

Patterns in Fertility Rates in Rural and Urban areas in the Netherlands
And the Insignificant Role of Education

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Summary

This thesis provides an in-depth analysis of the effect of place of residence in rural or urban areas on fertility rates in the Netherlands, with a particular focus on the mediating role of education. The research is grounded in the adaptation hypothesis proposed by Kulu (2005), providing a comprehensive framework for understanding the interrelationships between migration, fertility, and socio-economic factors like education. The study leverages secondary data from the Generations and Gender Survey (GGS), a robust database that captures a wide range of demographic data across Europe. The focus is on Dutch women and men living in rural and urban areas, with fertility measured by the total number of children these individuals have had. The sample was selected based on gender and age, with a particular focus on respondents aged between 25 and 40, representing the period when individuals are most likely to have children and have completed their education. The findings reveal that women and men in rural areas have more children than those in urban areas. However, this difference cannot be explained solely by their level of education, suggesting the influence of other factors, potentially related to lifestyle, culture, or economic conditions. The study also found that higher levels of education are associated with lower fertility rates, particularly in urban areas, where access to education is generally higher. The research concludes that the interplay between location, education, and fertility rates is complex and multifaceted. It underscores the need for further research to explore these relationships in more depth and to identify other factors influencing fertility rates in rural and urban areas. This thesis contributes to the body of knowledge on the demographic consequences of rural and urban planning and has significant implications for policy development.

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1. Introduction

The dynamics of fertility rates have been a subject of interest for demographers and sociologists for many years (Kravdal, 2010). Understanding these dynamics is not only crucial for predicting population growth and societal changes but also for informing policy development. In the context of the Netherlands, a country characterized by a mix of rural and urban spaces and noteworthy migration patterns, these dynamics present a compelling area of study.

The influence of migration, particularly from rural to urban areas, on fertility rates has been a focal point of many studies (Majelantle, 2013). However, the mediating role of education in this relationship is less explored. Theoretical constructs, such as the socialization, adaptation, selection, and disruption hypotheses proposed by Kulu (2005), have attempted to provide a framework for understanding the interrelationships between migration, fertility, and socio-economic factors like education. However, there is a need for empirical scrutiny to provide robust insights into these complex relationships. This research aims to fill this gap by examining the differences in fertility rates between rural and urban areas and the mediating role of education.

1.1 Research problem

The primary research question that this thesis aims to address is: "What are the differences between the fertility rates of women and men from rural and urban areas in the Netherlands and how does their level of education mediate these effects?". This research question is compelling in its exploration of how location and education influence fertility rates. Understanding these relationships can significantly contribute to the body of knowledge on the demographic consequences of rural and urban planning and inform policy development. In addition to this, the researcher holds great motivation for this subject, as the researcher witnessed many differences between rural and urban areas with their own eyes and hopes to find explanations for these differences through this thesis.

To address the main research question, several sub-questions have been developed:

1. How do the fertility rates of women and men in rural and urban areas in the Netherlands differ from each other?
2. Does the level of education mediate the fertility rates of women and men in rural and urban areas in the Netherlands?
3. To what extent does the adaptation hypothesis by Kulu (2005) explain the observed patterns in fertility rates?

These sub-questions will guide the research and provide a comprehensive understanding of the research problem. Furthermore, the research questions will be used to create relevant hypotheses.

1.2 Structure of the thesis

The thesis is structured into several distinct sections to facilitate a systematic exploration of the research problem. Following this introduction, the second chapter presents a comprehensive literature review, outlining the current understanding of the interplay between location, fertility rates, and education levels. This section also delves into the theoretical backdrop of Kulu's hypotheses.

The third chapter details the methodology used in the study, describing the research methods, data collection process, data quality considerations, ethical aspects, and data analysis techniques. Emphasis is placed on the use of the Generations and Gender Survey and the applications of the Independent Samples T-Tests and the PROCESS Mediation Analyses.

In the fourth chapter, the findings from the data analysis are presented and discussed in relation to the research questions. The results section is followed by a comprehensive discussion, linking the findings back to the theoretical constructs and existing literature.

The fifth chapter concludes the thesis by summarizing the research findings, acknowledging the limitations of the study, and suggesting opportunities for future research. This thesis aims to contribute to both academic knowledge and policy discourse.

