

Impact of Women's Empowerment on Children's Schooling in Morocco : Spatial Analysis

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Abstract

This study provides a spatial analysis of the effect of women's participation on school dropout rates for the seventy-five provinces in Morocco. The empirical material of this study is collected from the database of the last national population and housing census survey 2014. Indeed, according to the results of this study. On the one hand, this study confirms the spatial dependence of female participation and the dropout rate in Morocco. Provinces with high dropout rates and female participation rates are surrounded by areas that follow the same trend. On the other hand, the female participation rate has a negative impact on the dropout rate in Morocco. Provinces that acknowledge more female participation are less likely to drop out of school for their children. This study points to the importance of increasing the choice freedom of Moroccan women for schooling and professional development. Hence, this is a springboard to promote intergenerational human development and unquestionably meet the commitment of the 2030 agenda.

Keywords: dropout of school, empowerment, women.

Jel Codes: I20, J16, C22

1. Introduction

Today more than ever, the issue of women's empowerment is a political priority in Morocco. The quest for women's participation in the labor market is relevant to several insights (Ibourk and Raoui, 2021, 2022). Indeed, at the societal dimension, studies on individual factors of school dropout point to the role of family factors in the decision to drop out of school.

This phenomenon hurts intergenerational socio-economic development. Research in this area points to the role of the household standard of living, especially for women (Sastry & Pebley, 2010, Bahouayila 2016). They conclude that the family's standard of living is an essential element of educational success (Guedddari 2015, Benbiga, Hanchane, Idir and Tare, 2013; Ibourk, 2013; Biyouda S. et al. 2021, Alaoui,2021). In this line, an autonomous woman represents a significant impact on the schooling of children. Empowered woman devotes their funds to their families by participating in the development of the community to which they belong. They prioritize health, welfare, and education by sending their children to school. At the macro scale, women are the most relevant actors in the global and regional economy. A woman's salary contributes to her household income. On average, women invest a higher share of their resources in the welfare of their families than men. However, women's work in most parts of the world, particularly in developing countries, has not led to the same degree of economic empowerment as men's jobs. At the sub-national level in Morocco, 40% of the population lives in rural areas in Morocco, with differences from one region to another. Women represent almost 49% of the rural population, but their activity rate is only 7.5%, while men are 54.2% (HCP, 2014). Today, the issue of women's empowerment is strongly present in the development model in Morocco this model foresees an increase in women's participation to 45% in 2035. This effort would reduce gender disparities, empower women to make decisions within the household, increase household investment in education and health, and tap into a labor resource for sustainable development.

The originality of this work comes from the implication of the spatial approach for the study of the impact of women's participation on children's school dropout in Morocco. Identifying the set of handicaps at the territorial level makes it possible to localize the situations and make the policies conducted at the local level more effective. Our issue is to verify whether women's empowerment in Morocco can be a factor in the schooling of children or an obstacle to children dropping out of school in Morocco.

From a methodological insight, this work seeks to test the impact of the participation rate of women in Morocco on the dropout rate of children aged 10 to 14 in Morocco. In the first part, we present a literature review, followed by spatial analysis of the landscape of female participation and school dropout. Then, a third part develops the analysis methodology. Finally, the main results and recommendations.

2. Literature review

The idea of widening women's choices and improving their capabilities has implications for students' ability and perseverance. For the medium and long term, the attitude of women towards children's education should therefore receive special attention. Depending on their family status (head of household, wife of the head of household, or other members of a household), how do they intervene in the schooling of children? What resources do they devote to it?

Dropping out of school is a social problem with multiple and interrelated causes. Generally, dropping out of school is defined as the failure to continue one's studies before graduation (Bernard, 2015). This process can start at an early age for pupils from disadvantaged socio-spatial backgrounds (H. Panabiere 2011, Bell & Bernard, 2016, Vanessa di Paola 2018). The family has an important role in the child's success at school.

Indeed, if the child does not feel supported or cared for, this will have an impact on his or her motivation or interest in schooling and therefore on his or her success. Children from families with low socio-economic status are more likely to drop out than others. Alternatively, families with more than one working member are more likely to keep their children in school. The influence of family characteristics is of great importance. Research findings indicate that children who come from broken or blended families, low-income or economically dependent families, where there are several children, and whose parents have little education, are more likely to drop out of school. (Brooks-Gunn et al., 1993; Sastry & Pebley, 2010).

