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Division of Bioeconomics

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES
KU Leuven - BELGIUM

Does Off-farm Employment Make Women in Rural Senegal Happy?

Goedele VAN DEN BROECK and Miet MAERTENS

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Division of Bioeconomics
Department of Earth and Environmental Sciences
University of Leuven
Geo-Institute
Celestijnenlaan 200 E – box 2411
3001 Leuven (Heverlee)
Belgium
http://ees.kuleuven.be/bioecon/

Does Off-farm Employment Make Women in Rural Senegal Happy?

Goedele VAN DEN BROECK [1] and Miet MAERTENS [1]

Abstract

In this paper we investigate the impact of female wage employment in the Senegalese horticultural export industry on women's wellbeing. We use a subjective wellbeing approach, based on self-reported happiness, to capture both income and non-income aspects of employment. We use original household- and individual-level survey data from the Saint-Louis region in Senegal and an instrumental variable approach. We find that female employment improves subjective wellbeing for the poorest women but not for women whose household income has moved well beyond the poverty threshold. Female employment improves women´s happiness through an income effect, as female employment leads to higher income levels and improved living standards, but the non-income effects of female employment reduce women's happiness. This negative effect is related to a higher workload, low job satisfaction and changing gender roles. The positive income effect outweighs these negative non-income effects for poor women but not for relatively richer women.

Key Words: female employment, subjective wellbeing, globalization, Senegal, Sub-Saharan Africa

JEL classification: E24, I31, O12

Corresponding author: Goedele.vandenbroeck@kuleuven.be

[1] Division of Bio-Economics, Department of Earth and Environmental Sciences, KU Leuven

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1 Introduction

Increased employment of women in export-oriented industries in developing countries remains a contentious issue. On the one hand, female labor market participation is associated with poverty reduction, rural development and women´s empowerment. Studies from the garment industry (Naila Kabeer and Sibeen Mahmud 2004; Tatsufumi Yamagata 2006) and the horticultural export industry (e.g. Lovell Jarvis and Esperanza Vera-Toscano 2004; Miet Maertens and Jo Swinnen 2012) have shown that wages earned by female workers contribute importantly to total household income and poverty reduction. Additionally, by increasing their share over total household income, women working for a wage increase their bargaining power within the household (Siwan Anderson and Mukesh Eswaran 2009; Cheryl Doss 2013). This has been demonstrated for example in the cut-flower industry in Colombia (Greta Friedemann-Sanchez 2006), the garment industry in Bangladesh (Naila Kabeer, Simeen Mahmud and Sakiba Tasneem 2011), the fruit industry in Chile (Sonia Schwendler 2012), and the manufacturing sector in Mexico (Kaveh Majlesi 2014). Female empowerment is a development goal in itself and is also observed to be positively associated with other development outcomes, e.g. the education and health of children – girls in particular (Patrick Emerson and André Souza 2007; David Atkin 2011; Robert Jensen 2012; Miet Maertens and Ellen Verhofstadt, 2013; Rachel Heath and Mushfiq Mobarak, 2015), and a delay of age at marriage and a reduction in the number of children (Jensen 2012; Heath and Mobarak 2015; Goedele Van den Broeck and Miet Maertens 2015).

On the other hand, female wage employment is sometimes associated with detrimental aspects. In India for example, female employment on tea plantations has been observed to weaken family ties and results in increased domestic violence (Nancy Luke and Kaivan Munshi 2011). In Bangladesh, female employment in the garment industry is associated with increased marital violence (Rachel Heath 2014). In general, the burden of combining off-farm employment with productive farm work and/or reproductive household work may weigh heavily on women, especially when institutions and social norms fail to support them (Schwendler 2012; Doss 2013). In addition, women are more likely to end up in low-paid, low-productivity and insecure jobs. There are quite a number of studies showing occupational segregation and direct and indirect gender wage discrimination in agro-export sectors in developing countries (e.g. Catherine Dolan and Kirsty Sutherland 2002; Catherine Dolan 2004; Stephanie Barrientos, Catherine Dolan and Anne Talontire 2003; Valerie Nelson,

Adrienne Martin and Joachim Ewert 2007; Sutti Ortiz and Susana Aparicio 2007; Marina Prieto-Carrón 2008; Maertens and Swinnen 2012).

In this paper, we investigate the impact of female wage employment in the horticultural export industry in Senegal on women's subjective wellbeing – or in other words, we analyze whether being employed makes women happy. We use a subjective wellbeing approach, based on self-reported happiness, in order to capture both income and non-income aspects of employment and wellbeing. Subjective wellbeing measures were first used by psychologists but are increasingly common in economics; and are argued to be highly complementary to income and consumption based approaches to wellbeing (Bruno Frey and Alois Stutzer 2002; Carol Graham and Milena Nikolova 2015). While there is ample evidence for industrial countries on subjective wellbeing in general, and the relation between female employment and subjective wellbeing in particular; subjective wellbeing in developing countries, and especially in rural areas, is poorly understood. Our paper will contribute to this scarce literature with insights from Senegal.

We use original household- and individual-level survey data from the Saint-Louis region in Senegal and an instrumental variable approach to control for selection bias and unobserved heterogeneity. In our case-study region, female off-farm employment opportunities are relatively new; they have arisen with the development of the horticultural export sector since 2005. Before the export boom, women hardly participated in the labor market. The sudden and substantial increase in female employment represents an ideal case to study the impact of female employment on women´s subjective wellbeing in a poor, rural area.