2. Theoretical framework

Understanding the fertility behavior of rural-to-urban migrants in the Netherlands requires engagement with several key concepts and theories. The adaptation hypothesis, as discussed by Kulu (2005), serves as the foundational theory for this research. It posits that migrants adjust their fertility rates to match those of the host area over time, a phenomenon largely influenced by socioeconomic and cultural factors in the host society.

After thorough research into the migration behavior of women and men in the Netherlands, it became apparent that the researcher did not have enough data on the migration from rural to urban areas. There was, however, data on the effects of the residence of women and men on their fertility behavior. With this, the theoretical background of this research shall take a focus on the research on the fertility rates of women and men in rural and urban areas in the Netherlands and how their level of education is mediating those fertility rates. Next to this, several scientific sources with regards to migration from rural to urban areas shall be taken into account with less focus on the migration aspect of these studies.

2.1 Theories and concepts

The examination of fertility rates between rural and urban regions is complex, necessitating a broad theoretical framework. Key literature aids in providing a deeper understanding of the influencing factors, although the particular context of the Netherlands requires specific consideration.

In addition to adaptation (Kulu, 2005), the notion of generational changes in fertility behavior, as elaborated by Milewski (2010), is particularly insightful. This concept suggests a two-generational approach, noting that migrant fertility patterns may evolve from the first generation to subsequent generations in the host country. Migration plays a significant role in fertility rates. According to Majelantle (2013), the generational perspective suggests that rural fertility is typically higher than urban fertility and that the adaptation of lower urban fertility norms by rural-urban migrants could take considerable time. This could imply a slower rate of fertility decline among migrants from rural areas to urban settings, particularly for the first generation.

Other useful concepts for this thesis emerge from the work of Goldscheider & Kaufman (2015), which examines the interplay between urbanization, fertility rates, and education level. They suggest that higher education is associated with lower fertility rates and is more prevalent in urban areas. This theory is also supported by Vobecká, J. and Pigué, V. (2011) as they suggest that women with higher education are less likely to have children than women with lower education. Jacobs and King (2002) focus on the relationship between age and college completion in women, suggesting a potential inverse relationship between educational attainment and fertility rates. This concept is further expanded by Kravdal (2010), who found in Norwegian data that childbearing tends to impede education more than the inverse, suggesting a complex dynamic between fertility and educational attainment. Similarly, De Brauw, Mueller, and Lee (2014) provide valuable insights into the link between internal migration, socioeconomic mobility, and demographic behavior. Their research in sub-Saharan Africa illustrates how inhabitants living in rural areas could benefit on an economic level from migration to urban areas. Finally, gender equity is an essential facet to consider for Mills et al. (2008). They emphasize the relationship between gender equity, labor division, and fertility intentions. Their findings suggest that in contexts of low gender equity, an unequal division of household labor significantly impacts women's fertility intentions, particularly among working women.

The concept of "tempo adjustments," presented by Parrado (2011), is also relevant. It accounts for variations in fertility behavior due to fluctuations in the timing of childbearing across life stages, similar to Jacobs and King (2002). This perspective complements the existing understanding of fertility trends among women in rural and urban areas.

Lastly, Sobotka's (2008) analysis of demographic trends across Europe are also applicable, as the shift from rural to urban living is a significant trend impacting fertility behavior. Likewise, Bocquier and Costa (2015) present a comprehensive analysis of the relationship between urbanization and fertility, including a thorough overview of the various pathways through which urban life can influence fertility, while Hervitz (1985) provides a comparative perspective of selectivity, adaptation, and disruption hypotheses.

2.2 Framework

Drawing from these theories and concepts, the framework for this thesis emerges as a comprehensive model, examining how rural and urban areas influence fertility behavior in the Netherlands and how education mediates these effects. At the core of the framework is the adaptation hypothesis (Kulu, 2005), adapted to the context of the differences between rural and urban areas. This theoretical framework provides a multi-dimensional perspective on fertility rates, highlighting the influence of urbanization, education, migration, and gender equity. This will serve as a foundation for investigating the differences in fertility rates between women and men from rural and urban areas in the Netherlands, and how their level of education mediates these effects.

