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Women in the labour market in Poland and USA in the context of Mincer’s substitution effect

Introduction

The aim of the paper is to investigate the phenomenon of substitution effect in the context of female participation in the labour market. The substitution effect of married women was described by J. Mincer in the 1960s, who found the positive correlation between real wages rates of females and their labour force participation. Are the mechanisms found by Mincer still due and describe the new market reality? The author is aware of the ongoing criticism of the above perspective by the feminist economists that are ongoing since the 1980s. The main critique of the orthodox approach of neoclassical economists was a narrow view of the situation of women and not considering social and cultural aspects within their work. Whereas, whether the substitution effect is a precise theory to describe the situation of women in the labour market is outside the scope of the following work. It intends to answer whether the substitution effect can still be found on the market, rather than discusses the reasons behind the situation.

Literature review

In the late 1950s and 1960s, in neoclassical economy trends, research intended to answer the question of why women engage in paid labour. The topic was investigated by J. Mincer, B. Friedan, G. Becker and other researchers [Beneria 2003]. It was found that despite growing incomes in families there was an increased number of active women in the labour market. Until then, it was believed that increased income in families would decrease

the supply of workforce, thus decrease the number of female workers. The answer to the phenomenon was the “substitution effect” that arisen along with an increased sunk cost of not participating in the workforce [Mincer 1962]. Thus, increased wages (connected with economic development) led to increased sunk cost for women if not working and staying at home. Higher wages were a financial incentive for women to engage in paid work. As an opposition to previous research on adult males, which indicated the negative correlation between real wage rates and labour force participation, J. Mincer found the positive relationship between the two variables for females [Hughes 1972]. In perspective of traditional labour-leisure theory, those results may be understood as a “triumph the substitution effect over the income effect for females, while the relative strength of the two effects is reversed in the case of adult males” [Hugher 1972, p. 793].

Model developed by J. Mincer, focused primarily on married women and concentrated only at the neoclassical economy perspective of the issue, without considering the social changes [Hughes 1972]. B. Friedan investigated the topic of female participation in the labour market from a social perspective and found that increased frustration of stay-home women led to increased participation in paid labour [Beneria 2003]. Her research was a beginning of broader feminists’ analysis of the issue, and proved that additionally to economic, quantitative research, social are also important to fully investigate the topic. For example, F.D. Blau and M.A. Ferber and A. Winkler in 1986 described that families are aware of the imperfection of traditional model of families – women stay home while men work, this

awareness has led to the decreased number of families that follow the traditional model [Blau, Ferber, Winkler 1998]. Described imperfections related to the sunk cost of staying home for women, thus was an economic issue, while others were rather non-economic factors. Those non-economic imperfections of the traditional family model were described by B. Friedan and included gender socialization, male domination, a low degree of independence of women and decreased their self-esteem. Without the understanding of the non-economic factors, the understanding of the situation of women on the labour market was not full, and only B. Friedan's work turned the focus of feminist researchers to more holistic approach. The current research does not investigate the topic from the social perception and focuses solely on the economic perspective of women in the labour market.

In an investigation of women's labour market, it is crucial to take a closer look into unpaid work of women – the one at home. A. Sen [1990] developed a concept of a “cooperation conflict” between men and women which described the dynamics of households with the game theory. A. Sen's vision of a household as a place where cooperation conflicts arise had an important impact on the further understanding of women in the labour market. His model was an opposition to the rational choice presented by neoclassical economists in the substitution theory. Author emphasized that conflicts of interests between genders are not alike as other conflicts as for example conflicts between classes. Gender conflicts, stay beyond the conflicts of classes, as are indifferent to factors that segregate societies. A. Sen's model, despite it was criticized for lack of relations of power between genders, has helped to explain the poor position of women due to lack of bargaining power on the labour market.