2 Conceptual discussion

Subjective wellbeing is most often defined as individuals´ self-reported assessment of their situation and the degree to which they perceive the overall quality of life as favorable (Ruut Veenhoven 1991). While objective wellbeing measures, such as income and poverty, are major determinants of people´s welfare, non-monetary aspects are more and more recognized to be important in evaluating development (Frey and Stutzer 2002). There is an emerging literature on the determinants of subjective wellbeing in developing countries (e.g. John Knight, Lina Song and Ramani Gunatilaka 2009; Jeffrey Bookwalter and Douglas Dalenberg 2010; Itumeleng Khumalo, Michael Temane and Marie Wissing 2012; Isaac Addai, Chris Opoku-Agyeman and Sarah Amanfu 2014; Simon Feeny, Lachlan McDonald and Alberto Posso 2014; Xavier Fontaine and Katsunori Yamada 2014; Graham and Nikolova 2015).

Some studies tackle direct policy questions using subjective wellbeing measures; e.g. the impact of contract-farming (Senakpon Dedehouanou, Jo Swinnen and Miet Maertens 2013) and food price increases (Yonas Alem and Gunnar Köhlin 2014) on farmers' subjective well-being.

In this paper we analyze the implications of female off-farm employment for women's subjective wellbeing in Senegal. This question has been addressed for high-income countries and urban areas but not for rural areas in developing countries. With rising female labor market participation in industrialized countries during the second half of the 20th century, studies focused specifically on the effect of female employment on wellbeing. In review articles, Petra Klumb and Thomas Lampert (2004) find that female employment is associated with reduced psychological distress for women; and Paul Dolan, Tessa Peasgood and Mathew White (2008) conclude that employment is a main determinant of subjective wellbeing. Some studies focus particularly on how intra-household relations between spouses are affected. Robert Schoen, Stacy Rogers and Paul Amato (2006) find that female employment increases marital stability, while Stacy Rogers and Danelle DeBoer (2001) show that increases in wives' income improve women´s marital happiness but reduce men´s wellbeing. Contrary, Yue Qian and Zhenchao Qian (2015) demonstrate that in urban China, an increase in women´s income negatively influences both men´s and women´s subjective wellbeing, as the male breadwinner role model is undermined.

In the next paragraphs, we discuss possible mechanisms how female employment might affect women's subjective wellbeing. We consider effects related to the specific context of our research area, a poor rural region where female off-farm employment opportunities are relatively new and female labor market participation relatively uncommon.

First, female employment might positively affect women´s subjective wellbeing as it leads to higher income levels. Previous research in our case-study region has shown that off-farm wages contribute importantly to total household income and that off-farm employment in the horticultural export sector is associated with poverty reduction (Miet Maertens, Liesbeth Colen and Jo Swinnen 2011). Given that higher income is usually correlated with higher subjective wellbeing (Feeny, McDonald and Posso 2014), we expect that, through increased income, female employment has a positive influence on happiness. However, as demonstrated in both industrialized and developing countries, the effect of income on wellbeing is positive but diminishing, as people with higher income levels do not necessarily report higher subjective wellbeing levels (Richard Easterlin, 1995; Dedehouanou, Swinnen and Maertens 2013). This paradox has been attributed to the fact that aspirations increase with

higher income levels, causing a large gap between expectations and achievements that might negatively influence subjective wellbeing (Stefano Bartolini and Francesco Sarracino 2015). Moreover, people get used to higher welfare levels after a while and do not perceive them as favorable anymore (Ada Ferrer-i-Carbonell 2005). Additionally, people compare themselves with their peers, and if income of others grows at the same rate, an increase in individual´s income is not necessarily perceived as an actual improvement (Bookwalter and Dalenberg, 2010).

Second, female off-farm employment may result in an increased workload for women. Combining wage work outside the farm-household with productive activities at the household farm and with reproductive activities in the household might be difficult. This is especially the case when reproductive activities such as collecting water and firewood are very time consuming and when institutions and gender norms are not set up to support working wives and mothers (Schwendler 2012; Arlette Covarrubias 2013). In West-Africa in general and Senegal in particular, men hardly take up reproductive labor tasks within the household (Donna Perry 2005). A prolonged period of high work intensity can negatively affect women´s health, children's wellbeing, and overall social welfare (Maria Floro 1995). Women´s increased workload may lead to lower levels of women´s subjective wellbeing.

Third, female employment and associated changes in income-generating capacity between husband and wife might affect women´s and men´s bargaining power in the household. Marital power relations change as wives earn their own income and are less economically dependent on their husbands. Yet, it is unclear whether women's increased economic empowerment is associated with higher subjective wellbeing or not. On the one hand, empowerment might lead to a higher degree of self-esteem and an increased autonomy and mobility, which positively influences women´s happiness (David Fielding 2013). Goedele Van den Broeck, Kaat Van Hoyweghen and Miet Maertens (2016) show that women have a high willingness to start working in the Senegalese horticultural export industry, and their main motivation is to gain independence. On the other hand, women's enhanced autonomy implies a violation of gender norms when women traditionally do not work outside the farm-household (Thomas de Hoop et al., 2014). This can cause additional emotional stress for women, as illustrated by Syed Ahmed, Mushtaque Chowdhury and Abbas Bhuiya (2001) who find that Bangladeshi women with access to micro-credit are more likely to experience stress. In Senegal, it is the household head´s responsibility to feed and look for the other household members (Perry 2005). If women start to earn their own income, then the traditional role of the male breadwinner is undermined. Often this disempowerment of men leads to frustration

and sometimes even to domestic violence (Margrethe Silberschmidt 2001) – as documented e.g. by Heath (2014) in Bangladesh. Other studies find a reduced risk of marital violence; e.g. in Tanzania (Seema Vyas, Jessie Mbwambo and Lori Heise 2015). Additionally, economic empowerment comes along with larger responsibilities for women, which is not always positively evaluated (Antonia Fernandez, Marina Della Giusta and Uma Kambhampati 2015).