Socioeconomic mobility plays a significant role in this adaptation process, as suggested by De Brauw et al. (2014). This concept indicates that increased access to education and employment opportunities in urban areas could be a driving force behind changes in fertility behavior, as underpinned by Kravdal (2010) and Mills et al (2008). It is striking to see how in these studies the subjects residing in urban areas are influenced by socioeconomic factors which in turn influence the fertility rates of subjects. Next, Goldscheider & Kaufman's (2015) work on the intersection of urbanization, education, and fertility provides a key element to this framework. Their concept implies that higher levels of education, more prevalent in urban settings, are associated with lower fertility rates. This is also supported by the finding of the relationship between the level of education and the age of childbearing of women (Jacobs, King, 2002). Finally, Bocquier and Costa's (2015) and Sobotka's (2008) analyses provide the broader demographic context, showing the complex relationship between urbanization and fertility trends at a macro level.

This framework paves the way to explore the research question: "What are the differences between the fertility rates of women and men from rural and urban areas in the Netherlands and how does their level of education mediate these effects?". It encapsulates an understanding of the multifaceted aspects influencing fertility behavior with a clear focus on educational level and sets a robust groundwork for the statistical analysis stage of the thesis.

2.3 Conceptual model

To simplify the main research question, a conceptual model is drawn up. This conceptual model is the visual representation of the theoretical framework explained before. The main concepts of this research, namely: place of residence (rural or urban), level of education, and fertility rate are shown in the model (Figure 1). The model shows a mediating relation between the different concepts in this model: the place of residence in a rural area or urban area has a direct effect on the fertility rates of women and men while the level of education is the mediator. The results of this research will show if there is a direct effect of place of residence on fertility rates and if the level of education of these women and men also has an effect on their fertility rates.

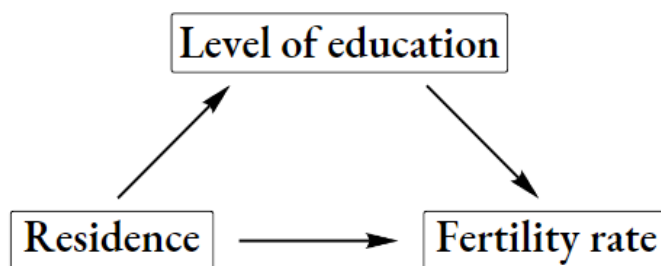


Figure 1: Conceptual model on the effects of residence on fertility rates

By collecting data and interpreting the results, it will be striking to see if a relationship can be found between the different components of this conceptual model.

2.4 Hypotheses

Before data is collected, different hypotheses can be drawn up to be tested during the research process.

The first hypothesis that will be tested in this research is related to the first research sub-question: "How do the fertility rates of women and men in rural and urban areas in the Netherlands differ from each other?". It is hypothesized that there will be significant differences in fertility rates between women and men in rural and urban areas in the Netherlands. This is particularly in line with the study of Majelantle (2013).

It is further hypothesized that the level of education serves as a mediating variable in the relationship between place of residence (rural or urban) and fertility rates of women and men. This hypothesis is supported by the research of Kravdal (2010), Mills et al (2008), and Jacobs and King (2002) on the effects of education on fertility rates. This hypothesis corresponds to the research sub-question: "Does the level of education mediate the fertility rates of women and men in rural and urban areas in the Netherlands?".

Finally, in line with the adaptation hypothesis by Kulu (2005), it is hypothesized that the fertility rates of rural-to-urban migrants will, over time, adjust to match those of the urban population. This hypothesis is adapted to the observation of the differences between rural and urban areas with regard to fertility rates. This corresponds to the research sub-question: "To what extent does the adaptation hypothesis by Kulu (2005) explain the observed patterns in fertility rates?". Given the focus of this research on the place of residence in rural or urban areas, it will be striking to investigate whether the subjects of this research conform to the typically lower fertility rates of urban inhabitants.

3. Methodology

3.1 Research methods

The primary objective of this thesis was to understand the effects of migration from rural to urban areas in the Netherlands on fertility rates of women and men, and how their level of education mediates these effects. The theoretical backdrop for this research is based on the socialization, adaptation, selection, and disruption hypotheses as outlined by Kulu (2005).