In the 1990s, the criticism of neoclassical economy by feminists' economists was common (see [Bergmann et. al. 1993; Ferber, Berg 1991; Sen 1993, Rosenberg 1995]). Critique arose around the models proposed by J. Mincer and other researchers and these were criticized for being “rather limited” and “not adequate” when it comes to the understanding of complex problems women faced [Bergmann et. al. 1993]. Instead of presenting how to question the traditional division of labour in families, the neoclassical economy indicated that women are “specialized” in work at home (or other unpaid activities), while men outside of home – in paid activities. Neoclassical models as-

sume that there exist certain and constant factors that relate to gender and its socio-cultural role [Beneria 2003], namely that women are better housekeepers and better carers of children, while men are better in professional work, thus grounding the gender stereotypes. Those were to explain and legitimize traditional work division between males and females, both in paid labour market and at home. Neoclassical trend focused on the issue of “choice”, while it was proposed to focus rather on the issue of security [Nelson 1996]. J.A. Nelson focused on the role of women to secure the well-being of humanity, their focus on the unpaid work and thus re-evaluated the value of non-paid work at home. Since the 1980s, the issue of devaluation of the unpaid job performed by women was in the focus of researchers [Beneria 2003]. The neoclassical economy did not question the gender stereotypes to limit its outcomes, thus it supports gender prejudices through using them as an explanation of the outcome – poor position of females in the labour market.

Currently, research on women are broad and it's difficult to state what is the main interest of the researchers. One of the major topics is finance and commerce [Catalyst, 2014; Mortlock 2012; Pokrajac and Moore, 2013], which was a natural consequence of growing interests of aim to understand the process which works in the days of globalization and linearization of those industries. The method of studying women has also changed and significantly broadened – as in the 1960s the prevalent method was based on quantitative data, currently case study method and ethnography enable to deepen the understanding of the issue (see [Agarwal 2009; Eagly, Carli 2007]).

The historical role of women in Polish society

In the XVII century situation of women in Poland in some areas was much better in comparison to situation of women in Europe and USA [Zachorowska-Mazurkiewicz 2006]. Whereas, the partitions of Poland had an ambiguous effect on the situation of women from the interest side and social position. Loss of the statehood created the image of heroic women, able to manage all the challenges, where women were responsible for up keeping the national traditions as language, culture and religion [Titkow 1995].

According to B. Pietrow-Ennker [1992], church and the society created an image of women with emotional and moral character and led to the creation of a symbol of "Polish mother." The symbol was idealized, creating strong ties with family and nation and any attempt of releasing women from this role was national betray [Zachorowska-Mazurkiewicz 2006]. As women were responsible for upbringing the national spirit of the children, they had to be educated properly. In 1775, the National Education Committee has suggested to educate women but there were not many of them attending the school (in 1814 only 1050 women were studying). Moreover, major emphasis was put on the learning of French and so-called "talents" as painting, singing and playing the piano. The idea of education for women was to prepare them how to be a lady, not practical skills sought for on the labour market. Employment of women from the middle class had its justification from the changes in economy and demography, therefore women were put in the situation where they had to find a source of income. While due to the lack of proper education, women were not prepared for the competition with men on the labour market and thus generalized to be a worse employee [Titkow 1995].

During the very beginning of the formation of the new labour market, there was a visible division and segregation to women and men labour markets. Traditionally, the gender stereotypes and roles had adjusted to the new economic situation. This division has resulted in the discrepancies in education for boys and girls with limited access to higher education for women. After the World War I in 1918, women were given equal political rights as men and from 1920 women were given rights to get higher education without any restrictions [Zachorowska-Mazurkiewicz 2006]. After the war the role of women changed, it was no longer required for women to be heroic Polish mother responsible for the patriotic spirit of the society. More emphasis was put on the education of women, putting her intellectual traits above physical ones.

In the interwar period, secondary education had 38% of working women in comparison to 23% of working men, which shows that on the labour market more important from the education was gender. The income gap between male and female workers was equal 40% in favour of men, moreover, the highest discrepancies in the income were visible among higher educated employees, where women earned less by 50% than men [Żarnowski 2000].

After the World War II, the centrally planned economy has shifted the role of women once again. From year 1951 to 1989 the new policy of full employment led to poor incomes and poor working conditions but there was no unemployment. The new economy resulted in the elicitation of women without their own initiative. The economy obliged women to go to work, as salaries were too low to permit women to take care of the household only. The pressure for women to get a job has influenced equally all the social classes, and it had more survival than heroic dimension [Titkow 1995]. While at the same time, women were "protected" from the hard-physical work because women's reproduction role was supreme. Maternity leaves were created to upkeep the stereotype that women are the only ones responsible for the health and well-being of the child.