Fourth, the effect of employment on workers´ happiness largely depends on non-monetary job characteristics, such as contract type, job task, additional company services, etc. An emerging literature investigates the job satisfaction of workers in developing countries (e.g. Munyae Mulinge and Charles Mueller 1998; Kofi Asiedu and Henk Folmer 2007; Florencia Bóo, Lucia Madrigal and Carmen Pagés 2010; Lotte Staelens, Céline Louche and Marijke D'Haese 2014). Employment conditions in the horticultural export industry are often described as unfavorable, as workers usually have to perform low-skilled, repetitive labor, based on casual contracts and hardly receive extra services, such as maternity leave or pension savings (Monica Schuster and Miet Maertens 2016). Women run a higher risk of being exploited, because of their lower education and welfare level. Vilma Santana et al. (1997) show that casual, informal employment has a negative effect on women´s wellbeing in Brazil. On the other hand, Alexander Krauss and Carol Graham (2013) find that even low-quality jobs are better for wellbeing than being non-employed in Colombia.

To summarize, female employment might affect women's subjective wellbeing through: 1/ a positive income effect, 2/ a negative workload effect, 3/ an empowerment effect of which the direction is not *a priori* clear, and 4/ non-wage employment characteristics.

3 Research background

3.1 Research area

We use original data from a farm-household survey in the Saint-Louis region in the north of Senegal. Our research area covers three rural communities (Gandon, Fass and Diama) and is one of the main horticultural export regions in the country. Horticultural exports from Senegal have increased tremendously during the last decade: from 5 million USD in 2003 to nearly 58 million USD in 2014 (Comtrade, 2015). Tomatoes, beans and mangoes are the main horticultural export crops. A first horticultural export company, a subsidiary of a large multinational holding, invested in the Saint-Louis region in 2003 and started to export cherry tomatoes to the European Union (EU) in 2005. Since then the number of horticultural exporters in the region has increased to five, and the cultivated area and produce variety are still expanding. Availability of land and water from the Senegal river are the main reasons for

companies to establish in this area. The export companies all rely on a vertically integrated production system with primary production, post-harvest handling and exporting organized by the company. They lease land from the rural communities and invest in their own irrigation infrastructure and processing units. These investments have created approximately 5,000 jobs, of which 80 percent is occupied by women. The employees mainly come from the surrounding villages where livelihoods are traditionally based on cropping and livestock production.

3.2 Data collection

We conducted a household survey in April-June 2013. A stratified random sample of 500 households, clustered in 34 villages, was drawn, and a quantitative structured questionnaire was used. The survey provides household-level data on farm production, land and non-land assets and living conditions, and individual-level data on demographic characteristics, employment history and off-farm earnings. Production and income data are collected for the 12 months period prior to the survey. Specifically important for the analysis in this paper is that one part of the survey was answered by the household head, and another part by the wife of the household head (or in case of a single-headed household or absence of the wife, by another woman in the household). Questions on subjective wellbeing, perceived changes in living standards over the last years and decision-making in the household were asked separately to men and women. If a man insisted to be present during the interview with his wife (or another female relative), the surveyor took note of this. Additional data were collected from the sampled villages, on geographical and institutional characteristics, and from the five export companies, on production activities, sourcing strategies and working conditions.

The sample of 500 households includes 487 women. For the subjective wellbeing analysis we only retain women who are up to 60 years old, as this is the official pension age in Senegal. The final sample consists of 412 women of which 53 are off-farm wage employed. The majority (79 percent) of the women are employed in the horticultural export companies.

4 Descriptive results

In this section, we describe women´s participation in the labor market in the Saint-Louis region; we compare income, poverty and living standards in households with and without female employment; we compare the workload and empowerment for employed and non-employed women; we discuss women's employment conditions and the general perception

towards off-farm employment in the horticultural export sector; and we compare subjective wellbeing between employed and non-employed women.

4.1 Female employment

With increased horticultural exports from the Saint-Louis region, the share of women employed in the export companies increased steadily during the last decade as well. While less than one percent of the women in our sample were working off-farm for a wage in the export industry in 2003, this increased to more than 10 percent in 2013. Apart from employment in the horticultural export sector, another three percent of women in our sample are employed in the service sector. Their jobs mainly consist of domestic and garment work in Saint-Louis town. For the remainder of this paper, we define employed women as women who participated in formal off-farm employment during the 12 months period prior to the survey (regardless of the length of that employment and regardless of whether it concerns employment in horticultural companies or in the service sector).

When comparing demographic characteristics between employed and non-employed women in our sample, we observe some significant differences (Table 1). Employed women are younger and higher educated, and more of them belong to the Maure ethnicity, while fewer of them have children or are the wife of the household head. Instead, 23 percent has another relation with the head, such as daughter(-in-law). Marital and polygamy status, religion and household size are not correlated with women´s employment status. These demographic characteristics cannot be generalized for employed and non-employed women in the area, because the women in our sample are the ones we interviewed personally and usually the wives of the household head.