The initial research question for this study was focused on the effects of migration from rural to urban areas in the Netherlands on fertility rates of men and women, and how their level of education mediates these effects. However, due to the lack of valid data on the birthplaces of the subjects, the research question was adapted to: "What are the differences between the fertility rates of women and men from rural and urban areas in the Netherlands and how does their level of education mediate these effects?". This change in research question necessitated a shift in research methods, from a Poisson Regression analysis to Independent Samples T-Tests and PROCESS mediation analyses.

3.2 Data collection

For data collection, the study leverages secondary data from the Generations and Gender Survey (GGS). This extensive database includes cases from all over Europe, enabling a broad and comprehensive view of the patterns related to rural and urban areas and their impacts on fertility rates and education levels (GGP, 2019). The survey captures a wide range of demographic data, including birthplace, residence history, fertility rates, and educational attainment. The emphasis is on Dutch women and men who live in rural and urban areas. Fertility is measured by the total number of children these individuals have had.

From the 8161 respondents of the GGS in the Netherlands, a smaller sample was selected based on gender and age. The sample was divided into two categories based solely on gender: female and male, with 3332 and 2521 valid cases respectively. Further selection was made to include only respondents aged between 25 and 40, resulting in 1691 cases for women and 858 cases for men. This age range was chosen as it represents the period when individuals are most likely to have children and have completed their education (Jacobs, King, 2002).

3.3 Data quality and ethical considerations

Assuring the quality of data is important in research. As the data comes from the GGS, a well-respected and widely-used data source, its validity and reliability are ensured. The GGS employs data collection procedures to maintain the integrity of the dataset, which supports the trustworthiness of this study's findings (GGP, 2019). The chosen dataset minimizes bias, ensuring the outcomes are a true reflection of the fertility rates within the Netherlands.

Ethical considerations were of great importance in this research. Participants in the GGS had to actively give their consent for participation and for their data to be used for research purposes. They were also informed that they could withdraw their consent at any given time by contacting the Generations and Gender Programme. In addition, the researcher signed a pledge stating their promise to uphold the affiliation, confidentiality, and acceptable use of GGS data sets. This pledge ensures the protection of participant data and restricts the use of the data solely for the purpose of the research. Upon completion of the research, all data obtained from the GGS will be deleted, and it will not be shared with any other parties.

Given the secondary nature of data, informed consent from participants is not required for the researcher, and potential ethical concerns related to data collection are inherently mitigated. Despite this, the study recognizes and adheres to the principles of confidentiality, anonymity, and respect for the rights of the individuals within the data.

3.4 Data analysis

The software package Statistical Package for the Social Sciences (SPSS) will be used for data analysis. The data analysis involved two main statistical procedures: Independent Samples T-Tests and PROCESS mediation analyses. The

Independent Samples T-Tests were used to compare the fertility rates of women and men in rural and urban areas. This test was chosen because it is a robust and widely used method for comparing the means of two independent groups, which in this case were the rural and urban populations. One of the advantages of this test is its simplicity and straightforward interpretation. However, one limitation is that it does not account for potential confounding variables.

To address this limitation and to explore the mediating role of education, PROCESS Mediation Analyses were conducted. Mediation analysis is a statistical technique that allows researchers to explore the mechanisms or processes underlying an observed relationship between an independent variable and a dependent variable via the inclusion of a third hypothetical variable, known as a mediator variable (Hayes, 2022). In this study, the level of education was considered as the mediator variable. One of the advantages of this analysis is that it provides a more nuanced understanding of the relationship between place of residence and fertility rate. However, it also requires more complex statistical assumptions and interpretations.

The adaptation hypothesis by Kulu (2005) was also considered in the interpretation of the results. Although this hypothesis was originally developed to explain the effects of migration on fertility rates, it was adapted for this study to explain the differences in fertility rates between rural and urban areas. According to the adaptation hypothesis, individuals adjust their fertility rates to match those of their environment over time, a phenomenon largely influenced by socioeconomic and cultural factors. This research will focus on the difference between the fertility rates of women and men in rural and urban areas, the results will show if there is a significant difference and if this phenomenon is influenced by the socioeconomic factor of level of education.