In 1983, among the managerial board, 36% were women, while this number was overstated due to high presence of women in feminine sectors as health care, social care, primary education, gastronomy and insurance (with percentage of women managers on the level from 60 to 70%), while in the industrial sector there were only 12,4% of women, and in higher education 16%. Therefore, the division into male and female sectors was visible, additionally, remuneration for women on the same positions was still 30% lower than male's remuneration [Kołaczek 1991].

After the transition in the 1990s, the situation of women on the labour market changed drastically. Women's unemployment rate rapidly increased and there were fewer women on boards and in high managerial positions.

The historical role of women in American society

In the colonial era, the situation of women in the United States varied among the colonies, whereas patterns and schemes of how women were perceived and treated still existed. In the XVII century, most immigrants were the forced servants from the Caribbean [Moller 1945]. The ethnic differences between the immigrants started to arise, the differences in how women were treated also appeared. For example, in New England it was natural that wives did not work in the fields along with their husbands, however, in German communities, it was expected of women to work. Moreover, German immigrant granted women control over land, property, as well

as items as clothes, while in New England it was against the law. Among the colonies, women's role was diminished to a "housewife", while a husband controlled the money and ownership, including any inheritance a woman brought to the marriage. Only when a husband died, women had a certain legal right to the family property. Women's role was to take care of the house, children and elderly, as well as supervise the servants [Morris 2013]. As a result, the proper education as for boys would be granted, while it was not available for girls. Similarly, master's schools were dedicated for men solely, while if there was an extra room available, only then women would be allowed to participate.

The situation of enslaved women was particularly difficult, as they were beaten and raped by the white men, while children of non-white women were automatically forced into slavery. White women who had mixed-race children were also treated worse and lost their "European" status. Whereas, it is important to emphasize that British colonial women, along with American Indian women become bridge builders in connecting diverse cultural worlds [Fredrickson 2010].

From the earliest years of the creation of the Republic, women were engaged in conversation about feminism. The revolution had a significant effect on the situation of women and their perceived role. As republicanism as an ideology, resides on the virtue of its citizens, the role of women has shifted and focused primarily to raise children as good republicans. Moreover, the relationship within the marriage has also changed, and from wife obedient to her husband, the relationship shifted to more liberal one [O'Dowd 2010], however women were still treated as legal and social subordinates to their husbands.

After the Civil War, as more than 250,000 southern soldiers were killed, the situation and role of women changed. In the XIX century, women in large numbers started to work outside homes, in most cases in low-paid positions in mills or garment shops, with rather poor working conditions.

At the same time the "cult of domesticity" started to arise. Middle-class families that could afford for wives and children not to work were presented as ideal families. As a result, an ideal image of women, a stay-at-home mother prevailed. Therefore, women were expected to take care of the house and the children and raise them to be good citizens.

The beginning of the XX century is referred to as a progressive era of women. Across the national, middle-class women organized themselves to,

among others, ban child labour, they were also concerned with the topics of suffrage, education and health. Still, only 5% of all white married women were paid workers outside of their homes [Goldin 1994]. During the wartime period, the idealized version of women has changed, due to the need of low paid workforce and thus, women were encouraged to work and even serve in armed forces, as secretaries, typists and nurses.

After the war, as the majority of nations, the USA also gave women the right to vote which passed in 1920. After gaining the right of votes, women suffragist joined main political parties, while they were still responsible for typically feminine issues, like world peace or child welfare (first wave feminism). The war period also changed the women's role in the labour market, it allowed them to enter typically "masculine" industries [Kessler-Harris 2003], while the booming economy gave women more opportunities. Despite, the 1920s gave women new opportunities in work and education perspective, a highly gendered role within the society still existed, while women were more likely to choose "feminine" careers [Woloch 2002].

The Great Depression in the 1930s had a significant impact on the women's situation on the labour market. However, during the 1930s the unemployment rate was still lower for women compared to men, as women would take low paid jobs, as clerical work or domestic service.

The second World War has changed the situation of women, especially in the context of what was perceived as a "male" domain, as young men were sent to war, women had to replace them. After the war, women were once again expected to give up their jobs and come home to take care of their husbands and children. Similarly, as before the war, idealized version of the family included a stay at home mother, a husband – a breadwinner of the family.

The 1960s was a decade of change for women [Walsh 2010], the situation of women in that times is presented in the further section.