[Table 1 about here – half page]

4.2 Income, poverty and living standards

We observe that households with female employment score better for a whole range of welfare indicators than households without female employment (Table 2). Households with at least one woman working outside the farm-household have significantly higher income levels and are less likely to be poor and food insecure. Food insecurity is measured according to the Household Food Insecurity Access Scale (HFIAS) (Jennifer Coates, Anne Swindale and Paula Bilinsky 2007). Wages earned by women constitute on average 26 percent of total household income. The living standards of households with female employment are better; a higher share has access to improved sanitation facilities and electricity. Access to clean drinking water and the use of clean cooking fuel does not differ significantly. In the survey, we

included a question on how respondents perceive the change in their living standards over the last years. While less than 30 percent of the households without female employment find that their living standards improved, this is more than 50 percent for households with female employment. These results are in line with previous research, which shows that wages of female workers contribute importantly to total household income, and that employment is associated with poverty reduction and upwards income mobility (Maertens, Colen and Swinnen 2011).

[Table 2 about here – half page]

4.3 Women's workload

We compare the number of labor days that women perform in cropping, livestock rearing, off-farm businesses and off-farm employment (Table 3). The workload in productive activities of employed women is nearly the double of workload of non-employed women. This higher workload is mainly due to participation in the labor market. Women with an off-farm job spend on average 81 percent of their total productive labor time on wage employment. Non-employed women spend more time on crop production and on small off-farm businesses, but time spent on livestock activities is more or less equal.

[Table 3 about here – half page]

Unfortunately we do not have data about time spent on reproductive labor tasks, such as child care, cooking and cleaning. We cannot deduct whether employed women have a higher total workload or that men assist their wives with domestic chores. Other research in Senegal shows that men hardly take up any domestic work (Perry 2005). If we assume that the workload related to reproductive labor is similar for employed and non-employed women, then female off-farm employment in the region is associated with a higher workload for women.

4.4 Empowerment and gender roles

In Table 4 we present indicators of women´s empowerment and how decisions are made between spouses for employed and non-employed women in the sample. As empowerment and bargaining power are not directly observable, we present some variables that are found to be key indicators of women´s empowerment in rural Senegal, such as the freedom to leave the compound and to own and use a phone (Aurélia Lépine and Eric Strobl 2013). We do not see significant differences across female employment status, although employed women are slightly more likely to be able to leave the compound without having to ask permission to their husband, and to own and use their own mobile phone. Nevertheless, the husbands of

employed women insisted more (but not significantly) to be present during the woman´s part of the interview. Regarding decision-making, spouses with an employed wife are more likely to jointly decide whether the woman works outside the farm-household[i]. These findings suggest that women´s employment status is associated with a slightly larger bargaining power. Whether female employment actually empowers women, or whether more empowered women are more likely to be off-farm employed, we cannot deduct from this correlation.

[Table 4 about here – half page]

4.5 Employment characteristics and perception

Nearly 80 percent of the employed women in our sample work in the horticultural export industry. They are hired as field worker for harvesting, or as factory worker for washing, sorting and packing of produce. Female workers earn on average 2,547 FCFA per day, and only five percent earn less than the national minimum wage of 1,500 FCFA per day. They are about seven to eight months employed per year, but during the employment period, women work full-time with an average of 37 hours per week. A large majority (70 percent) is hired on a day-to-day basis, while the rest has a seasonal or yearly contract. Overall, 58 percent of women who work in the horticultural export industry are satisfied with their job. A large majority (72 percent) is satisfied with the job task they have to perform, but only 30 percent is satisfied with the contract length and even less than ten percent is satisfied with their wage level.

Table 5 compares the perception of the household head on the horticultural export companies and employment in these companies between households with and without female employment. In general, household heads agree that there were not enough employment opportunities before the establishment of the companies and that the employment creation has benefitted the local population by improving living standards. A minority (40 percent) feels that the traditional way of living has changed, suggesting that gender roles have changed as well. Households with female employment are more likely to agree with these statements. The general perception towards the horticultural export companies and employment is very positive: 77 percent of households with female employment is happy about the companies´ presence, and 80 percent of them would like to see the number of companies in the region increased. While this general perception is positive, 84 percent of the households with female employment thinks that workers in the horticultural export industry are exploited and used as cheap workforce.

[Table 5 about here – half page]

4.6 Subjective wellbeing

Finally, we compare subjective wellbeing between employed and non-employed women. We use self-reported happiness as indicators of subjective wellbeing; which is the answer on the question "Overall, how happy are you?". Respondents were able to choose from five options, ranging from 'very unhappy' to 'very happy'. For some results, we rescale the happiness variable into a binary variable, taking a value of one if the answer is 'happy' or 'very happy' and zero otherwise. We use Wilcoxon-Mann-Whitney tests to check for significant differences when happiness is defined as an ordinal variable, and t-tests when it is binary.

In general, we do not find significant differences in happiness between employed and non-employed women (Figure 1). We observe a slightly smaller share of happy people among employed women: while 57 percent of the employed women is happy or very happy, this is 63 percent for non-employed women. This small and insignificant difference suggests that the net effect of female employment on subjective wellbeing is zero, and that the monetary gains might counterbalance non-monetary losses.

[Figure 1 about here – half page]

Figure 2 presents the share of happy or very happy women for employed and non-employed women perceiving a deterioration, no change or an improvement in their living standards. We observe large differences in happiness between women perceiving a deterioration in their living standards, no change or an improvement – indicating that living standards are an important component of subjective wellbeing. We also observe quite substantial differences between employed and non-employed women, with a lower degree of happiness among employed women. This suggests that women´s participation in the labor market is associated with reduced wellbeing when differences in living standards are controlled for.