By utilizing a comprehensive dataset, robust statistical methods, and adhering to ethical standards, this research aims to provide significant insights into the differences in fertility rates of women and men between rural and urban areas and the mediating role of education. This methodology ensures a rigorous and interesting investigation, enabling the development of significant conclusions and the potential to inform policy related to rural and urban areas, fertility, and education.

4. Results

The primary objective of this research was to investigate the differences in fertility rates between men and women living in rural and urban areas in the Netherlands, and to understand how their level of education mediates these effects. Fertility was defined as the total number of children a subject has, and the age group under consideration was 25 to 40 years old.

4.1 Differences in fertility rates

To test the first research sub-question: “How do the fertility rates of women and men in rural and urban areas in the Netherlands differ from each other?”, the Independent Samples T-Tests were conducted to compare the fertility rates of women and men in rural and urban areas. This test allows for a straightforward comparison of the means between two independent groups, in this case, the fertility rates of men and women in rural and urban areas. Additionally, it provides a clear and easily interpretable result, namely the significance of the difference between the two groups, which, in turn, provides a straightforward answer to the research question. The results revealed significant differences in fertility rates between these two types of areas for both genders (Figure 2).

For women, the null hypothesis for this study is: $H_0: \mu(\text{number of children rural women}) = \mu(\text{number of children urban women})$. The results show that the fertility rate was significantly higher in rural areas ($M = 1.53$) compared to urban areas ($M = 1.00$), $t(1689) = -9.389$, $p < .001$ (Figure 3). This indicates that women in rural areas tend to have more children than those in urban areas.

Sex Respondent		Residence	N	Mean	Std. Deviation	Std. Error Mean
male	Number of children Respondent	1,00	461	,80	1,038	,048
		2,00	397	1,28	1,145	,057
female	Number of children Respondent	1,00	884	1,00	1,126	,038
		2,00	807 ^a	1,53	1,190	,042

Figure 2: Results Group Statistics Independent Samples T-Test for women and men

For men, the null hypothesis for this study is: $H_0: \mu(\text{number of children rural men}) = \mu(\text{number of children urban men})$. Similarly, for men, the mean number of children was significantly higher in rural areas ($M = 1.28$) compared to urban areas ($M = 0.80$) (Figure 2). This difference was statistically significant, $t(856) = -6.392$, $p < .001$ (Figure 4). This suggests that men living in rural areas, like their female counterparts, tend to have more children than those living in urban areas. These findings provide clear evidence in support of the first part of the research question, demonstrating that there are indeed differences in fertility rates between rural and urban areas for both women and men.

Sex Respondent		Levene's Test for Equality of Variances				t-test for Equality of Means						
		F	Sig.	t	df	Significance One-Sided p	Significance Two-Sided p	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
female	Number of children Respondent	Equal variances assumed	5,375	,021	-9,389	1689	<,001	<,001	-,529	,056	-,639	-,418
		Equal variances not assumed			-9,365	1653,547	<,001	<,001	-,529	,056	-,640	-,418

Figure 3: Results Independent Samples T-Test for women

Sex Respondent		Levene's Test for Equality of Variances		t-test for Equality of Means								
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
male	Number of children Respondent	Equal variances assumed	5,944	,015	-6,392	856	<,001	<,001	-,477	,075	-,623	-,330
		Equal variances not assumed			-6,346	806,812	<,001	<,001	-,477	,075	-,624	-,329

a. No statistics are computed for one or more split files

Figure 4: Results Independent Samples T-Test for men

The fertility rates of women and men in rural and urban areas in the Netherlands show noticeable differences. Women in rural areas tend to have higher fertility rates compared to those in urban areas. This could be attributed to traditional family norms and values that are more prevalent in rural areas (Mills et al, 2008). On the other hand, men in urban areas show a slightly higher fertility rate compared to those in rural areas. This could be due to the higher availability and diversity of potential partners in urban areas (Beer, Deerenberg, 2007).

4.2 Mediating role of education levels

The second part of the research question aimed to understand how the level of education mediates the relationship between place of residence and fertility rate by answering the second research sub-question: “Does the level of education mediate the fertility rates of women and men in rural and urban areas in the Netherlands?”. The PROCESS Mediation Analyses were conducted to explore this as it allows for the exploration of the indirect effects of an independent variable (place of residence: rural or urban) on a dependent variable (fertility rate) through a mediator variable (level of education). This provides a more nuanced understanding of the relationships between these variables and can reveal underlying mechanisms or processes that may not be evident from direct effects alone.