Women on the labour market in Poland in the XXI century

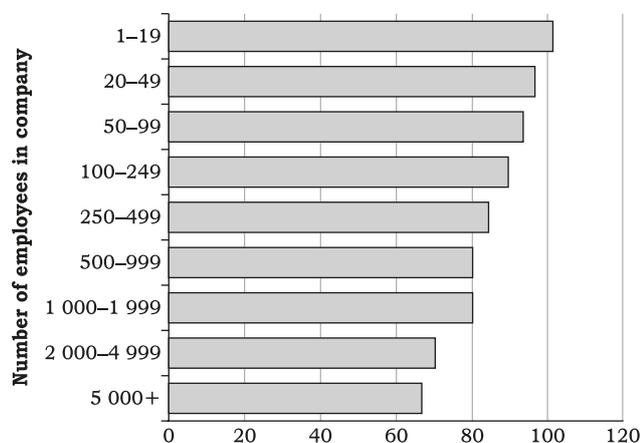
As the following paper concerns the theory developed in the 1960s in the USA and is applied to the current situation of women in Poland, the comparison of the labour market between the two countries during the respective periods is important to present.

In Poland in 1989, women earned less on average by 21% than men and throughout the next quarter of the century this has not changed at all. In 1995, the wage gap increased to 24%, then decreased three years later to 20%. Throughout 2001, 2006 and 2008 wage gap was at the level of 19% [Sedlak and Sedlak 2014].

In 2014 men earned on average 4 600 PLN, while women 3 600 PLN [Rachucki 2014]. This means that women on average earned 78% of what a man earned, constituting to 22% wage gap. Those data indicate that the situation has not improved in this matter but even worsened since the early 2000s. Gender wage gap varies with accordance to the sector, size of the companies, position and education.

Data collected by E. Lisowska in 2012 in Poland, indicate that women in large companies tend to earn on average more than one third less compared to men, the Figure 1 illustrates how the size of the company is related to gender wage gap.

Figure 1. The relationship between the number of employees in the company and gender wage gap



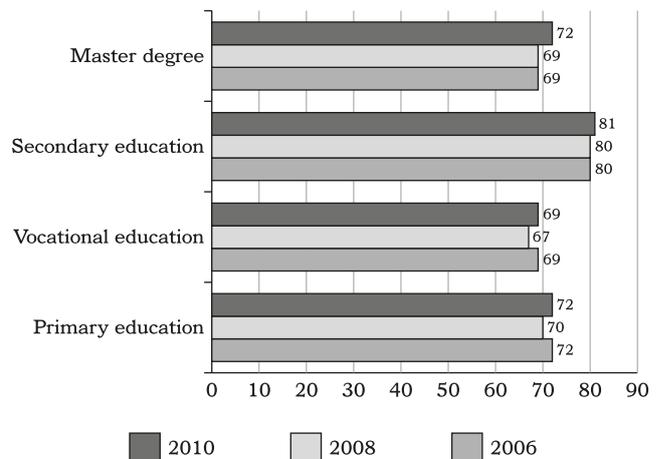
Source: Author's own work based on [Lisowska 2012].

One of the explanations of this situation is the fact that women work fewer hours in the paid job: 39,5h and 42,1h accordingly for women and men. It is crucial to emphasize that in Poland women work additional two and a half hours a day more than a man in the unpaid job [Kołaczek 1991], taking care of the household and children, constituting to additional 75 hours a month.

The lower earnings or participation on the labour market of women cannot be explained by the fewer competences [Górska 2017]. In comparison to men, women in Poland are better educated and therefore

more competent. In 2010 women constituted over 72% of all university graduate students, dominating almost every specialization. Moreover, the gender wage gap in Poland appears to be the highest among employees with higher education (female's income is 70% of males' income) and primary education (71%). Figure 2 illustrates the phenomenon.

Figure 2. The relation between education and gender wage gap in the years 2006, 2008 and 2010



Source: Author's own work based on [Lisowska 2012].

Apart from the wage gap, the unemployment rate also indicates other inequalities on the labour market. In 2011, the unemployment rate for women was at the level of 11%, while for men was two percent lower. Taking under consideration that women are better educated than men, the competencies are not the explanation. Additionally, the activity rate for men was at the level of 65%, while for women only 49%, which means that significantly more men are professionally active than women. Women are also suffering from the long-term unemployment more often than men, as 42% of registered unemployed women and 34% of men were unemployed for longer than a year. Despite, the better education, the unemployment rate was higher for women than for men throughout all the levels of education [GUS 2016]. Gender also affects how employees get promoted: women in the same position have to work on average 3 years and 8 months longer to get a promotion than men.