On the other hand, coming from a single-parent household would significantly increase the risk of dropping out of school (Blaya, 2010; Rumberger, 1995). The most concrete example of widowed or divorced women living in a situation of inactivity at the same time has a considerable impact on school dropout and can sometimes even lead to early child labor. To this end, despite attempts to democratize public education and the positive discrimination measures that may be taken, women's inactivity still has an impact on their children's educational success (Kakpo, 2009; Glasman and Besson, 2004; Thin, 1998; Lahire, 1995). Autonomous women, more often than men, spend their money on their families.

For example, they prioritize health by buying healthy food and education by sending their children to school (Bachman et al., 1971; Howell and Frese, 1982; Ekstrom et al., 1986; Cairns and Necker-man, 1989; Janosz et al., 1997). A process of democratization and equalization is therefore necessary through action on all ecosystems and environments of origin (family, a territory of origin, school, etc.) (Sen, 2010).

3. Empirical Analysis

3.1. Database

In order to explore the spatial relationship between the female participation rate on the dropout rate of 10–14-year-olds in Morocco:

Table 1. Variables of study

Nature of the Variable	Title of the variable	Source
Endogenous variable	✓ Drop-out rate for children aged 10-14;	HCP 2014
Exogenous variables	✓ Female participation rate;	HCP 2014
	✓ Unemployment rate of women.	
	✓ Labor market indicators (share of employers, share of self-employed, share of employees in public, share of employees in private, family assistance, apprentices).	

Source : RGPH (HCP, 2014)

3.2. Methodology

Our spatial study has two main objectives: first, an analysis of spatial autocorrelation for the dropout rate and female participation by province:

$$\text{Moran's } I = \frac{n}{\sum_i \sum_j w_{ij}} \times \frac{\sum_i \sum_j w_{ij} (z_i - \bar{z})(z_j - \bar{z})}{\sum_i (z_i - \bar{z})^2} \quad (1)$$

Second, an impact study of the female participation rate on the school dropout rate over the seventy-five provinces of Morocco.

The modeling used in this study is based on the regression of women's participation rates and women's positions in the labor market and their impact on the school dropout rate for the 75 provinces of Morocco. The model to be tested is given as follows:

$$DR = \alpha_0 + PRW\beta_1 + LMI\beta_2 + \varepsilon \quad (2)$$

In the presence of spatial autocorrelation, the estimation of the equation by OLS (ordinary least square) gives biased coefficients. The first diagnostic to be carried out is to test for the presence of spatial effects. Taking into account spatial autocorrelation in the model can be done in several ways, by lagging spatial variables (Case et al, 1993; Brueckner, 1998), the model becomes the SAR Model:

$$DR = \rho WDR + PRW\beta_1 + LMI\beta_2 + \varepsilon \quad (3)$$

Indeed, by a spatial autocorrelation of the errors (Rey and Montouri, 1999; Baumont et al, 2004), the equation becomes the SEM model:

$$DR = \lambda WDR + PRW\beta_1 + LMI\beta_2 + \varepsilon \quad (4)$$

4. Results

4.1. Spatial overview of women's participation and school dropout in Morocco

Women's participation in the labor market is declining and is below 30%. figures from the 2014 general population census conducted by the High Commission for Planning, 40% of the population lives in rural areas in Morocco, with very significant differences from one region to another. Women represent almost 49% of the rural population, but their activity rate is only 7.5%, while that of men is 54.2% (HCP, 2014,2018). The spatial distribution of working men is much more differentiated than that of working women; the most common profile of the inactive suggests that women with low levels of education and residing in urban areas are the most numerous among those not working and not seeking employment. Firstly, the share of female-headed households in urban areas is double that of female-headed households in rural areas: 2323 in rural areas compared to 4045 in urban areas.

