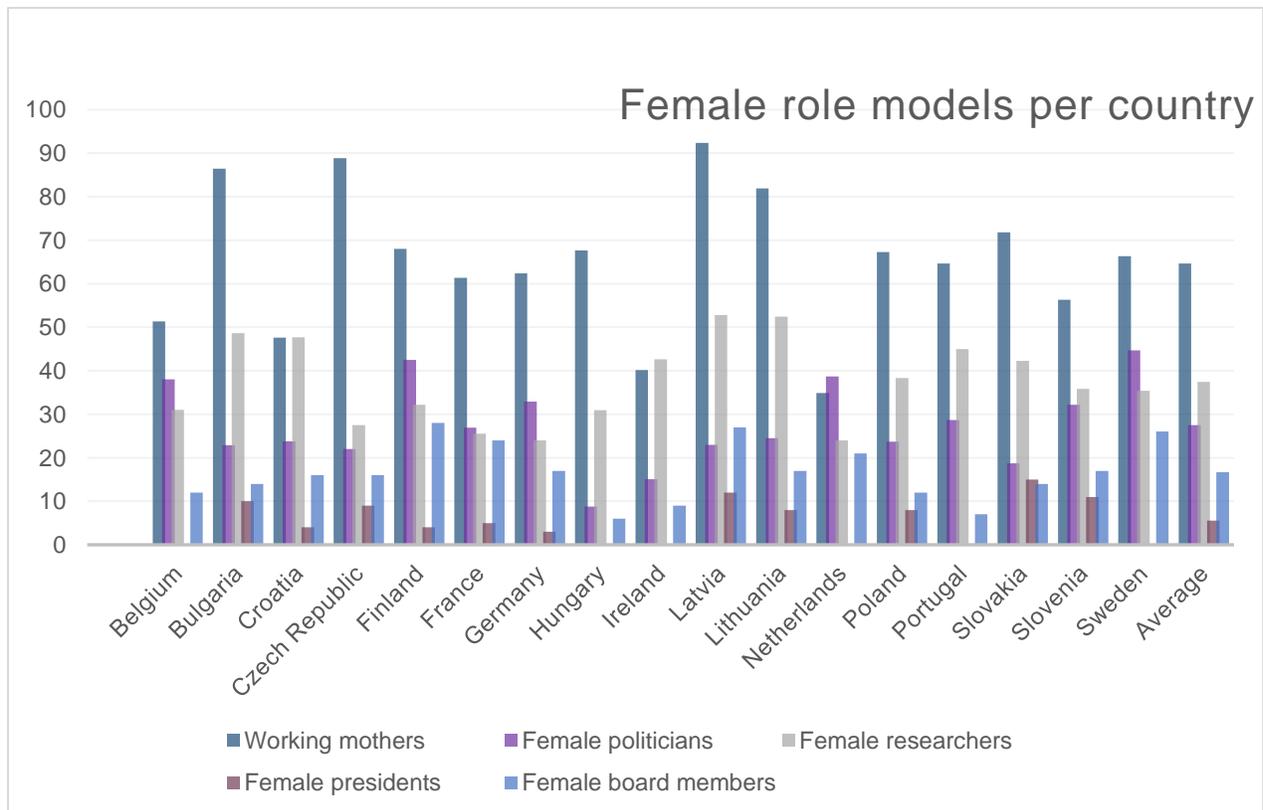
	Mean	Variance	Min.	Max.
Positive attitudes	3,26	0,86	1,00	5,00
Working mother	0,65	0,23	0,00	1,00
Age	48,92	278,17	18,00	97,00
Employment status				
<i>Currently working</i>	0,54		0,00	1,00
<i>Worked in the past, not currently working</i>	0,39		0,00	1,00
<i>Never worked</i>	0,07		0,00	1,00
Weekly working hours	34,36	72,26	2,00	96,00
Education				
<i>No formal or primary education</i>	0,069		0,00	1,00
<i>Secondary education</i>	0,64		0,00	1,00
<i>Tertiary education</i>	0,29		0,00	1,00
Living in steady partnership				
<i>Partner</i>	0,67		0,00	1,00
<i>No partner</i>	0,33		0,00	1,00
Partner's employment status				
<i>Currently working</i>	0,46		0,00	1,00
<i>Worked in the past, currently not working</i>	0,20		0,00	1,00
<i>Never worked</i>	0,01		0,00	1,00
<i>No partner</i>	0,33		0,00	1,00

Source: ISSP, 2013 N=10048, missings=0

The group of women who have worked in the past, but are currently not working is potentially extremely heterogeneous since this group contains both women who have worked their entire life and are retired now and women who have chosen to quit working after they had children.

In addition to that, these women can also have various other reasons for why they have stopped participating in the labour force. Therefore, I have chosen not to use this particular group and limited the analyses to women who are currently working (that is in 2012) and women who never worked. Therefore I created a dichotomous variable to make a distinction between women who are currently working and women who have never worked.

Graph 1 shows descriptives for the female role models per country in the year 2012. Working mothers represents the percentage of women in the sample who had a working mother. Female politicians represent the percentage of parliamentary seats in a single or lower chamber held by women. Female researchers represent the share of female researchers as a percentage of the total researchers in all institutional sectors. Female presidents represent the share of female presidents in the largest publicly listed companies. Female board members represent the share of female board members in the largest publicly listed companies.



Graph 1. Female role models per country in 2012

When looking at Graph 1, there are a few interesting things to notice. First, Latvia is the country that scores very high on all female role models compared to the average of all countries. Especially the amount of working mothers is extremely high, namely 92.3%. The other countries that also score exceptionally high on working mothers are the Czech Republic, Bulgaria and Lithuania. The countries which score exceptionally low on working mothers are the Netherlands, Ireland and Croatia.

Second, the percentage of female politicians is the highest for Sweden and Finland. Latvia and Lithuania also score highest on female researchers. Third, there are no female presidents in the following countries; Belgium, Hungary, Ireland, The Netherlands, Portugal and Sweden. In the countries where there are female presidents, the percentages are relatively small compared to other female role models. Finally, Finland, Sweden and Latvia rank highest in the percentage of female board members, especially compared to Hungary and Ireland who have very small percentages.

Apart from Latvia, there are no countries that score relatively high or low on all role models. Since there is not a lot of variance in the variable female presidents, the regressor is less reliable. The variance of working mothers is the largest. Therefore the regressor is likely to be more reliable than the other female role models.

For hypothesis 1, the expectation is that an increase in female role models will lead to an increase in positive attitudes. For hypothesis 2, the expectation is that a high score on positive attitudes will result in an increase of the female labour force participation rate.

To analyse the hierarchical dataset, a multilevel data analysis was performed. This was necessary since the individual observations of women are nested within countries, and some of the explanatory variables are country-level variables. In addition to that, it is the most common method that is used for investigating hierarchical data sets⁸⁴. Besides running multilevel analyses, a logistic multilevel analysis has also been performed. This is necessary, since “in the case of a dichotomous variable as the response variable, the assumptions of continuous scores, normality and homoscedastic errors are violated”⁸⁵.

Validating assumptions

To test the reliability of the models that will be discussed in the next section, there are a few assumptions that have been checked. First, the assumptions for the multilevel models are discussed. Second, the assumptions for the logistic multilevel models are discussed.

First of all, normality has been checked. To do so, the Kolmogorov-Smirnov test has been done and Q-Q plots were created. These figures can be found in Figure 1 of the appendix. The Kolmogorov-Smirnov test indicated that all dependent and independent variables are significant ($p = 0.00 < p = 0.05$), which implicates that the variables are not normally distributed. However, because of the size of the dataset, the violation of the assumption of normality is not a big concern. For large datasets, generalizations can also be made when the variables are not normally distributed, since the distribution tends to be normal regardless the shape of the data⁸⁶. In addition to that, the Kolmogorov-Smirnov test easily results in significant outcomes from minor deviations of normality⁸⁷.

The second assumption that has been tested is the assumption of linearity. To do so, scatter plots between the dependent and independent variables are created. The scatterplots can be found in Figure 2 of the appendix. The scatter plots show that there is a linear relationship between the dependent and independent variables. Therefore, the assumption of linearity is met.

The third assumption that has been tested is the assumption of no multicollinearity. To test this assumption, two correlation matrices have been created. One for the dependent and independent variables and one for the control variables. These matrices can be seen in Table 1.1 and Table 1.2 of the appendix². A high correlation ($r = 0.7$ or higher) indicates that multicollinearity may arise⁸⁸. When looking at Table 1.1, there is no value suggesting multicollinearity. When looking at Table 1.2, one value is suggesting multicollinearity. That is the positive relationship between having a partner and having a partner who is currently working. This is not surprising, since the majority of women's partner's is currently employed (almost 69%). However, partial multicollinearity among control variables does not have major statistical implications. There is no bias, no reduce in the fit of a regression and no falsely reported coefficient standard errors⁸⁹. Therefore, I have decided to keep both control variables in the analyses.