[Figure 2 about here – half page]

To summarize, these descriptive results reveal that women increasingly participate in the labor market in the region and that wages of female workers contribute importantly to total household income. Yet, female employment is not correlated with increased happiness or subjective wellbeing of women. On the one hand, female employment is positively correlated with household income and improved living standards; which likely positively influences women's happiness. On the other hand, female employment is also associated with a higher workload for women and changing gender norms; which likely negatively influences women's subjective wellbeing. In the next section, we analyze the impact of female employment on women´s happiness in a more causal way.

5 Econometric model

We estimate the causal impact of female employment on subjective wellbeing according to the following model:

$$Y_i = \alpha + \beta E_i + \gamma X_i + \varepsilon_i,$$

where ε_i is the error term, and α, β and γ are coefficients to be estimated.

The dependent variable Y_i is the subjective wellbeing level of individual i. It is measured as self-reported happiness, and is the answer on the question "Overall, how happy are you?". It is an ordinal variable with five categories (1=very unhappy, 2=unhappy, 3=not unhappy / not happy, 4=happy and 5=very happy). We use an ordered probit regression because of the ordinal nature of the dependent variable.

The main variable of interest E_i is female employment, which is specified as a dummy variable taking the value one if a women was wage employed during the 12 months period prior to the survey (regardless of length of employment). We include a vector of other explanatory variables X_i that are likely to influence happiness. We control for a set of demographic variables, such as age, education, marital status, having children, relation to the household head, ethnicity and religion. Income and wealth are important determinants of happiness. To capture this, we use two different specifications: specification A, which includes food security status, access to clean water, sanitation and electricity, and specification B, which includes total household income per adult-equivalent member. The impact of income and wealth on wellbeing has been widely investigated in the literature, and most studies find a positive effect. However, wellbeing does not only depend on welfare in absolute terms, but also on how individuals compare their welfare level to their own situation in the past as well as to the welfare of other people (Ferrer-i-Carbonell 2005). Therefore we include two welfare comparison effects. First, we control for a time comparison, measured as the individual's perception of how living standards changed in the past years. The variable takes a value of one if living standards improved and zero if they did not improve or even deteriorated. Second, we include a peer comparison effect, by calculating the average household income of the reference group. As bonds within villages are strong in Senegal, we consider households living in the same village as the reference group. Additionally, we include surveyor fixed effects, as happiness is a subjective measure and might be influenced or interpreted differently by the surveyors.

The impact of female employment on subjective wellbeing is not straightforward to estimate. If variables that are correlated with both the probability of being employed and with

happiness are omitted from the analysis, the estimated effect of employment on happiness will be biased. Our analysis likely suffers from omitted variables; e.g. we do not observe women's physical or mental health, which is likely positively correlated with employment and with happiness, and consequentially result in an overestimation of the effect of female employment on subjective wellbeing. To control for potential omitted variable bias, we use an instrumental variable approach and apply a two-stage residual inclusion regression (2SRI). A conventional two-stage least squares (2SLS) approach would lead to inconsistent estimates, because of the non-linearity of the ordered probit model (Joseph Terza, Anirban Basu and Paul Rathouz 2008). As instrument we use an interaction term between the share of women able to work over the total number of men and women able to work in the householdii, and a dummy variable for whether the household lives within a five kilometer radius of a horticultural export company. When the household lives close enough to the company, the instrument takes a value between zero and one, and when they live further away it takes the value of zero. The instrument is relevant as the correlation with female employment is positive ($\rho = 0.2040$) and significant at the 1 percent level. This is related to the fact that households who live within a feasible walking distance to a company and who have more adult women than adult men, are very likely to send (some of) their women to work outside the farm and the household.

We argue that the companies' investment decisions and household workforce composition do not affect individuals' subjective wellbeing levels directly; only indirectly through access to employment. Companies choose their location based on access to water, land and labor, and are not influenced by people's happiness status. We acknowledge that living in the vicinity of horticultural export companies might influence households' wellbeing even if they are not employed. For example if they perceive that companies 'grab' land that otherwise could have been used for farmers' crop production or livestock grazing. Additionally, when there are more women than men in a household, it might be that this causes additional stress for women. However, the instrument has no partial effect on happiness when included in the main regression, suggesting that the assumption of exclusion restriction holds.

Additionally, we estimate heterogeneous effects of female employment on subjective wellbeing. While the ordered probit models and IV models estimate the average impact, heterogeneous effects illustrate how the impact of women´s labor market participation might be different for different subgroups of women. We calculate the average marginal effect of employment on the probability of being happy or very happy for different income levels and present this graphically.

6 Regression results and discussion

The results for the main variable of interest, female employment, are summarized in Table 6. More detailed regression results are reported in Appendix (Tables A1, A2 and A3). Our main finding is that female wage employment, after controlling for differences in income and livings standards, has a negative impact on women's subjective wellbeing. In the ordered probit models, the effect is significant at the 5 percent level, while in the IV ordered probit models, it is significant at 1 percent level for specification A and at 5 percent level for specification B. The absolute values of the IV results are lower than in the ordered probit results. This is consistent with an overestimation of the effect in the ordered probit models, which results from health being positively correlated with both probability of employment and happiness.