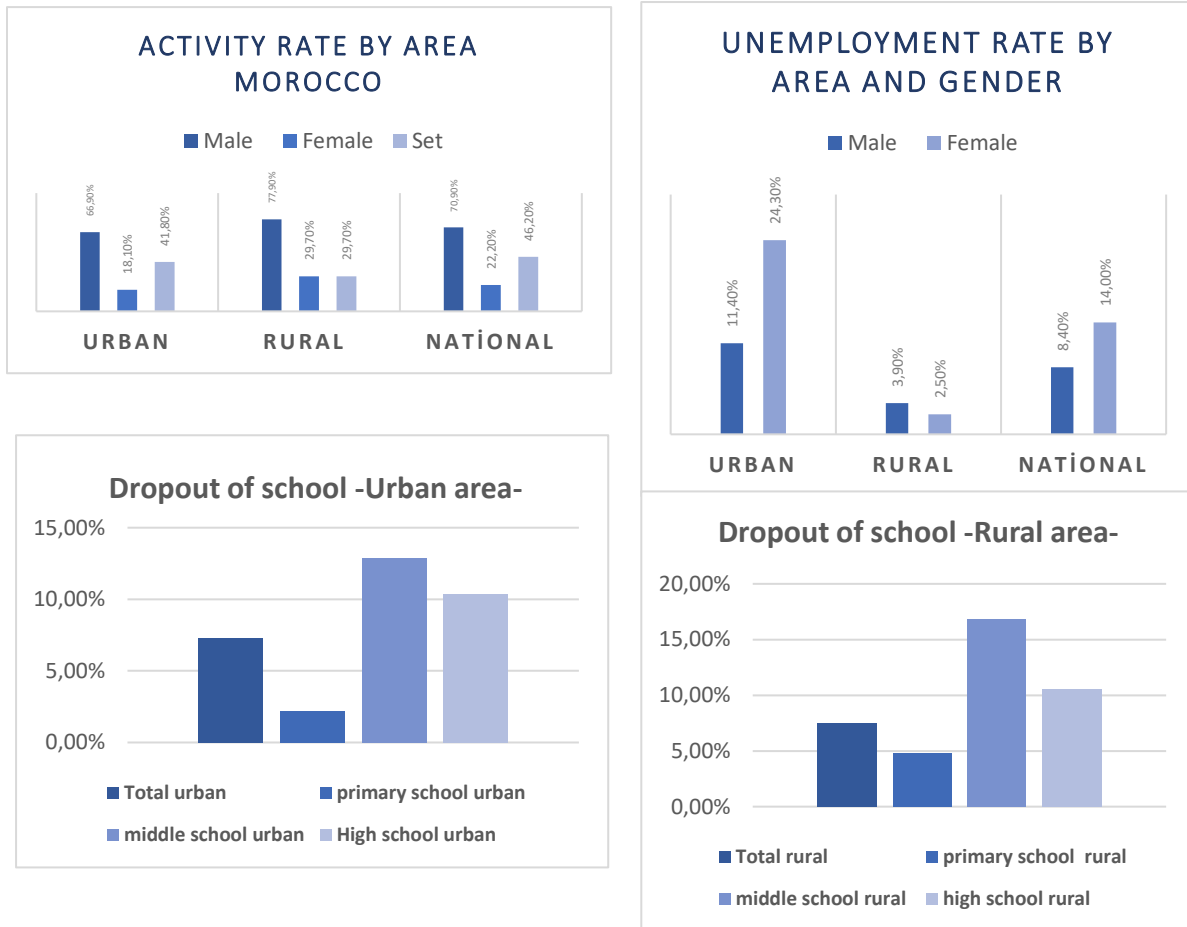


Figure 1. overview of women participation rate and early school dropout in Morocco

Source: Hcp 2018, CSEFRS, 2018

The phenomenon of school dropout does not occur in the same way in the two urban and rural environments. The comparative analysis of dropout rates by rates by environment leads us to conclude first of all that the levels of the rates are very similar that the levels of the rates are very close, all cycles taken together (7.3% in urban areas and 7.5% in rural areas in 2018). However, a detailed analysis by cycle in each environment shows that the primary and middle cycles are more affected by dropout in rural areas than in urban areas. In 2018, the dropout rate recorded was 4.8% in rural primary education, while it rural primary schools, while it was 2.2% in urban primary schools. Worse still, the dropout rate in 6th grade in rural areas is among the highest in the world. Rural areas is among the highest in this cycle (18.1%) compared to the same rate in urban areas (5.9%). In high school, 16.8% of pupils dropped out in 2018 in rural areas compared to 12.9% in urban areas. And in this cycle, it is level (3rd year of secondary school) is always the most affected by dropout and concerned by dropping out, and in a very pronounced way in rural areas (22.7%) against 17.7% in the 3rd year of secondary school in the urban area.

For the spatial analysis of the participation rate of women, it varies from 15.6% for the Eastern region to 28.2% for the Casablanca Settat region. Tangier-Tetouan-Al Hoceima, 18.3%, Fez-Meknes 18.7%, Rabat-Salé-Kénitra 22.9%, Béni Mellal-Khénifra 21.4%, Casablanca-Settat 28.2%, Marrakech-Safi 20.2%, Drâa-Tafilalet 20.2%, Souss-Massa 18.9%.

As for school dropout, it is 10.40% in Marrakech-Safi, 9.80% in the East. 8.80% for the region of Béni Mellal Khénifra 8.80%, for the region of Casablanca Settat 28.2%; Tanger-Tétouan-Al Hoceima, 8.30%, Fès-Meknès 8.60%, Rabat-Salé-Kénitra 6.60%, Béni Mellal-Khénifra 8.80%, Casablanca-Settat 6.30%, Marrakech-Safi 10.30%, Drâa-Tafilalet 6%, Souss-Massa 5.40%.