The final assumption that has been tested is the assumption of homoscedasticity. To do so, a scatter plot of the dependent variable and the residuals of the independent variables has been created. This can be seen in Figure 3 in the appendix. The scatter plot shows that the variance of the residual terms is constant, which means that the assumption of homoscedasticity is met⁹⁰.

Concerning the logistic multilevel models, the first assumption that has been tested is the assumption of linearity of the logit. To do so, the model from Table 3.2 has been recreated with an interaction term of the predictor positive attitudes and its log. The interaction term is insignificant ($p = 0.135 > p = 0.05$), indicating that the assumption of linearity of the logit has been met for positive attitudes⁹¹. This also holds for the model from Table 5.3. The model from Table 3.3 also has been recreated in the same way. However, an interaction terms cannot be established for working mothers, since this is not a continuous variable. For female presidents the interaction term can also not be established, since it takes values of 0 for some countries. The interaction term of female researchers is insignificant ($p = 0.117 > p = 0.05$). The interaction term of female board members is significant ($p = 0.000 < p = 0.05$). The interaction term of female politicians is significant ($p = 0.038 < p = 0.05$). Therefore, the assumption of linearity of the logit is not met for this model.

The second assumption that has been tested is the independence of errors. To do so, the Durbin-Watson statistic has been analysed for the models. For Table 3.2, the value of the Durbin-Watson statistic is 1.854, indicating that the errors are independent. For Table 3.3, the value of the Durbin-Watson statistic is 1.868, indicating that the errors are independent.

Finally, the assumption of multicollinearity is already discussed in the previous part.

To conclude, most of the important assumptions are met. However, the assumption of the linearity of the logit is not met for the model that that investigates the direct effect of female role models and positive role models on labour force participation. Therefore, the results need to be interpreted with caution.

² A correlation matrix for the dependent, independent and control variables has also been created to see if there was no high correlation between the dependent / and or independent variables with the control variables. Since no high correlation was found, this table is not included in the appendix.

Results

The following section presents the results of the testing of the two hypotheses with the use of (logistic) multilevel regression analysis and (logistic) linear regression analysis. To start with, the first hypothesis about the effect of female role models on attitudes will be tested; this model will contain the variables positive attitudes, the role models and control variables. Following, the second hypothesis about the effect of positive attitudes on female labour force participation will be tested. This model will contain the variables positive attitudes, female labour force participation and control variables. Subsequently, I will investigate if there is an indirect or direct effect of female role models on female labour force participation. While doing so, the variables positive attitudes, female role models, female labour force participation and control variables will be used. In addition to that, the effect of female role models and attitudes on the intensive margin will be studied as well. Finally, the same hypotheses (apart from the intensive margin of labour force participation) will be tested for the Netherlands only.

The first hypothesis states that when women are exposed to female role models, they have a higher chance of having positive attitudes with respect to working women. To test this hypothesis, a multilevel analysis has been performed. Table 3.1 shows in model 1 that the expectation for hypothesis 1 is not valid for all female role models. Nevertheless, women who are exposed to female role models have a more positive attitude towards working women. Working mothers and female politicians have a significant positive effect on the attitudes. The effect of a working mother is the strongest. Female presidents have a small significant negative effect on attitudes. The other role models do not have a significant effect. Therefore, the first hypothesis is confirmed for mothers and female politicians.

The effect of the individual level and at the country level control variables are also investigated. Model 2 in Table 3.1 shows that hypothesis 1 also holds for working mothers and female politicians when including the control variables. Hypothesis 1 is rejected for female researchers, female presidents and female board members. Working mothers and female politicians have a significant positive effect on attitudes, while female presidents have a significant negative effect on attitudes. The effect of a working mother is again the strongest. When looking at the control variables at the individual level, age has a slightly negative effect. Compared to having completed tertiary education, women who have completed secondary, primary or no formal education have less positive attitudes regarding working women. This effect is the strongest for women who have finished no formal or primary education. Having a partner or not and his employment status does not have a significant effect. The country specific control variables do not have a significant effect. To determine which model has the best fit, I look at AIC and BIC values. When comparing two models, the model with the smallest value of AIC and BIC has the best fit⁹². When looking at the fit of both models, one can see that model 2 has the best fit.

Table 3.1: Multilevel model for the effect of female role models on positive attitudes towards working women

	Model 1 (n=10048) Coefficient	S.E.	Model 2 (n=10048) Coefficient	S.E.
Intercept	2,975***	0,338	2,829**	0,738
Role models				
Working mother	0,319***	0,018	0,190***	0,019
Female politicians	0,020*	0,009	0,021**	0,008
Female researchers	-0,012	0,007	-0,006	0,007
Female entrepreneurship				
<i>Female president</i>	-0,038*	0,014	-0,028***	0,013
<i>Female board member</i>	0,010	0,012	-0,003	0,011
Individual characteristics				
Age			-0,005***	0,001
Education				
<i>No formal or primary</i>			-0,642***	0,038
<i>Secondary</i>			-0,336***	0,019
<i>Tertiary</i>			Ref.	Ref.
Living in a steady partnership				
<i>Partner</i>			Ref.	Ref.
<i>No partner</i>			0,203	0,797
Partner's employment status				
<i>Currently working</i>			Ref.	Ref.
<i>Worked in the past</i>			-0,010	0,024
<i>Never worked</i>			0,027	0,084
Country characteristics				
GDP \$			0,000	0,000
% Female labour force participation			0,011	0,017
% Female part-time working			0,000	0,004
Model fit				
-2 Log Likelihood	24959,898		23986,026	
Akaike's Information Criterion	24675,898		24023,026	
Schwarz's Bayesian Criterion	24733,619		24152,898	

* : sig. < 0,05 (one-sided)

** : sig. < 0,01 (one-sided)

*** : sig. < 0,001 (one-sided)

ref. = reference category

The second hypothesis states that positive attitudes with respect to working women will lead to an increase in labour force participation. To test this hypothesis, a logistic multilevel analysis has been performed. Table 3.2 shows that this expectation is true. Odd ratios instead of coefficients are displayed in Table 3.2. Model 1 shows that the chance of currently working versus the chance of never having worked increases as the attitudes towards working women become more positive. Model 2 shows the same relationship, but also controls for individual and country characteristics. The results show that the chance of being currently participating in the labour force versus the chance of never having worked increases when the attitudes with respect to working women become more positive. The control variables at the country level are not significant and do not have an effect on labour force participation. At the individual level, the chance of participating in the labour force versus never having worked increases with age. Compared to having tertiary education, the labour force participation increases with lower levels of education. This effect is the strongest when women have completed no formal or primary education. Having no partner compared to having a partner does not have a significant effect. When a woman's partner is currently not working she has a higher chance of participating in the labour force compared to when a woman's partner is currently working. In addition to that, when a woman's partner has never worked, she has a significantly higher chance of being employed herself, compared to women whose partner is currently working. The direction of the effects are as expected and therefore hypothesis 2 is accepted. The model fit of model 1 is better than the model fit of model 2.

Table 3.2: Logistic multilevel model for the effect of positive attitudes on labour force participation

	Model 1 (n=6120)		Model 2 (n=6120)	
	Exp(B)	S.E.	Exp(B)	S.E.
Intercept	1,658*	0,223	6,460*** E-7	2,257
Positive attitudes	1,631***	0,048	1,594***	0,058
Individual characteristics				
Age			1,053***	0,004
Education				
<i>No formal or primary</i>			58,796***	0,226
<i>Secondary</i>			4,007***	0,140
<i>Tertiary</i>			Ref.	Ref.
Living in a steady partnership				
<i>Partner</i>			Ref.	Ref.
<i>No partner</i>			0,029	119,469

Partner's employment status		
Currently working	Ref.	Ref.
Worked in the past	4,874***	0,155
Never worked	26,673***	0,297

Country characteristics

GDP \$	1,000	1,915 E-13
% Female labour force participation	1,057	0,044
% Female part-time working	1,002	0,012

Model fit

-2 Log Likelihood	32648,133	37122,817
Akaike's Information Criterion	32650,134	37124,818
Schwarz's Bayesian Criterion	32656,852	37131,535

* : sig. < 0,05 (one-sided)
 ** : sig. < 0,01 (one-sided)
 *** : sig. < 0,001 (one-sided)
 ref. = reference category

In Table 3.3, the effect of female role models on labour force participation is tested to see whether female role models have a direct or indirect effect on the female labour force participation. The first model, 1a, does not include control variables. The results show that some role models have a negative effect on labour force participation. The chance of being currently employed versus the chance of never having worked decreases in the presence of two female role models; mothers and female presidents. Only female board members have a positive impact on the labour force participation of women.