[Table 6 about here – half page]

We need to stress that we specifically include living standards (specification A), household income (specification B) and improvement in living standards (both specifications) as control variables in the regressions. Therefore the estimated effect of female employment on happiness represents only the non-income effect, such as an increased workload, low job satisfaction and changing gender roles. Our findings imply that these non-income effects reduce women's happiness, even though employment might have a positive effect through income as well. To test this further, we analyze the impact of female employment on subjective wellbeing without accounting for income or improvement of living standards. We find that the overall effect of female employment, when it represents both income as non-income effects, is still negative, but the absolute value is halved and becomes insignificant (coefficient is -0.241 and standard error is 0.178). This implies that the positive income effect of female employment is somewhat counterbalanced by the negative non-income effects. This is in line with several studies that point to such contradicting effects (Sarah Salway, Sonia Jesmin and Shahana Rahman 2005; Schwendler 2012).

To further unravel the interpretation of the effect, we look at heterogeneous effects of female employment on subjective wellbeing. Figure 3 presents the average marginal effect of female employment on women's probability of being happy or very happy for different income levels. The red vertical line represents the national rural poverty line. We find that the effect of female employment on happiness is positive as long as households are poor or nearly poor, but becomes negative when income moves further above the poverty threshold. This implies that especially for poor women, female employment improves subjective wellbeing.

An explanation might be that women in poor households perceive female off-farm employment as a means to escape poverty and improve their wellbeing. For richer households, female employment is rather perceived as a burden, as basic needs are already fulfilled and the returns of employment on wellbeing are much lower.

[Figure 3 about here – half page]

Also other variables influence women's happiness. The estimated effects of these variables are consistent across the different models and specifications (Tables A1 and A2). First, we find that demographic characteristics matter: age lowers happiness while education raises happiness. This is in line with other studies in SSA (Khumalo, Temane and Wissing 2012; Addai, Opoku-Agyeman and Amanfu 2014). Marital status, presence of children, relation with the household head, religion and ethnicity do not influence happiness. These insignificant effects might stem from the fact that variability in these characteristics is very low in our sample. Second, we find that access to water and sanitation increases women´s happiness. A similar result was found by Jorge Guardiola, Francisco Gonzalez-Gomez and Angel Grajales(2013) in Mexico. Other wealth indicators, such as food security and access to electricity do not have a significant effect – which might results from the fact that food security and access to electricity are rather high in the sample or from correlation with other variables in the model. Third, we do not find a significant effect for income. This is somewhat surprising and contradicts the neo-classical utility theory, which states that income increases the bundle of consumption goods and thereby increases the utility derived from these consumption goods. The insignificance might be due to the high correlation with female employment and wealth comparison over time. We also tested the hypothesis of a positive but decreasing effect of income on subjective well-being by including a squared income variable. However, we did not find a significant effect either – which might be due to the fact that income levels have not yet surpassed a certain 'saturation' threshold. Fourth, the regression results indicate that comparison income with peers does not affect women's happiness. On the other hand, we find a strongly positive and significant effect for the own time comparison. If a woman perceives her living standards to have improved over time, this largely improves happiness. This is in line with other studies in Ethiopia (Alem and Köhlin 2014) and South-Africa (Bookwalter and Dalenberg 2010).

7 Conclusion

In this paper, we analyze the impact of female employment on women´s subjective wellbeing using quantitative micro-level evidence from Senegal. The main conclusion from this paper is

that female employment improves subjective wellbeing for the poorest women but not necessarily for women whose household income has moved well beyond the poverty threshold. Female employment improves women´s happiness through an income effect, as female employment leads to higher income levels and improved living standards, but the non-income effects of female employment reduce women's happiness. This negative effect is related to a higher workload, low job satisfaction and changing gender roles. The positive income effect outweighs these negative non-income effects for poor women but not for relatively richer women. This indicates that female off-farm employment can be an escape out of poverty and a route towards improved wellbeing for poor women. However, for broader and more long term benefits for the wellbeing of women, female employment needs to be associated with decent employment conditions, with an evolution of gender roles and norms, and with the development of institutions that support women in their employment and changed role. Our findings support the view of ILO (2014) that not only the creation of off-farm employment opportunities is important for poverty reduction and rural development, but that also employment conditions matter. Decent jobs that are paid well and offer secure contracts and additional company services, can have far-reaching development effects. However, as long as poverty remains prevalent in a region, job creation is a priority issue to improve welfare.

Our approach is innovative because female employment in developing countries has mostly been analyzed with objective wellbeing measures, such as income and poverty, or using qualitative approaches. Our findings contribute to the emerging literature on subjective wellbeing in developing countries. In line with these studies, we advocate for incorporating subjective as well as objective measures to evaluate development impacts. While income-based measures are good predictors for people´s wellbeing, they fail to reveal to what extent non-income effects matter. Our conclusions are drawn from a very specific case study of a poor rural area where female off-farm employment opportunities started to emerge only recently as a result of the development of a horticultural export industry. In addition, the women in our sample are often the wife of the household head. Effects might differ in other settings and for younger, unmarried women. More empirical research on this issue is needed to come to more general conclusions.

Tables

Table 1. Demographic characteristics for employed and non-employed women.

	Non-employed women	Employed women	
	N=359	N=53	
Age (years)	42.08	38	***
No education	85.52%	64.15%	***
Primary education	11.42%	24.53%	***
Secondary or higher education	2.79%	11.32%	***
Married	90.81%	86.79%	
Polygamous household	19.50%	18.87%	
Children	94.15%	86.79%	**
(Wife of the) household head	91.64%	77.36%	***
Wolof ethnicity	45.13%	35.85%	
Peulh ethnicity	40.95%	37.74%	
Maure ethnicity	9.75%	16.98%	*
Christian	2.79%	3.77%	
Household size (adult equivalent)	4.49	4.27	

Comparisons are made across employed and non-employed women using one-sided *t*-tests. Significant differences are indicated with * $p < 0.1$, ** $p < 0.05$ or *** $p < 0.01$.