Those data already show the scale of a problem, which is even bigger, when looking at the comparison in different positions specifically, as in top managerial positions highest disproportions exist [Sedlak and Sedlak 2014], where women in 2013 constituted of 40% and earned on average 34% less than men.

From a macroeconomic point of view, there are several reasons behind the presented situation. It can be said that discrepancies between males and female's income are due to the following reasons (Lisowska 2010, p. 144-145):

- Occupational segregation, i.e., the phenomena of the concentration of males or females in certain industries, positions or professions.
- The low number of women in high remunerated managerial positions.
- Existent stereotypes of gender roles.
- Lack of national mechanisms to counterbalance the negative influence of cultural factors, as for example supporting partnership within families and society.

In addition, gender inequalities in the labour market may relate to unequal distribution of unpaid work. Unpaid work of women is perceived as a traditional role of a woman, along with childcare and elderly care [OECD 2017]. As a result, in 2016 only 10% of males who could go on parental leave, utilized it [GUS 2016].

The situation of women in the USA in the labour market in the XX century

Compared to the reality of the XX century in the USA, the analysed situation of women in Poland is much more positive. At the beginning of the XX century, women labour participation in the USA was at the level of 20% [Long 1958]. Until 1940 it was still below 30%, while in 1950 the labour participation of women had increased drastically and since has been on the steady rise [Goldin 2006; OECD 2017; Engemann, Owyang 2006]. The accessibility of high school education for women in 1930, was a change that attracted a large group of married women into the paid labour force. The increased education of women, as well as the increasing demand for the white-collar workers among women, has impacted the large female labour participation after the World War II and as a result, increased waged, encouraged women to take upon paid jobs, outside of the household [Goldin 1990; 1994].

In the second half of the century, women in USA college attendance exceeded of men's attendee, still, they were overrepresented in low-wage jobs. Less than a fourth of women in the 1960s were breadwinners or co-breadwinners in the families [Goldin 1990; 1994]. In 1900 the ratio of the wage of female

full-time workers to a male full-time worker was 0.463 and by 1930 it has increased to the 0,556. The increase of the wages of women was due to the movement of women from the low-paid positions, into the white-collar positions. The period after the World War II was the largest increase in the female labour participation, as well as the increase wage equality. The labour participation in the 1950s to 1970s was increasing, and for married women aged from 35 to 44 participation increased from 25 to 46%. There was also observed an increased acceptance of married women participating in the labour force. Whereas still married women were secondary earners within the household, still earning significantly less than their husbands and hired on less prestigious positions [Goldin 2006]. In the 1940s to 1960s still, the majority of working women were employed as teachers, nurses, librarians, social workers etc. [Goldin 2006: 13]. It should be also emphasized that women were by no means excluded from unpaid work at home, still being responsible for the upkeeping the household and raising children [Pearson 2000].

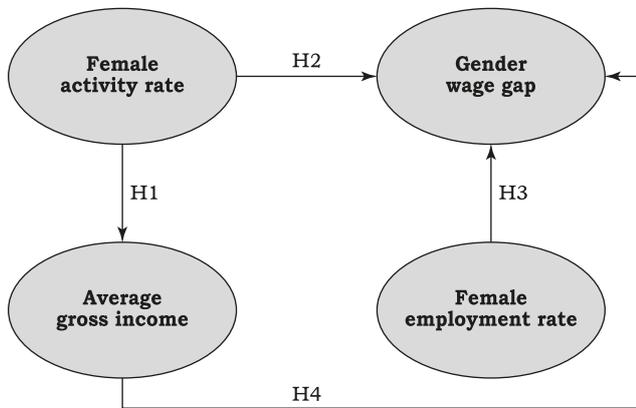
Data collection and hypothesis

The aim of the paper is not to investigate the reasons behind gender wage gap or underrepresentation of women in labour market, whereas it is to test whether substitution effect may still explain one part of complex relationships between female participation in the job market and average incomes. Despite the critique of the orthodox approach of neoclassical economists, author intends to investigate the topic from their point of view.