In model 1b, the variable positive attitudes is added. The expectation is that because of the inclusion of positive attitudes, the effect of the female role models will be smaller. Table 3.4 shows that the effect of a working mother indeed becomes smaller when positive attitudes are included. The effect of a working mother has declined with $0,619 - 0,551 = 0,068$. This is $\frac{0,068}{0,619} = 0,110$ i.e. 11.0%. From the total effect of a working mother, 11.0% is mediated by positive attitudes, which is substantial. The negative effect of female presidents disappears when positive attitudes are included. The effect of female board members has declined with $1,093 - 1,089 = 0,004$. This is $\frac{0,004}{1,093} = 0,004$, i.e. 0.4%, which is.

Thus, from the total effect of female board members, 0.4% is mediated by positive attitudes, which is irrelevant. Overall, it appears that positive attitudes mediate the effect of role models slightly³.

In model 2a, control variables are added. Only working mothers have a negative effect on the labour force participation of women. The effect of female politicians, female researchers, female presidents and female board members is insignificant. The effect on the control variables does not change.

In model 2b, the variable positive attitudes is added. As a consequence of that, the effect of a working mother as a role model decreases with $0,466 - 0,428 = 0,038$. This is $\frac{0,038}{0,466} = 0,082$, i.e. 8.2%. From the total effect of a working mother, 8.2% is mediated by positive attitudes, which is not substantial. When looking at the model fit, model 1a is best suited. However, this model does not include control variables. Therefore, model 2b is preferred.

Table 3.3: Logistic multilevel model for the effect of female role models and attitudes on labour force participation

	Model 1a (n=6120)		Model 1b (n=6120)		Model 2a (n=6120)		Model 2b (n=6120)	
	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.
Intercept	15,581*	1,044	3,682	0,994	2,238*** E-6	2,457	7,397*** E-7	2,440
Role models								
Working mother	0,501***	0,090	0,581***	0,093	0,389***	0,113	0,427***	0,115
Female politicians	0,971	0,027	0,961	0,025	0,957	0,026	0,948	0,026
Female researchers	0,984	0,020	0,990	0,019	0,992	0,023	0,994	0,023
Female entrepreneurship								
Female president	0,904*	0,044	0,918	0,041	0,926	0,044	0,937	0,043
Female board member	1,095*	0,037	1,093*	0,035	1,042	0,037	1,045	0,036
Attitudes								
Positive attitudes			1,541***	0,050			1,525***	0,059

³ There are multiple ways to calculate the indirect effects. The method I have used is discussed by Gesthuizen, M. and Pelzer, B. during a lecture by Gesthuizen, M. (19-12-2014). Powerpoint available upon request after permission from both authors.

Individual characteristics

Age		1,058***	0,004	1,061***	0,004
Education					
<i>No formal or primary</i>		66,310***	0,226	53,858***	0,229
<i>Secondary</i>		4,305***	0,140	3,875***	0,141
<i>Tertiary</i>		Ref.	Ref.	Ref.	Ref.
Living in a steady partnership					
<i>Partner</i>		Ref.	Ref.	Ref.	Ref.
<i>No partner</i>		0,018	119,469	0,021	119,469
Partner's employment status					
<i>Currently working</i>		Ref.	Ref.	Ref.	Ref.
<i>Worked in the past</i>		5,039***	0,155	4,942****	0,157
<i>Never worked</i>		24,196***	0,299	25,891***	0,298

Country characteristics

GDP \$		1,000	2,098 E-13	1,000	2,077 E-13
% Female labour force participation		1,088	0,055	1,086	0,055
% Female part-time working		1,004	0,014	1,003	0,014

Model fit

-2 Log Likelihood	32673,822	33064,378	39062,939	38222,962
Akaike's Information Criterion	32675,823	33066,379	39064,940	38224,963
Schwarz's Bayesian Criterion	32682,541	33073,096	39071,656	38231,679

* : sig. < 0,05 (one-sided)

** : sig. < 0,01 (one-sided)

*** : sig. < 0,001 (one-sided)

ref. = reference category

Taking into account the results, one can see that most female role models do not have a direct effect on labour force participation. This does not hold for a working mother though. A working mother has a negative direct effect on labour force participation in both models.

Intensive margin

Besides studying the effect of female role models and attitudes on the extensive margin of female labour force participation (whether or not women are participating), the intensive margin of female labour force participation (how many hours women are working per week) is also investigated. To do so, a linear regression with the weekly hours worked as dependent variable has been performed. The results can be seen in Table 4.1. Model 1a does not include control variables. Positive attitudes towards working women lead to an increase in weekly hours worked. Model 1b includes control variables. Positive attitudes have a significant positive effect on the weekly hours worked. When looking at the control variables, age has a significant negative effect. Having completed lower levels of education rather than tertiary decreases the weekly hours worked. Having no partner compared to having a partner increases the weekly work hours. Having a partner who has never worked or who has worked in the past compared to having a partner who is currently working decreases the weekly hours worked. Finally, a larger share of women who work part-time also decreases the weekly hours worked.

Table 4.1 Multilevel model of the effect of positive attitudes on working hours

	Model 1a (n=6120) Coefficient	S.E.	Model 1b (n=6120) Coefficient	S.E.
Intercept	30,224***	0,620	36,236***	2,790
Attitudes				
Positive attitudes	1,338***	0,098	0,816***	0,100
Individual characteristics				
Age			-0,036***	0,006
Education				
<i>No formal or primary</i>			-3,756***	0,385
<i>Secondary</i>			-1,635***	0,193
<i>Tertiary</i>			Ref.	Ref.
Living in a steady partnership				
<i>Partner</i>			Ref.	Ref.
<i>No partner</i>			28,117**	8,079

Partner's employment status		
<i>Currently working</i>	Ref.	Ref.
<i>Worked in the past</i>	-1,645***	0,239
<i>Never worked</i>	-3,365***	0,848

Country characteristics

GDP \$	0,000	0,000
% Female labour force participation	0,035	0,055
% Female part-time working	-0,110***	0,015

Model fit

-2 Log Likelihood	70931,186	70511,792
Akaike's Information Criterion	70939,186	70539,792
Schwarz's Bayesian Criterion	70968,046	70640,804

* : sig. < 0,05 (one-sided)
 ** : sig. < 0,01 (one-sided)
 *** : sig. < 0,001 (one-sided)
 ref. = reference category

To see if there is also a direct effect of female role models on the weekly working hours of women, a linear regression with the weekly working hours as a dependent variable has been carried out. Model 1 is without the inclusion of control variables. Model 1b and 2b include attitudes as a mediating variable. The results can be seen in table 4.2. A working mother leads to an increase in the weekly working hours of women. Female presidents only have a positive effect on the weekly working hours when no control variables are added. The other female role models do not have a significant effect on the weekly hours worked of women. When looking at the control variables, age has a significant positive effect. Having completed lower levels of education rather than tertiary decreases the weekly hours worked. Having no partner compared to having a partner increases the weekly work hours. Having a partner who has never worked compared to having a partner who is currently working decreases the weekly hours worked. Finally, a larger share of women who work part-time also decreases the weekly hours worked. In model 1b and 2b, the variable positive attitudes is added. In model 1b, the effect of a working mother has declined with $1,876 - 1,488 = 0,388$. This is $\frac{0,388}{1,876} = 0,207$ i.e. 20,7%. From the total effect of a working mother, 20,7% is mediated by positive attitudes, which is substantial. The effect of positive attitudes on female presidents is opposite to what would be expected, therefore there is no support for an indirect effect of female presidents on weekly hours worked.

When looking at model 2b which also includes control variables, the effect of a working mother has declined. The effect of a working mother has decreased with $1,919 - 1,703 = 0,216$. This is $\frac{0,216}{1,919} = 0,113$, i.e. 11,3%. Thus, from the total effect of a working mother, 11,3% is mediated by positive attitudes, which is considerable. When looking at the model fits, model 2b is best suited.