Table 2. Welfare indicators for households with and without female employment.

	Households without female employment	Households with female employment	
	N=368	N=132	
Total household income (1,000 FCFA / year)	2,023	2,707	***
Households living under poverty line[a]	35.05%	22.73%	***
Households living under extreme poverty line[a]	25.54%	12.12%	***
Multidimensional Poverty Index[b]	34.56	30.99	**
Food secure[c]	58.15%	69.70%	***
Access to water	92.39%	91.67%	
Access to sanitation	6.79%	15.91%	***
Access to electricity	46.47%	62.88%	***
Use of non-wood cooking fuel	10.87%	14.39%	
Improvement in living standards	28.53%	52.27%	***

Comparisons are made across female employment status using one-sided *t*-tests. Significant differences are indicated with * $p < 0.1$, ** $p < 0.05$ or *** $p < 0.01$.

[a] This is measured according to the national rural poverty and extreme poverty line of 2011 (République du Sénégal, 2014). [b] The Multidimensional Poverty Index is calculated according to the guidelines by the United Nations Development Program (Alkire and Santos, 2010). [c] Food security is measured according to the Household Food Insecurity Access Scale (Coates et al., 2007).

Table 3. Number of labor days involved in productive labor of employed and non-employed women.

	Non-employed women	Employed women	
	N=359	N=53	
Total number of days	107.33	194.81	***
Crop production	22.94	4.53	***
Livestock	35.8	47.55	
Off--farm self-employment	57.66	11.09	***
Off-farm wage employment	0	157.32	***

Comparisons are made across female employment status using one-sided *t*-tests. Significant differences are indicated with * $p < 0.1$, ** $p < 0.05$ or *** $p < 0.01$.

Table 4. Empowerment indicators and intra-household decision-making for employed and non-employed women.

	Non-employed women	Employed women
	N=359	N=53
Empowerment indicators		
Freedom to leave the compound	12.81%	16.98%
Man was present during interview	27.86%	32.08%
Owns and uses own phone	60.17%	67.92%
Decision-making on female off-farm employment		
Husband decides alone	77.42%	63.64% **
Spouses decide jointly	14.52%	27.27% **
Wife decides alone	8.06%	9.09%

Comparisons are made across female employment status using one-sided *t*-tests. Significant differences are indicated with * $p < 0.1$, ** $p < 0.05$ or *** $p < 0.01$.

Table 5. Perceptions on horticultural export companies and employment of households with and without female employment.

	Households without female employment	Households with female employment	
	N=368	N=132	
The horticultural export companies create many jobs which is good for the local population.	70.11%	83.33%	***
Before the horticultural export companies established in the region, there were not enough employment opportunities.	64.40%	75.00%	**
Since the horticultural export companies established in the region, living standards of local population have improved.	42.12%	66.67%	***
Since the horticultural export companies established in the region, traditional way of living has changed.	37.77%	46.97%	**
The horticultural export companies exploit their workers and use local population as cheap work force.	66.58%	84.09%	***
In general, I am happy with the presence of the horticultural export companies.	59.24%	77.27%	***
I would like that more horticultural export companies would establish in the future.	69.29%	79.55%	**

Comparisons are made across female employment status using one-sided *t*-tests. Significant differences are indicated with * $p < 0.1$, ** $p < 0.05$ or *** $p < 0.01$.

Table 6. Summary of ordered probit and IV models for the impact of female employment on women´s subjective wellbeing.

	Specification A		Specification B	
Ordered probit	-0.421	**	-0.404	**
	(0.192)		(0.190)	
IV ordered probit	-2.299	***	-2.117	**
	(0.888)		(0.842)	
Observations	412		412	

Significant coefficient estimates are indicated with * p<0.1, ** p<0.05 or *** p<0.01. Standard errors are indicated between parentheses. Specification A includes food security status (measured according to the HFIAS by Coates et al. (2007)), access to clean water, sanitation and electricity, while specification B includes the logarithm of income per adult-equivalent.

Figures

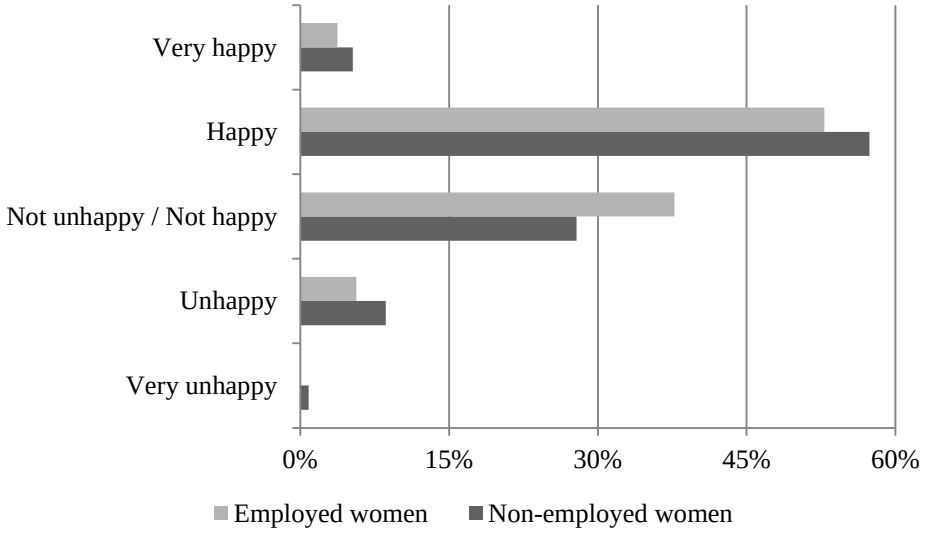

Figure 1. Happiness status of women across female employment status.