4.2. Results of the global and local spatial autocorrelation

The results of the spatial association of school dropout and women's participation rate with that of their neighborhood revealed the presence of spatial autocorrelation. This is verified by the positive and significant coefficient of the Moran index (I Moran) of 0.309 (P<0.000) for the dropout rate and 0.3489 (P<0.000) for the participation rate.

a) According to the significance of the dropout rate retained in the Moran diagram in 2014, we note, globally on the provincial map, great stability of the significance of the EE position in the areas at high risk of dropping out of school (Al Hoceima, Chefchaouen, Figuig, Guercif, Jerada, Nador, Sidi Bennour, Chi-chaoua, Rehamna, Safi, Youssoufia). On the other hand, the provinces with a FE position have a low dropout rate but are surrounded by provinces with higher dropout rates (Marrakech, Errachidia).

b) According to the significance of the female participation rate retained in the Moran diagram in 2014, we note, globally on the provincial map the female participation rate note, globally great stability the significance of the EE position in the provinces of (Rabat, Casablanca, Skhirate Témara, Salé, Mohammedia). Indeed, the FF of some more developed provinces such as (Zagora tata, Guelmim, Es-semara, Laayoune, and Tarfaya).

The results of the spatial dependency study showed that school dropout and female inactivity are generally very present in rural areas. These areas are generally lacking in basic infrastructure and living conditions for children and their families. This is particularly true for women who are inactive and have no schooling. The spatial concentration of these two phenomena threatens the development of these territories for this and future generations and hinders local action to promote the commitment to the 2030 Agenda.

4.3. The school dropout rate in Morocco

The results of the labor market impact study and more specifically of female participation in school dropout in Morocco revealed that the female participation rate has a negative and significant impact of 0.6 (P<0.000) on the school dropout rate of children aged 10-14 in Morocco. Provinces with high female participation also had a lower proportion of students who dropped out of school. The second examination of this study is to show the nature of the relationship between these variables:

	Dependent variable: School dropout rate		
	<i>OLS_model</i>	<i>Spatial_model</i>	<i>Error_model</i>
Log Likelihood	-	-185,49	-187,94
Akaike	394,80	392,99	397,88
Schwarz	418,66	415,49	423,37
R2	0,6	-	-
P	-	0,04	-
A	-	-	-0,002
Constant	-85,22	-85,92	-100,84
The participation rate of women	-0,21	-0,14	-0,20
Lagrange multiplier	-	6,07	9,397
Heteroscedasticity	0,29	-	-
Spatial dependence	-	6	0,928
Numbers of observations	75	75	75

In the Lagrange Multiplier test, the spatial models recorded significant values, and the criterion information of Model validation recorded the lowest values with a respective Akaikes score of 392.99 and 418.49 for Schwarz in favor of the spatial model at the expense of the ordinary least square model and the error model, the spatial dependence recorded a significant value for the spatial model (spatial lag) and not significant for the error model. The Breuch pagane test recorded significant heteroscedasticity, which means that the power of the independent variables (Female participation rate) to explain the dependent variable (Dropout rate) has a relationship with the value of these variables for the contiguous provinces. However, there is no autocorrelation in the dependent variable because of the missing variables in the model and the autocorrelation does not detect any term error in the regression which allows the null hypothesis to be rejected, the most appropriate estimator is that of the spatial model.

5. Conclusion

The objective of this paper was to highlight the decisive role of women's economic participation rate on children's schooling in Morocco. Inactive women had a negative impact on children's education and might contribute to early school dropout. Indeed, this assumption was verified through the two stages of analysis that we followed: first, the spatial autocorrelation analysis showed that the dropout rate and the women's activity rate are distributed according to a spatial dependency in Morocco in the logic that provinces that are spatially contiguous follow the same trend. Secondly, through the analysis of spatial heterogeneity, we have shown a negative impact between women's participation rate and the dropout rate in Morocco. Geographical areas with high dropout rates are surrounded by provinces with low women's participation rates. In this context, the empowerment of women in Morocco is an important vector for intergenerational social and economic development. However, it is necessary to strengthen public actions to improve living conditions at the territorial level:

- We underline the importance women's empowerment by creating income-generating activities.
- Improve access to standard services (electricity, drinking water, etc.) to reduce women's domestic burden.
- Improve access to adequate transportation for mobility. Improve access to childcare services.
- Strengthen women's human capital through lifelong learning and literacy.

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