Table 4.2: Multilevel model of the effect of female role models and positive attitudes on weekly hours worked

	Model 1a (n=6120) Coefficient	S.E.	Model 1b (n=6120) Coefficient	S.E.	Model 2a (n=6120) Coefficient	S.E.	Model 2b (n=6120) Coefficient	S.E.
Intercept	32,573***	3,143	28,648***	3,432	37,857***	4,042	34,995***	4,565
Role models								
Working mother	1,876***	0,292	1,488***	0,295	1,919***	0,302	1,703***	0,303
Female politicians	-0,221	0,080	-0,048	0,086	0,004	0,043	-0,017	0,048
Female researchers	0,093	0,061	0,112	0,066	-0,028	0,039	-0,019	0,044
Female entrepreneurship <i>Female president</i>	0,291*	0,131	0,337*	0,142	0,092	0,074	0,120	0,082
<i>Female board member</i>	-0,078	0,111	-0,085	0,120	-0,047	0,061	-0,044	0,069
Attitudes								
Positive attitudes			1,224***	0,157			0,979***	0,158
Individual characteristics								
Age					0,074***	0,010	0,0778***	0,010
Education <i>No formal or primary</i>					-7,831***	0,726	-7,213***	0,732
<i>Secondary</i>					-1,783***	0,271	-1,518***	0,274
<i>Tertiary</i>					Ref.	Ref.	Ref.	Ref.
Living in a steady partnership <i>Partner</i>					Ref.	Ref.	Ref.	Ref.
<i>No partner</i>					29,924**	9,632	29,707**	9,600

Partner's employment status					
<i>Currently working</i>			Ref.	Ref.	Ref.
<i>Worked in the past</i>			-0,544	0,428	-0,492
<i>Never worked</i>			-3,659**	1,140	-3,677**
Country characteristics					
GDP \$			0,000	0,000	0,000
% Female labour force participation			0,015	0,092	0,005
% Female part-time working			-0,152***	0,222	-0,153***
Model fit					
-2 Log Likelihood	45315,199	45255,046	45096,098	45058,334	
Akaike's Information Criterion	45331,199	45273,046	45132,098	45096,334	
Schwarz's Bayesian Criterion	45384,953	45333,520	45253,045	45224,001	

* : sig. < 0,05 (one-sided)

** : sig. < 0,01 (one-sided)

*** : sig. < 0,001 (one-sided)

ref. = reference category

Dutch sample

Finally, apart from running the analyses for the entire sample, a subsample of Dutch women is analysed. The descriptive statistics of the subsample are given in Table 5.1.

Table 5.1: Descriptive statistics of Dutch sample

	Mean	Variance	Min.	Max.
Attitudes towards working women (1=negative, 5=positive)	3,68	0,64	1,00	5,00
Mother ever working for pay before respondent 14 (0=yes, 1=no)	1,65	0,23	1,00	2,00
Age	52,19	248,58	18,00	92,00
Employment status				
<i>Currently working</i>	0,55		0,00	1,00
<i>Currently not working</i>	0,45		0,00	1,00
Weekly working hours	30,28	66,09	5,00	96,00
Education				
<i>No formal or primary education</i>	0,01		0,00	1,00
<i>Secondary education</i>	0,54		0,00	1,00
<i>Tertiary education</i>	0,45		0,00	1,00
Living in a steady partnership				
<i>Partner</i>	0,74		0,00	1,00
<i>No partner</i>	0,26		0,00	1,00
Weekly working hours partner	40,33	79,75	10,00	80,00
Partner's employment status				
<i>Currently working</i>	0,49		0,00	1,00
<i>Worked in the past, currently not working</i>	0,24		0,00	1,00
<i>Never worked</i>	0,02		0,00	1,00
<i>No partner</i>	0,26		0,00	1,00

Source: ISSP, 2013 N=568, missings=0

Hypothesis 1 and 2 are tested again for the subsample, with the use of (logistic) linear regression.

First, hypothesis 1 is tested. In Table 5.2, the linear regression output of the female role model, the mother, is reflected. In model 1, no control variables are added. A working mother has a positive impact on attitudes towards working women. In model 2, control variables are added. It appears that a working mother has a positive effect on attitudes towards working women when the control variables are added. Age has a slightly negative effect on positive attitudes regarding working women. Compared to completing tertiary education, having completed secondary, primary or no formal education has a negative effect on the positive attitudes towards working women. This effect is the largest for women who have completed no formal or primary education. Having no partner compared to having a partner does not have an effect. The partner's employment status does also not have an effect on the positive attitudes towards working women. When looking at the model fit, model 2 is best suited because of the lower values of AIC and BIC. When comparing these results to the results of the entire sample, there are not many differences. Only the intercept is higher and the effects of a working mother and level of education completed are a bit higher. The effects point in the same direction.

Table 5.2: Linear regression of the effect of the female role model on attitudes

	Model 1 (n=568)		Model 2 (n=568)	
	Coefficient	S.E.	Coefficient	S.E.
Intercept	3,556***	0,041	4,141***	
Role model				
Working mother	0,351***	0,069	0,230**	0,137
Individual characteristics				
Age			-0,006*	-0,122
Education				
<i>No formal or primary</i>			-0,909**	-0,106
<i>Secondary</i>			-0,425***	-0,265
<i>Tertiary</i>			Ref.	Ref.
Living in a steady partnership				
<i>Partner</i>			Ref.	Ref.
<i>No partner</i>			0,188	0,103
Partner's employment status				
<i>Currently working</i>			Ref.	Ref.
<i>Worked in the past</i>			0,104	0,056
<i>Never worked</i>			-0,057	-0,010

Model fit

-2 Log Likelihood	1330,926	1272,362
Akaike's Information Criterion	1336,926	1292,362
Schwarz's Bayesian Criterion	1349,952	1335,783

* : sig. < 0,05 (one-sided)

** : sig. < 0,01 (one-sided)

*** : sig. < 0,001 (one-sided)

ref. = reference category

Second, hypothesis 2 is tested. In Table 5.3, the logistic linear regression output of attitudes on labour force participation is reflected. In Model 1, without control variables, the effect of positive attitudes towards working women has a positive effect on the labour force participation. The chance of working versus the chance of not working is more likely in the presence of positive attitudes. A similar result holds when the control variables are added. As can be seen in Model 2, the presence of positive attitudes increases the chance of working versus not working. In addition to that, the chance of working versus not working decreases when women are ageing. Finally, having a partner who is currently not working but has worked in the past decreases the chance of participating in the labour force for women as well. Education seems not to have an effect. Moreover, the standard error is extremely large, indicating that there is not a lot of variance in this variable. This can be seen in the descriptives of the sample. Only five people of the sample have not completed secondary or tertiary education. This causes biased results. When comparing the results to the results of the entire sample, we see that the effect of positive attitudes is approximately the same. Age has a negative effect for the Dutch sample, while it has a positive effect for the entire sample. The results for education cannot be compared, because of the unequal distribution in the Dutch sample. Furthermore, the effect of having a partner or not is insignificant for both samples. Finally, the results of a partner's employment status differ. In the entire sample, having a partner who has worked in the past or has never worked increases the chance of participating in the labour force, whereas in the Dutch sample, having a partner who has worked in the past decreases the chance of participating in the labour force. The model fit indicates that model 2 is best suited, because of the lower values of the pseudo-R.

Table 5.3: Logistic linear regression of the effect of positive attitudes on labour force participation

	Model 1 (n=568) Exp(B)	S.E.	Model 2 (n=568) Exp(B)	S.E.
Intercept	0,120***	0,427	9,416**	0,672
Positive attitudes	1,899***	0,114	1,594**	0,135
Individual characteristics				
Age			0,946***	0,008
Education				
<i>No formal or primary</i>			0,000	17716,932
<i>Secondary</i>			0,934	0,212
<i>Tertiary</i>			Ref.	Ref.
Living in a steady partnership				
<i>Partner</i>			Ref.	Ref.
<i>No partner</i>			501618322,9	40193,106
Partner's employment status				
<i>Currently working</i>			Ref.	Ref.
<i>Worked in the past</i>			0,323***	0,270
<i>Never worked</i>			0,374	0,729
Model fit				
-2 Log Likelihood	745,555			585,425
Cox & Snell R Square	0,058			0,290
Nagelkerke R Square	0,078			0,388

* : sig. < 0,05 (one-sided)

** : sig. < 0,01 (one-sided)

*** : sig. < 0,001 (one-sided)

ref. = reference category

At last, it is tested whether the effect of female role models on labour force participation is indirect or direct. In Table 5.4, the logistic linear regression output of female role models on employment status is reflected. In model 1a, without control variables, the mother as a female role model has a positive effect on the chance of working compared to not working. When control variables are added in Model 2a, this positive effect becomes insignificant. The mother as a female role model does not have any impact on the chance of working versus the chance of not working. Therefore, the control variables are not reflected in Table 5.4. In Model 1b and 2b, positive attitudes towards working women are also included.

In Model 1b, the effect of a working mother decreases when positive attitudes are added, with $2,727 - 2,332 = 0,395$. This is $\frac{0,395}{2,727} = 0,145$, i.e. 14.5%. This means that positive attitudes are substantially mediating the effect of a working mother as a role model.

In Model 2b, the effect of a working mother is insignificant.

When looking at the model fit, model 2b is best suited. Therefore, the conclusion is that female role models do not have a direct or indirect effect on labour force participation of Dutch women.

When comparing the results to the results of the entire sample, there are a few notable differences. The effect of a working mother in the models without control variables is positive for the Dutch sample, but negative in the entire sample. In the models with the inclusion of control variables, the effect of a working mother is insignificant for the Dutch sample, but negative for the entire sample. The effect of positive attitudes is similar for both samples.