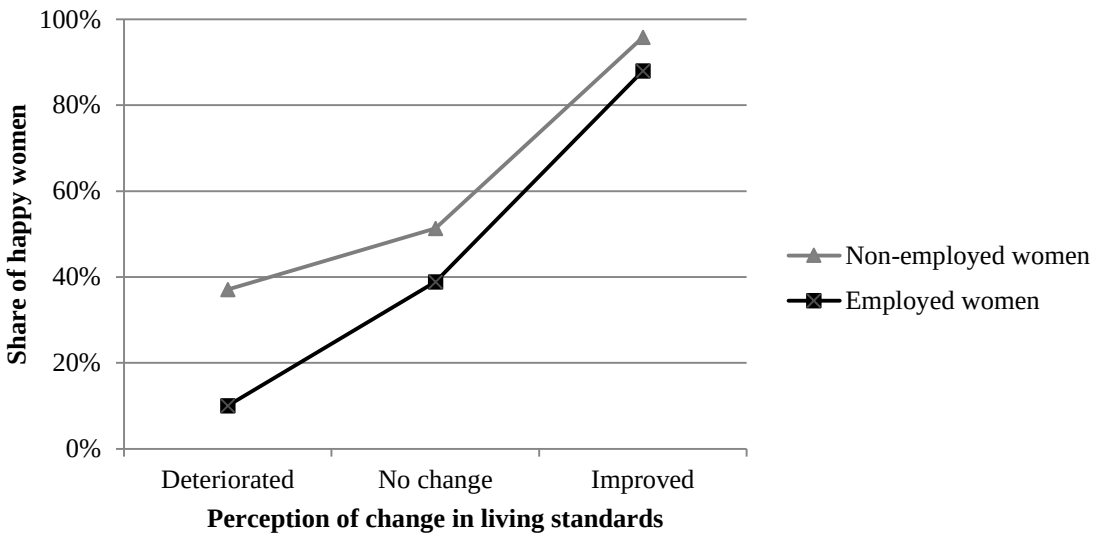

Figure 2. Share of happy or very happy women for employed and non-employed women and for different changes in living standards.

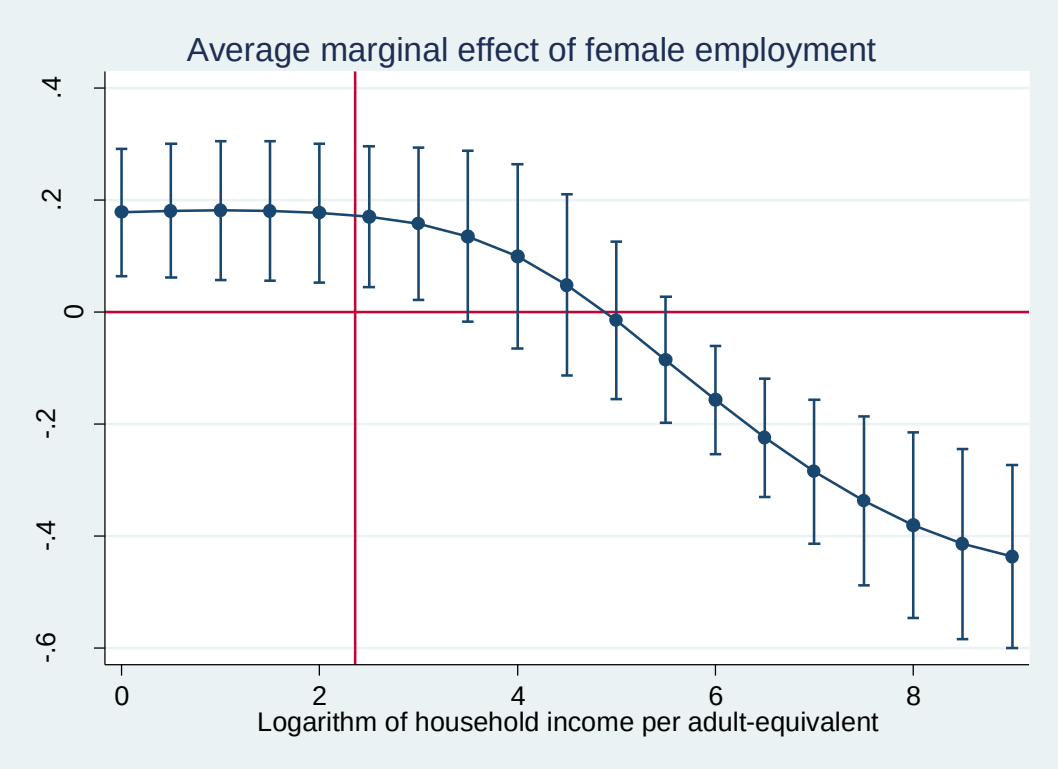

Figure 3. Average marginal effect of female employment on women´s probability of being happy or very happy for different income levels. The red vertical line represents the national rural poverty line (République du Sénégal, 2014). Confidence intervals are at 10% level.

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Endnotes

[i] Process of decision making was asked to a male respondent.
[ii] We define people able to work as persons between 18 and 65, and who are no student.