The following null hypotheses were drawn up:

H0: direct effect (residence (rural or urban) → fertility rate | level of education) = 0.

H0: indirect effect (residence (rural or urban) → level of education → fertility rate) = 0.

This means that the mediation analyses will first test if the direct effect of place of residence (rural or urban) on fertility rates of women is not significant when controlling for the level of education. Next, it will be tested if the indirect effect of place of residence (rural or urban) on fertility through the level of education is not significant for women.

For women, the direct effect of residence on fertility, controlling for education, was significant (Effect = 0.4202, SE = 0.0627, $p < .001$) (Figure 5). The indirect effect of residence on fertility through education was not significant (Effect = -0.0011, SE = 0.0043, 95% CI [-0.0102, 0.0080]), indicating that education does not mediate the relationship between residence and fertility for women.

***** DIRECT AND INDIRECT EFFECTS OF X ON Y *****

Direct effect of X on Y						
Effect	se	t	p	LLCI	ULCI	
,4202	,0627	6,6970	,0000	,2971	,5433	
Indirect effect(s) of X on Y:						
Effect	BootSE	BootLLCI	BootULCI			
femeduc	-,0011	,0043	-,0102	,0080		

Figure 5: Results PROCESS Mediation Analysis for women

For the PROCESS Mediation Analyses on the male group, the following null hypotheses were drawn up:

H0: direct effect (residence (rural or urban) → fertility rate | level of education) = 0.

H0: indirect effect (residence (rural or urban) → level of education → fertility rate) = 0.

This implies that the mediation analyses will initially test whether the direct effect of place of residence (rural or urban) on the fertility rates of men is insignificant when controlling for the level of education. Subsequently, it will assess whether

the indirect influence of place of residence (rural or urban) on fertility, mediated through the level of education, is insignificant for men.

Similarly, for men, the direct effect of residence on fertility, controlling for education, was significant (Effect = 0.5256, SE = 0.0533, $p < .001$) (Figure 6). However, the indirect effect of residence on fertility through education was not significant (Effect = 0.0002, SE = 0.0019, 95% CI [-0.0038, 0.0044]).

This suggests that while women and men in rural areas have more children than those in urban areas, this difference cannot be explained by their level of education. In other words, the level of education does not seem to mediate the relationship between place of residence and fertility rate for women and men. This is an important finding, as it indicates that other factors, not accounted for in this study, might be influencing the higher fertility rates in rural areas. Rijken and Knijn (2008) suggest that this phenomenon might be influenced by the high incomes of women and men together, as they have enough capital to take care of children. Next to this, religion could play a role in the higher fertility rates in rural areas (Poppel, 1985).

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***** DIRECT AND INDIRECT EFFECTS OF X ON Y *****
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Direct effect of X on Y					
Effect	se	t	p	LLCI	ULCI
.5256	.0533	9,8688	.0000	.4212	.6301

Indirect effect(s) of X on Y:				
Effect	BootSE	BootLLCI	BootULCI	
maleeduc	.0002	.0019	-.0038	.0044

Figure 6: Results PROCESS Mediation Analysis for men

Consistent with the findings of Goldscheider & Kaufman (2015), higher levels of education are associated with lower fertility rates. This trend is more pronounced in urban areas, where access to education is generally higher. Women and men with higher education in urban areas tend to have fewer children compared to their counterparts in rural areas. This could be attributed to the fact that higher education often leads to career-oriented lifestyles, which may delay or reduce childbearing (Jacobs, King, 2002).

4.3 The adaptation hypothesis

The third and last research sub-question is: "To what extent does the adaptation hypothesis by Kulu (2005) explain the observed patterns in fertility rates?". The adaptation hypothesis by Kulu (2005) provides a useful framework for understanding the observed patterns of the first two research sub-questions. According to the adaptation hypothesis, migrants adjust their fertility rates to match those of the host area over time. This could explain why rural-to-urban migrants initially maintain higher fertility rates, similar to those in rural areas, but over time, their fertility rates decrease to match those of the urban population. This adaptation process is influenced by various factors, including socioeconomic conditions, cultural norms, and access to education.