Table 5.4: Logistic linear regression of the effect of the role model and attitudes on labour force participation

	Model 1a (n=568)		Model 1b (n=568)		Model 2a (n=568)		Model 2b (n=568)	
	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.
Intercept	0,907	0,104	0,125	0,432	51,665***	0,472	8,852**	0,686
Role model								
Working mother	2,727***	0,188	2,332***	0,194	1,223	0,230	1,105	0,235
Attitudes								
Positive attitudes			1,741***	0,117			1,582**	0,136
Model fit								
-2 Log Likelihood	749,749		725,773		596,715		585,247	
Cox & Snell R Square	0,051		0,091		0,275		0,290	
Nagelkerke R Square	0,069		0,121		0,369		0,388	

* : sig. < 0,05 (one-sided)

** : sig. < 0,01 (one-sided)

*** : sig. < 0,001 (one-sided)

ref. = reference category

Discussion and conclusion

This section will discuss the results that were described in the previous section.

Hypothesis 1

First, the results for hypothesis 1 “the exposure to female role models will lead to an increase in positive attitudes towards working women” will be discussed.

Independent variables

When looking at the results for the entire sample, one can see that working mothers and female politicians have a positive effect on the positive attitudes towards working women, whereas female presidents have a negative effect.

Evidence for the positive effects of working mothers is also described by numerous authors⁹³. Working mothers are expected to pass on their attitudes with respect to working women via observational exposure to their daughters. As a consequence of this, daughters of working women will have more positive attitudes towards working women. A working mother has the strongest effect of all female role models. This is what one would expect since a daughter is exposed to her mother the most and there is an (expected) close relationship between a mother and daughter. In addition to that, the lagged effect of exposure on attitudes is best captured.

Concerning female politicians, authors have found that they can act as a role model which will increase political participation⁹⁴. The study by Wolbrecht and Campbell (2007) uses data from one period as well. The authors measure political role models, attitudes towards the role of women in society and political activity in the same year. However, they use the attitudes as a control variable. Political participation is something that can change more quickly than attitudes. Nevertheless, as mentioned in footnote 1, including data on female politicians from the year 2007 instead of the year 2012 does not change the results. Other authors have found evidence for an empowerment of female’s leadership behaviour in the presence of female political role models⁹⁵. This thesis also provides evidence for a positive relationship between female politicians and positive attitudes towards working women. This is possibly due to a general feeling of empowerment when women see that other women can lead.

The negative effect of female presidents in large corporations could be explained by various reasons. For example jealousy and competition. Women might feel threatened or insecure by these types of strong women. Another example could be negative role modelling. As described by a paper of Cross et al. (2017), it could be that women believe that female presidents of big corporations are not able to combine their family life and their career, which makes them feel less positive about working women. As mentioned in footnote 1, using data of female presidents in the year 2007 leads to an insignificant effect of female presidents on positive attitudes towards working women. However, the results need to be carefully interpreted, since the variance in female presidents in both the years 2007 and 2012 is quite small. Further research is necessary to make a valid conclusion.

The effect of female researchers is insignificant. One possible explanation for this is that women are not able to observe many female researchers.

Female politicians have a higher chance of being on national television since they might be followed while running campaigns before elections and appearing in political talk shows. In addition to that, especially lower educated women who did not attend college or university have a lower chance of being exposed to female researchers. Higher educated women are more likely to be taught by female academics and are more likely to read academic papers which are (partly) written by female researchers. As mentioned in footnote 1, the effect of female researchers becomes significant, yet negative when data of the year 2007 is used. This result is still questionable, due to the little exposure.

Control variables

With respect to the control variables, it appears that having completed lower levels of education will reduce the positive attitudes towards working women. This finding is also confirmed by the paper of Farré and Vella (2007).

Age has a slightly negative effect on the positive attitudes towards working women. This is not surprising since a large part of the sample is relatively old. 25% of the women in the sample are 62 years or older. 10% of the women in the sample are 71 years or older. In general, attitudes towards working women have become less traditional over the recent years, due to some historical changes that have created new options for women⁹⁶. Nevertheless, these changes did not necessarily have to influence the older women in the sample. In addition to that, women from younger cohorts reflect a more career-oriented attitude⁹⁷.

At first sight, it seems odd that having a partner or not and his employment status does not affect the positive attitudes with respect to working women. However, as confirmed by the study of Christiansen et al. (2016), positive attitudes towards working women have been increasing at approximately the same pace for both men and women. If women find a partner who shares the same views concerning labour force participation, it is not surprising that the partner's attitudes do not have an influence on women's attitudes. In addition to that, a partner's income does not necessarily have to change how a woman thinks about working herself or other working women.

With respect to the employment status of women's partners, the sample is unbalanced. From the women who have a partner, 68.7% has a working partner, 29.9% has a partner who has worked in the past where only 1.5% has a partner who has never worked. This may have caused biased results.

Country-level control variables do not seem to have an effect. It is not surprising that GDP does not have an effect. Countries with a high GDP are more likely to have more women participating in the labour force. However, since the GDP of the countries in the sample is relatively high for all countries, no significant difference is expected. The insignificant effect of the percentage of females who are participating in the labour force is unexpected. However, just because there are a lot of women who work, does not mean that attitudes towards these women become more positive. The insignificant effect of the share of women who work part-time is also unexpected. A high proportion of part-time working women is expected to be correlated with flexibility and security in the labour market for women⁹⁸. As a consequence of this, the attitudes regarding working women are expected to be more positive when more women work part-time.

Hypothesis 2

Second, the results for hypothesis 2 “positive attitudes towards working women will result in an increase in the female labour force participation” will be discussed.

Independent variable

The results show that positive attitudes have a positive effect on labour force participation. With the inclusion of control variables, women who have positive attitudes are 55% more likely to participate in the labour force compared to never having participated in the labour force. This result is in line with hypothesis 2. There is also theoretic support for this result, described by numerous authors⁹⁹. They all found a positive relationship between positive attitudes towards working women and labour force participation. However, Yerkes (2013) found evidence that individual and household characteristics, together with institutional context matter more than attitudes. Some of these characteristics are taken into account in this paper, but not all of them. The institutional context is not controlled for in this article. This could be viewed as a shortcoming. Even though several other authors also do not include these variables¹⁰⁰, the inclusion of institutional variables could be a valuable step in further research.

Control variables

When looking at the control variables at the individual level, the results show that age has a small positive effect on labour force participation. This is probably due to a share of young women who are still studying or searching for their first job. Compared to having completed tertiary education, having completed secondary, primary or no formal education increases the labour force participation. This is a somewhat surprising result since higher education usually results in a higher chance of participating in the labour force¹⁰¹. The correlation between tertiary education and positive attitudes is 0.244, whereas the correlation between secondary education and positive attitudes is -0.186 and the correlation between no formal or primary education and positive attitudes is -0.138. Thus, the effect of education on positive attitudes is in the expected direction. However, the effect of education on labour force participation is in the opposite direction compared to the expectation. However, it could be that the women who have completed lower levels of education also have lower (household) incomes, which increases the need of participating in the labour force. As mentioned before, many respondents did not want to answer the questions related to personal and household income. As a consequence of this, household income and personal income are omitted as control variables. There is no difference found between women who have a partner and women who do not have a partner. The employment status of women her partner does seem to matter. Compared to having a partner who is currently working, having a partner who worked in the past or has never worked increases labour force participation heavily. When a woman her partner is currently not working, she is five times more likely to have a job compared to never having worked. When a woman her partner has never worked, this chance increases up to 26 times. This is probably due to a low or no income from a woman her partner. However, caution in interpreting this result is still necessary, because of the unevenly distributed sample. The control variables at the country level have proven to be insignificant.

For GDP this is expected since the causal explanation runs in the opposite direction. With respect to the other control variables at the country level, their effect might be insignificant because women are more responsive to individual characteristics in their decision to participate in the labour force.

Direct or indirect effect?

Third, it is investigated whether female role models have a direct or indirect effect on labour force participation. In the model without control variables, a working mother has a negative effect on the chance of currently participating in the labour force. This is a surprising result since the previously discussed results show that a working mother has a positive effect on positive attitudes towards working women and that these positive attitudes have a positive effect on the chance of labour force participation. This negative effect of working mothers is also inconsistent with previous literature on the same subject¹⁰². Nonetheless, there is still a possible explanation for this result. As mentioned by Cross et al. (2017), there could also be negative consequences of female role models. Even though their paper described the potential negative effect of female managers, this might hold for working mothers as well. A large share of the women in the sample could have experienced that their mother was unable to successfully combine her career with taking care of the family. Female presidents also have a negative effect on the chance of currently participating in the labour force compared to never having participated in the labour force. This is possibly due to the same explanations as mentioned in the analysis of hypothesis 1, which causes less positive attitudes towards working women. There is also a type of female role model which has a positive effect on the chance of participating in the labour force, compared to never having participated in the labour force, namely female board members. Again, women can feel empowered by these women which will cause them to believe that they can have a successful career as well. This, in turn, will lead to an increase in labour force participation. When positive attitudes regarding working women are added as a mediating variable, the negative effect of a working mother decreases by approximately 8 percent. In addition to that, the negative effect of female presidents becomes insignificant. Furthermore, the positive effect of female board members decreases slightly. This is in line with the expectations.