The paper aims to investigate the following hypotheses, which were derived in line with the neoclassical economy approach:

- H1: Higher activity rate of women in the labour market relates to higher monthly gross average income.
- H2: Higher activity rate of women in the labour market relates to the lower gender wage gap.
- H3: Higher employment rate of women leads to a decrease in gender wage gap.
- H4: Higher gross average month income leads to a decrease in the gender wage gap.

To verify the following hypotheses, the data concerning the female situation on the labour market were compared with the data of the male situation. The results should answer whether significant differences between variables for males and females exist.

Figure 3. Illustration of the research model

Source: Author's own work.

To verify the above hypotheses, author has conducted a statistical analysis in the SPSS software. The data used for the analysis are retrieved from the GUS official website [2012; 2016] and IBS report [2015]. The data from the period ranging from 1993 to 2015 were used for the analysis. Female activity rate is a measure presented as a ratio of the female labour force to the entire female population in the working age (in Poland from 18 to 59 years of age). Female employment rate is the ratio between the population in the working age and the labour force currently employed [De Mulder, Druant 2011]. Average gross income here is a measure of gross monthly average income per full-time working employee, which was denominated in PLN. Gender wage gap was calculated based on the available data and presented as a ratio of women's full-time workers earning to men's full-time workers earnings.

Results

To verify the significance of the difference between female and male situation of the labour market, the two-tailed T-test of unequal variances was conducted. Data indicate the differences between female and male unemployment rate (p value = 0.01), employment rate (p value = $1.45E-17$) and activity rate (p value = $1E-25$) assuming $\alpha < 0.01$, to be significant. Further, the Pearson's correlation and chi-square between hypothesized factors were calculated.

There was found a strong negative relationship between female's activity rate and average income on the market ($r = -0.81$), which was significantly ($p < 0.01$) different than in case of males ($r = -0.281$). Results stand in opposition to Hypothesis 1, which is

to be rejected, therefore the substitution effect presented in earlier parts does not explain the situation of women on the labour market.

Hypothesis 2 was to test whether a positive relationship between female activity rate and existent gender wage gap exists. T-test indicated the significant ($p < 0.05$) difference between the data sets of males and females, thus rejecting null hypothesis. Further analysis suggests that higher male activity on the job market lead to a widening of the gender wage gap ($r = 0.59$, $p < 0.01$), while higher activation of females is not strongly related to the increase in the discrepancy in incomes, despite being significant ($r = 0.32$, $p < 0.01$). However, results indicate that the higher activation of males is strongly related to the increase of the gender wage gap.

Similarly, increased number of employment of both men and women ($r = 0.73$, $r = 0.81$ accordingly, $p < 0.05$) has a positive relationship between widening gender pay gap (hypothesis 3).

Finally, as tested in hypothesis 4, collected data do not indicate a strong link between the rise in gross average monthly income and gender wage gap ($r = -0.2$, $p < 0.05$), thus increase in average incomes of society is not strongly connected with a decrease in gender wage gap. Table 1 summarized the results of the study.

Table 1. Research results

Hypothesis	Significance (p value)	Significance	Results
H1	0.01	Yes	Rejected
H2	0.05	Yes	Rejected
H3	0.05	Yes	Rejected
H4	0.05	Yes	Rejected

Source: Author's own work.

It should be emphasized that the researched years, especially during the market transaction, are period of institutional changes that had a strong impact on the position of women and men on the labour market, with no regard to the substitution effect.

Conclusions

Author aimed to investigate whether the substitution effect in relation to women developed by J. Mincer in the 1960s is still able to explain the

situation of women in the labour market. Results indicate that the theory developed by neoclassical economists are not holding to be true in the reality of the XXI century. J. Mincer's work implied that higher average incomes on the market may lead to activation of females (as opposite in case of males) in the labour market, due to the substitution effect. Whereas, current data does not indicate similar conclusions. One of the reasons why the following study did not support any of the tested theories is that female participation on the labour market is dependent on numerous variables and cannot be explained by only one measurement (as suggested by J. Mincer). The study concludes that growing incomes at home may lead to the decreased amount of female workforce, similarly as in the case of males. Moreover, the situation of women in the labour market in the middle of the XX century in the USA was much more difficult than current situation of women in Poland, therefore, the comparison based solely on the quantitative data is not possible.

Undoubtedly, the topic of female participation in the labour market is worthy of further exploration with consideration of other factors as for example number of hours performed unpaid work of males and females or paid parental leaves.

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