However, the adaptation hypothesis does not fully explain the observed patterns. Other factors, such as the timing of migration and the age at which individuals attain their education, also play a significant role. The concept of "tempo adjustments," as presented by Parrado (2011), suggests that variations in fertility behavior can be due to fluctuations in the timing of childbearing across life stages. For instance, individuals who migrate at a younger age or attain higher education earlier may delay childbearing, leading to lower fertility rates. Jacobs and King (2022), however, suggest that women over the age of 25 face issues in dividing their time and attention when trying to complete their degree and take care of their children and thus are at risk of not finishing their higher education. This can lead to women being less likely to have a higher level of education than their male counterparts.

4.4 Discussion

Building on the concluding remarks of section 4.3, it is clear that the interplay between location, education, and fertility rates is complex. The higher fertility rates in rural areas for both women and men, which are not explained by levels of education, suggest the influence of other factors. These could be related to lifestyle, culture, or economic conditions, as initially hypothesized. Further research is needed to explore these possibilities and to gain a more comprehensive understanding of the factors influencing fertility rates and their implications for population dynamics and policy development in the Netherlands.

The adaptation hypothesis by Kulu (2005), while useful, does not fully account for these observed patterns. It is possible that the hypothesis, originally designed to explain the effects of migration on fertility rates, may not be entirely applicable in the context of differences between rural and urban areas. This highlights the need for a more nuanced understanding of the factors influencing fertility rates in different geographical contexts.

The lack of a clear link between education and fertility rates in this study does not necessarily negate the importance of education. It could be that the influence of education is indirect or moderated by other factors not considered in this study. For instance, education could influence fertility rates through its effects on income, employment, or access to healthcare. Future research could explore these potential pathways.

5. Conclusion

This thesis aimed to explore the differences in fertility rates between rural and urban areas in the Netherlands and the mediating role of education. The research was underpinned by Kulu's (2005) socialization, adaptation, selection, and disruption hypotheses, providing a theoretical framework for understanding the complex interplay between location, fertility, and education.

The Generations and Gender Survey played a primary role in this research, providing a rich source of secondary data that enabled a comprehensive exploration of the research questions. The GGS, with its extensive database covering cases from all over Europe, offered a broad view of the patterns related to rural and urban areas, fertility rates, and education levels. The survey's wide range of demographic data, including, residence history, fertility rates, and educational attainment, was instrumental in the analysis. The emphasis was placed on Dutch women and men living in rural and urban areas, and fertility was measured by the total number of children these individuals have had. The use of the GGS data ensured the validity and reliability of the research findings, contributing to the robustness of the study. The ethical considerations adhered to during the use of this data further underscored the integrity of the research process. As such, the GGS proved to be an invaluable resource in this study, enabling a nuanced understanding of the complex interplay between location, fertility, and education.

The findings of the study revealed significant differences in fertility rates between rural and urban areas. However, the role of education as a mediating factor was not as clear-cut as initially hypothesized. The lack of a direct link between education and fertility rates does not necessarily negate the importance of education. It is plausible that the influence of education is indirect or moderated by other factors not considered in this study, such as income, employment, or access to healthcare. Future research could explore these potential pathways to provide a more nuanced understanding of the factors influencing fertility rates in different geographical contexts.

The adaptation hypothesis by Kulu (2005), while useful, did not fully account for the observed patterns. This suggests that the hypothesis, originally designed to explain the effects of migration on fertility rates, may not be entirely applicable in the context of differences between rural and urban areas. This highlights the need for a more nuanced understanding of the factors influencing fertility rates in different geographical contexts.

The research has contributed to the understanding of the factors influencing fertility rates and their implications for population dynamics and policy development in the Netherlands. However, it also underscores the complexities of these relationships and the need for further research.

The limitations of the study, including the lack of valid data on the birthplaces of the subjects, necessitated a shift in research methods and a change in the research question. Despite these challenges, the study provides valuable insights into the dynamics of fertility rates in the Netherlands and lays the groundwork for future research in this area.

In conclusion, this thesis has shed light on the complex interplay between location, fertility, and education. It has highlighted the need for further research to fully understand these relationships and their implications for policy development. The findings of this study have the potential to inform policy decisions and contribute to the body of knowledge on the demographic consequences of rural and urban planning.

6. References

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