In the model that includes control variables, a working mother still has a negative effect on the labour force participation of women. The effects of female presidents and female board members disappear. Age has a significant positive effect, which can also be explained by young women who are still studying or searching for their first job. Compared to having completed tertiary education, having completed secondary, primary or no formal education increases the labour force participation again. The possible explanation might still be that the women who have completed lower levels of education also have lower (household) incomes, which increases the need of participating in the labour force. Having a partner or not still does not have an effect, whereas the employment status of women her partner seems to matter again. The explanations are the same as mentioned for hypothesis 2. The control variables at the country level have proven to be insignificant. For GDP this is expected since the causal explanation runs in the opposite direction. Concerning the other control variables at the country level, their effect might be insignificant because women are more responsive to individual characteristics in their decision to participate in the labour force.

Causality

It is not clear whether the above-described effects are the result of causation or correlation. The case in which causation is the most plausible is the effect of a working mother. We can assume that a daughter is exposed to her mother working before her attitudes towards working women are completely developed. For the other role models it is questionable whether or not causality is demonstrated. This is because of the following two things. First of all, it is unclear when attitudes towards working women are being developed. As a consequence of this, it is debatable when exposure to female role models will have the strongest impact on attitudes towards working women. In addition to that, since exposure to the other female role models is significantly lower than exposure to a working mother, one can assume that the link between these role models and attitudes towards working women is significantly weaker. Therefore, I only demonstrated correlation between these role models (female politicians, female researchers, female presidents of large corporations and female board members) and attitudes towards working women.

The intensive margin of female labour force participation

Besides analysing the extensive margin of female labour force participation, the intensive margin is also studied. The results show that a working mother has a positive effect on the weekly work hours of women, but that this effect is mediated by positive attitudes towards working women. Since positive attitudes towards working women lead to an increase in labour force participation, it is not surprising that these positive attitudes also have a significant positive effect on weekly hours worked.

Thus, it turns out that having a working mother increases positive attitudes towards working women and increases the weekly hours worked. However, the decision to participate in the labour force is negatively affected by working mothers. Thus, there is a positive indirect effect of working mothers on labour force participation, but a negative direct effect of working mothers on labour force participation.

Dutch sample

Finally, the results of the Dutch subsample will also be discussed for each hypothesis separately. Since the analysis covers women who live in the same country, only the variables at the individual level will be taken into account.

Hypothesis 1

First, the results for hypothesis 1 “the exposure to female role models will lead to an increase in positive attitudes towards working women” will be discussed. The chance of participating in the labour force versus not participating in the labour force increases for women who had had a working mother before they turned 14 years old. This result still holds when control variables are added. This result is expected and confirmed by literature on the same topic¹⁰³.

When looking at the control variables, age has a slightly negative effect. Although this effect might seem surprising at first sight, it could be explained by the relatively old sample. Education has a positive effect.

Higher levels of education completed lead to higher positive attitudes towards working women. This finding is also confirmed by the paper of Farré and Vella (2007). Having a partner or not does not seem to have an effect. This could be because of the same reason as mentioned in the discussion of hypothesis 1 for the entire sample.

The employment status of women's partners also does not have an effect. This is not surprising since whether a man works or not does not necessarily have to influence how he thinks about working women. As a consequence of that, women their attitudes do not have to be influenced by whether or not her partner is currently working or not.

Hypothesis 2

Second, the results of hypothesis 2 "positive attitudes towards working women will result in an increase in the female labour force participation rate" will be analysed. The results show that having positive attitudes regarding working women will increase the labour force participation. Even with the inclusion of control variables, women are almost 60 percent more likely to participate in the labour force with the inclusion of positive attitudes.

When looking at the control variables, age has a slightly negative effect again. This could as well be due to the relatively old age of the women in the sample. Education does not seem to matter. However, education is not normally distributed. The percentage of women who have only completed primary or no formal education is .1, whereas 54 percent of the women have completed secondary education and 45 percent of the women have completed tertiary education. As a result of this, no formal or primary education is not expected to be significant, and the differences between secondary and tertiary education are not expected to be huge. Having a partner or not does not seem to matter. The same holds for having a partner who is currently working or has never worked. Only having a partner who has worked in the past will increase labour force participation when comparing to having a partner who is currently working. Again, the distribution is uneven. Only 2 percent of the women have a partner who has never worked. Whereas 66 percent of the women have a partner who is currently working and 32 percent of the women have a partner who has worked in the past. Therefore, no valid conclusions can be made about the employment status of the woman's partner.

Direct or indirect effect?

Finally, it is investigated whether female role models have a direct or indirect effect on labour force participation. When no control variables are added, a working mother has a large positive effect on labour force participation of women. Positive attitudes have a mediating effect. However, when control variables are added, the positive effect of a working mother becomes insignificant. However, in the entire sample, a working mother has a negative effect. Therefore, this result is more in line with what would be expected. Positive effects are predicted by the literature¹⁰⁴, but negative effects might also be expected as mentioned by Cross et al., (2017). This could be due to negative experiences of women with a working mother.

Comparison with entire sample

When comparing the results of the Dutch sample with the results of the entire sample, there are only a few notable differences. When investigating the effect of female role models on attitudes towards working women, the effects are the same for the Dutch sample as for the entire sample. Only the intercept is a bit higher and the effect of a working mother is a bit stronger in the Dutch sample. The effect of education is also larger in the Dutch sample, but due to the unequal distribution of education this difference is not valid. When looking at the effects of positive attitudes on labour force participation, they are roughly the same. Only the effect of the control variables differs. Age has a negative effect in the Dutch sample, compared to a positive effect in the entire sample. This could be because the women in the Dutch sample are slightly older compared to women in the entire sample. Furthermore, the effects of the partner's employment status differ. In the Dutch sample, only a partner who has worked in the past has a significant negative effect on labour force participation. In the entire sample, a partner who has worked in the past or has never worked has a significant positive effect on labour force participation. However, since the distribution of the partner's employment status is unequal for the Dutch sample, no valid inference regarding the differences can be made. Finally, when looking at the direct effect from female role models on labour force participation, the largest differences can be seen. In the models without control variables, a working mother has a positive effect on labour force participation for the Dutch sample, while a working mother has a negative effect on labour force participation for the entire sample. When control variables are added to the model, the effect of a working mother becomes insignificant in the Dutch sample, but negative in the entire sample. When looking at the female role models per country, one can see that the amount of working mothers is the lowest in the Netherlands. As a consequence of this, it could be that the role model effect of a working mother is stronger since it is less common for a mother to work.

Implications and limitations of the study

Overall the results are reliable, but there are a few statistical limitations of the current study. First of all, the sample is not balanced. Especially with regards to the highest completed level of education and the employment status of women's partners, the sample is unevenly distributed. In addition to that, not all relevant information was provided by all (or enough of) the respondents. Especially the lack of information on personal and household income is a shortcoming. Besides that, it would have been interesting to see if the weekly working hours of the partner also had an impact on the decision of women to participate in the labour force or not. Concerning control variables at the country level, it would also be interesting to see if the institutional context of the different countries made a difference.

As mentioned in the introduction, the Europe 2020 strategy and the government of the Netherlands are both aiming at increasing the female labour force participation. The goal of the Europe 2020 strategy is to raise living standards and maintain socioeconomic development. The goal of the Dutch government is to make more women economically independent. Therefore, the implications of this thesis are that if governments want to increase the labour force participation of women they need to carefully develop an approach to do so. Some female role models increase positive attitudes towards working women. These positive attitudes lead to an increase in labour force participation.

When the direct effect of female role models on labour force participation is studied, the effect of female role models on labour force participation becomes negative, apart from female board members. For the Dutch subsample, the effect of a working mother becomes insignificant. The strongest effect is the effect of a working mother on positive attitudes towards working women, but this is not something that the government can stimulate in the short run. Therefore, the government should encourage labour force participation of women in another way, so that this will also lead to an increase in labour force participation of the future generations of women via the role model effect of a working mother. The increase in positive attitudes towards working women in the long run will result in a higher labour force participation rate, both at the extensive and intensive level.

The suggestion for further research is to run the analyses again with a more balanced yet still representative sample, with the inclusion of additional control variables, such as income, weekly hours worked of the partner and the institutional context. To reach the goal of increasing female labour force participation, governments should investigate other measures which are probably more effective.

Nevertheless, this thesis still provided relevant insights about the mechanism between female role models, attitudes and female labour force participation. Not only the extensive level of labour force participation has been studied, but also the intensive margin. In addition to that, the effect of multiple female role models is investigated at once, which provides other useful understandings compared to just investigating one female role model at once. The evidence demonstrates that female role models do have an effect on positive attitudes and that these attitudes matter concerning the decision of participating in the labour force or not.

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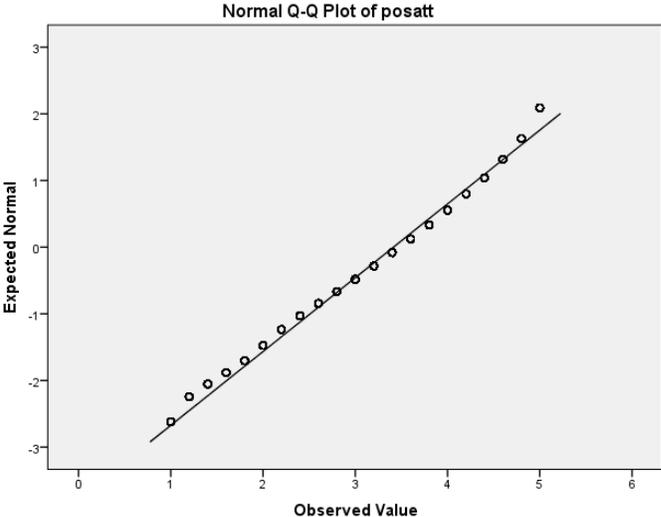
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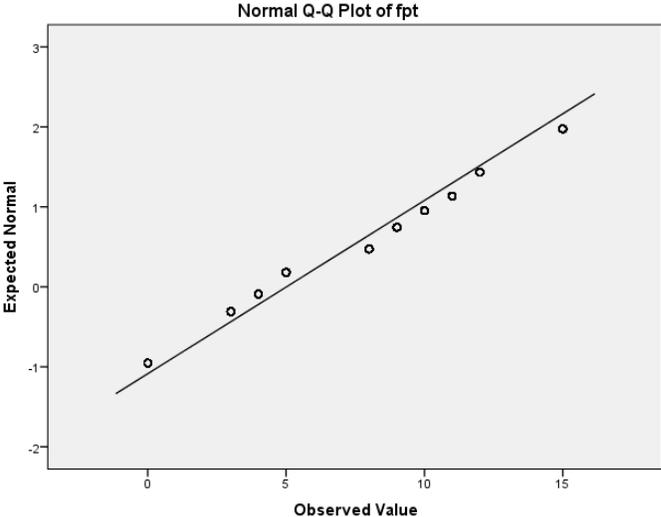
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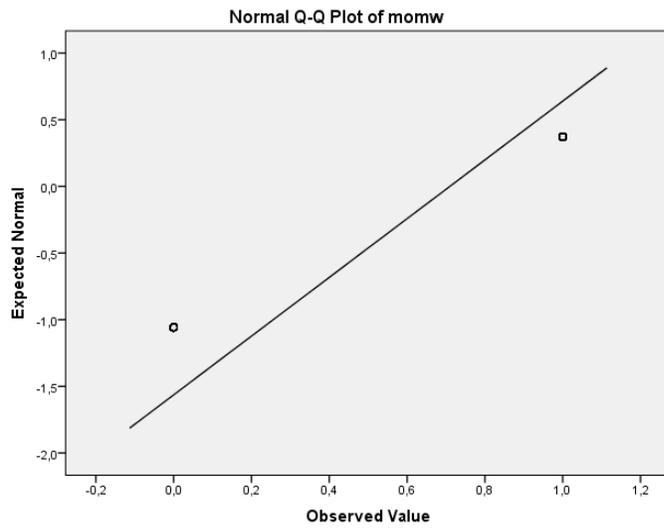
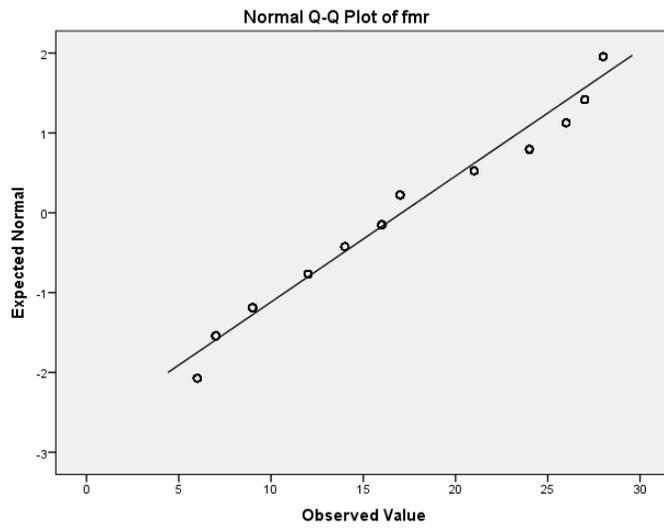
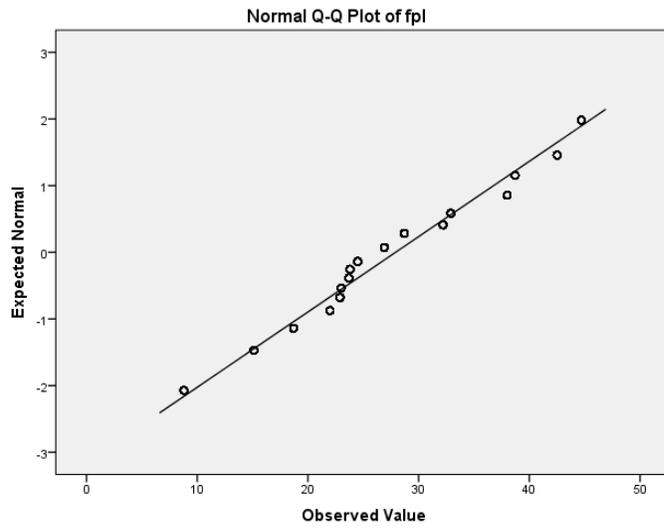
Figure 1 Q-Q plots for normality*

Dependent variable



Independent variables





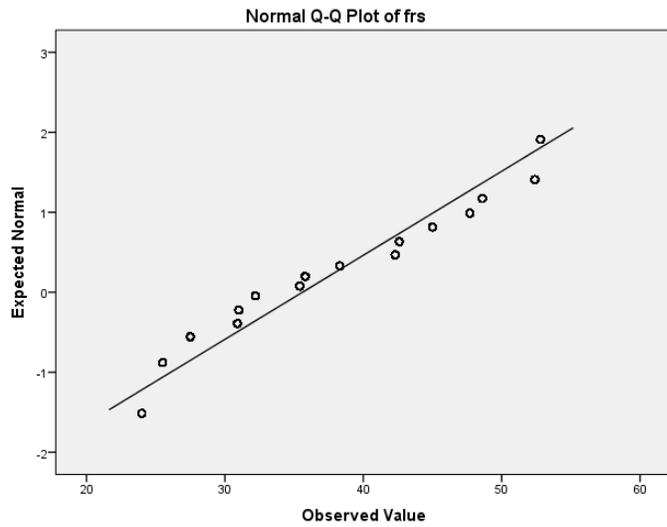
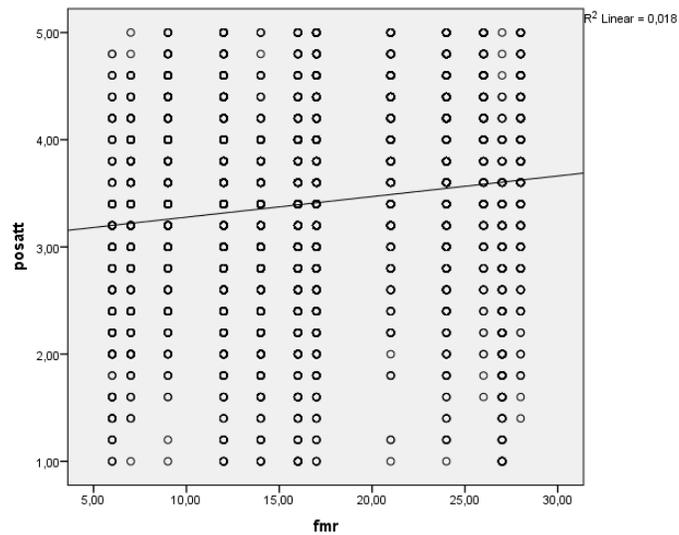
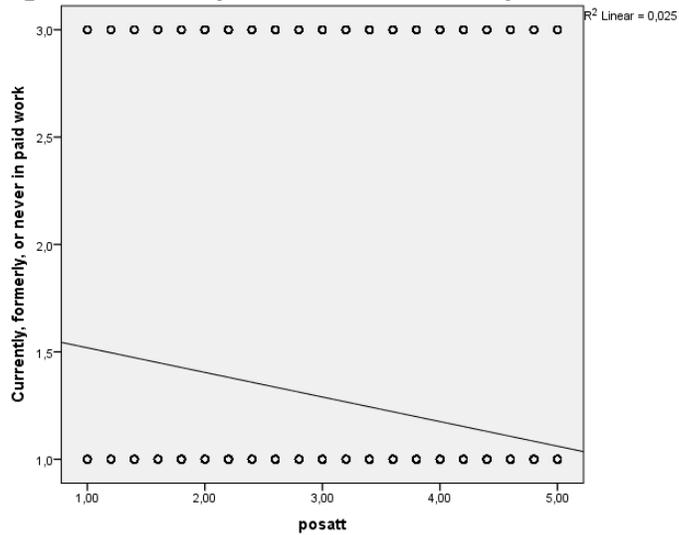
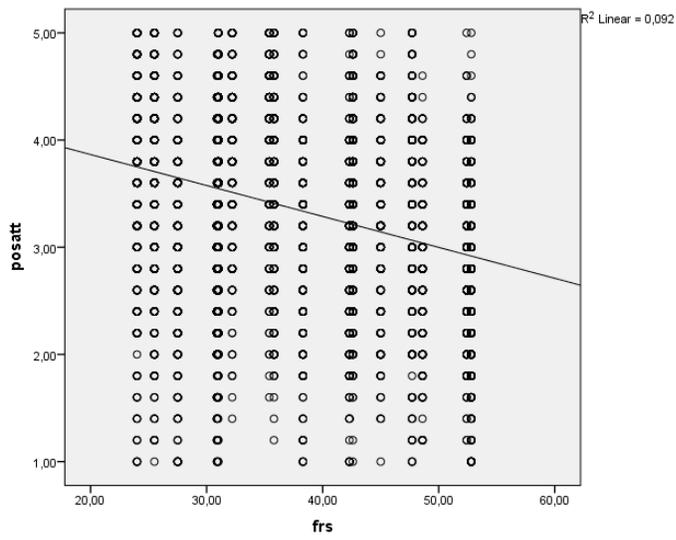
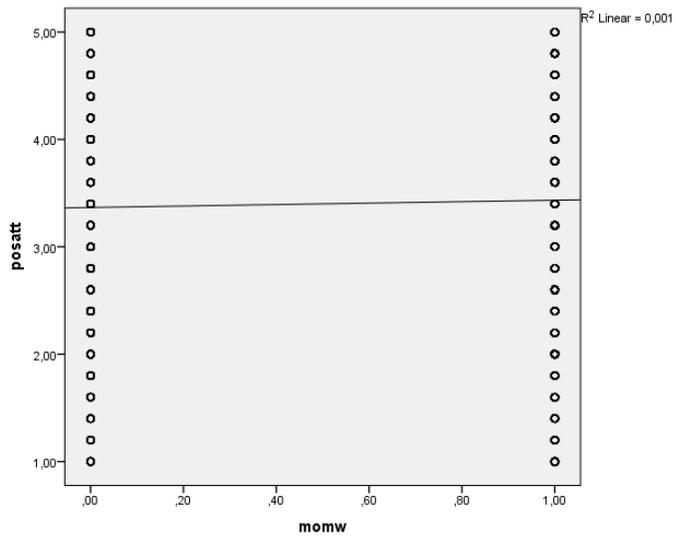


Figure 2 Scatterplots between the dependent and independent variables*





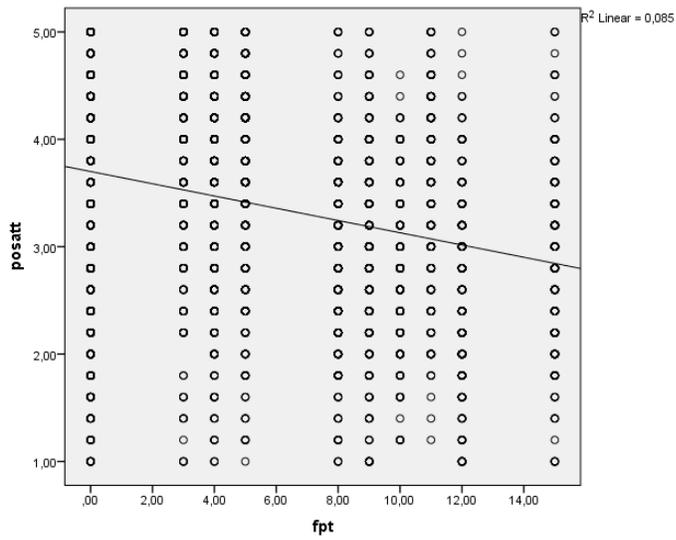
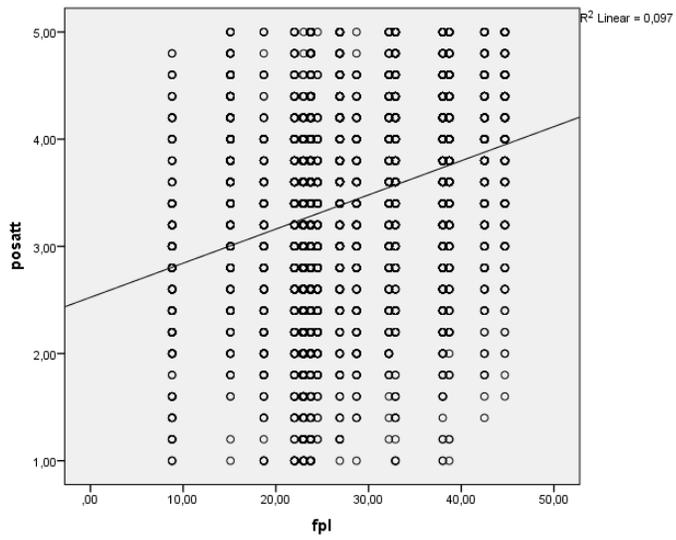


Figure 3 Homoscedasticity graph*

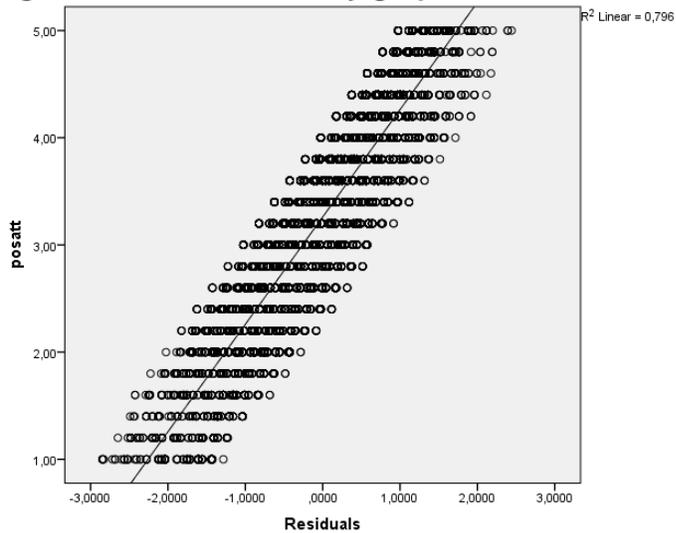


Table 1.1 Correlation matrix dependent and independent variables*

	Paidwork	Positive attitudes	Working mother	Female politicians	Female researchers	Female presidents	Female board members
Paidwork	1						
Positive attitudes	0.158	1					
Working mother	0.070	0.034	1				
Female politicians	0.035	0.312	-0.087	1			
Female researchers	-0.075	-0.304	0.093	-0.363	1		
Female presidents	-0.063	-0.291	0.251	-0.347	0.357	1	
Female board members	0.098	0.135	0.064	0.488	-0.171	0.217	1

Table 1.2 Correlation matrix control variables*

	Age	Nofor pri	Sec	Ter	Partner	Pcw	Pfw	Pnw	GDP	Femp	Fem part
Age	1										
Nofor pri	0.244	1									
Sec	-0.037	-0.241	1								
Ter	-0.059	-0.148	-0.924	1							
Partner	0.064	-0.047	-0.042	0.061	1						
Pcw	-0.073	-0.116	-0.072	0.119	0.770	1					
Pfw	0.248	-0.112	0.048	-0.093	0.220	-0.414	1				
Pnw	-0.098	0.010	0.011	-0.015	0.071	-0.133	-0.038	1			
GDP	0.000	-0.027	-0.063	0.075	0.059	0.055	-0.008	0.017	1		
Femp	0.068	-0.035	-0.073	0.089	0.046	0.042	-0.003	0.015	-0.047	1	
Fem part	0.066	-0.046	-0.156	0.177	0.089	0.068	0.022	0.006	-0.090	0.429	1

***Note:**

Paidwork = variable for women who are currently working.

Posatt = variable positive attitudes

Fpt = variable female presidents

Fpl = variable female politicians.

Fmr = variable female board members.

Frs = variable female researchers.

Momw = variable working mother.

Age = variable for age of respondents.

Noforpri = dummy for no formal or primary education.

Sec = dummy for secondary education.

Ter = dummy for tertiary education.

Partner = dummy for having a partner.

Pcw = dummy for partner currently working.

Pfw = dummy for partner formerly working.

Pnw = dummy for partner has never worked

GDP = variable for Gross Domestic Product (US \$).

Femp = variable for female labour force participation (%).

Fempart = variable for females who work part-time (%).