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RESEARCH PAPER

Gender Inequality and Job Satisfaction in Senegal: A Multiple Mediation Model

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Abstract
Women are often found to be in inferior jobs with lower wages and lower job quality, but to report higher job satisfaction. This gender-job satisfaction paradox is documented for high-income countries and is explained by gender inequality in job quality and expectations. In this paper we document this paradox for a developing country. We explore the complex relationship between gender, job quality and job satisfaction among agro-industry workers in Senegal, using primary data from a comprehensive worker survey. We use a multiple mediation model to disentangle direct and indirect pathways through which gender relates to job satisfaction. We find that women's job satisfaction is higher, despite earning lower wages, receiving fewer nonwage benefits, being more in casual employment, and working fewer hours than men. Moreover, job satisfaction varies more strongly with gender than with worker education, wages or other job quality characteristics. We find that gender inequality in job quality mitigates the positive relationship between gender and job satisfaction, with wage and nonwage benefits as major mediating variables. Our findings imply opposing direct and indirect gender effects on job satisfaction, and bring some nuance in the debate on how reducing gender inequality in job quality may affect women's job satisfaction.

Keywords Gender · Inequality · Decent work · Job quality · Job satisfaction · Developing country

1 Introduction

Improving job quality and ensuring decent work for all is considered an effective way to reduce poverty, stimulate economic development and enhance gender equality (Ayenew et al., 2017; Barrientos et al., 2011). As part of the Sustainable Development Goals (SDG) it is high on the policy agenda of governments and development agencies. In sub-Saharan Africa 89% of the workforce is employed in informal and low-productive jobs (ILO,

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2020). Women are more often employed in lower-quality jobs, with job quality measured based on objective indicators, such as average hourly wage or working hours (Rai et al., 2019). Yet, studies consistently find that women report the same or even higher levels of job satisfaction than men. This gender-job satisfaction paradox was first described by Clark (1997) and has been investigated empirically in various papers (e.g. Pita & Torregrosa, 2021; Sousa-Poza & Sousa-Poza, 2003; Westover, 2012). Gender inequality has been suggested as one of the potential drivers of the paradox (Clark, 1997). When gender inequality is high, women might have lower expectations towards a job and might value job aspects differently, resulting in higher job satisfaction. Empirical studies document an association between women's lower job expectations and higher job satisfaction (Dawson, 2017), and between higher gender equality (especially in early stages of life), higher job expectations and lower job satisfaction for women (Perugini & Vladisavljević, 2019).

In this paper, we explore the relationship between gender, job quality and job satisfaction among agro-industry workers in Senegal, using primary data from a comprehensive worker survey and a multiple mediation model. The recent development of an agro-industry sector in Senegal has created substantial formal employment in rural areas, of which many are occupied by women. Nevertheless, employment conditions in the sector are highly gendered and job quality is generally low (Maertens & Swinnen, 2012; Van den Broeck et al., 2016). This paper makes an innovative and relevant contribution to the current literature. First, we provide empirical evidence on job satisfaction of rural workers and the gender-job satisfaction paradox in a developing country context. Most of the research on job satisfaction, and in particular the empirical evidence on the gender-job satisfaction paradox, is biased towards high-income countries (e.g. Perugini & Vladisavljević, 2019; Pita & Torregrosa, 2021; Sousa-Poza & Sousa-Poza, 2003). The empirical evidence on job satisfaction in low- and middle-income countries includes studies from urban areas in West-Africa and Vietnam that point to a positive gender gap in job satisfaction, with women having a higher job satisfaction (Anh et al., 2019; Falco et al., 2015; Razafindrakoto & Roubaud, 2013) as well as studies from various African and Latin-American countries that do not find evidence of a gender gap in job satisfaction (Bóo et al., 2010; Hinks, 2009; Krumbiegel et al., 2018; Montero & Rau, 2015; Mulinge & Mueller, 1998; Staelens et al., 2018; Vigan & Giauque, 2018). While some of these studies control to some extent for job quality characteristics, they do not specifically investigate the gender-job satisfaction paradox, as we do in this paper for a rural agro-industry sector in Senegal.

Second, we look beyond the direct association between gender and job satisfaction, and additionally investigate the indirect link through job quality. Most studies rely on linear regression techniques to compare job satisfaction of men and women with similar job characteristics, and thereby only assess the direct association between gender and job satisfaction. However, an indirect association between gender and job satisfaction follows from the gender-job satisfaction paradox: when women are in lower quality jobs while higher quality jobs relate with higher levels of job satisfaction, job quality characteristics may mediate the effect of gender on job satisfaction. When such an indirect effect runs in the opposite direction than the direct effect and/or when it is large in magnitude, the results from linear regressions on job satisfaction may produce biased estimates (Bartram, 2021a). A multiple mediation model allows us to disentangle the total effect of gender on job satisfaction into a direct gender effect, and an indirect effect that is mediated through job quality. Current evidence on the gender-job satisfaction paradox has raised a discussion on the implications of a reduction in gender inequality for women's subjective wellbeing or satisfaction. By adding evidence on direct as well as indirect effects, we provide new insights that feed into this discussion.

Third, we add evidence on subjective as well as objective measures of job quality. The SDG framework mainly relies on objective job quality indicators, such as hourly wage and fringe benefits, to track progress towards SDG 8 on decent work for all. Yet, subjective measures, such as job satisfaction, are highly complementary to objective measures because they encompass individual preferences and unobservable job characteristics (Clark & Senik, 2010; Falco et al., 2015). In addition, job satisfaction is a good predictor of labour market behaviour because more satisfied workers are less likely to quit the job (Staelens et al., 2018) and have higher work performance (Clark, 1996).

The rest of this paper is organised as follows: Section 2 reviews the job satisfaction concept and the gender-job satisfaction paradox. Section 3 presents the case study and data used in this paper and motivates the use of the multiple mediation model. In Section 4 results are briefly presented while a more detailed discussion is provided in Section 5. Some concluding remarks are given in Section 6.

2 Literature Review

In recent years, economists increasingly use subjective wellbeing measures. Life satisfaction and happiness are studied to complement monetary indicators, such as income per capita (Bleys, 2012; Clark, 2018). Similarly, job satisfaction is measured to complement hourly wage as a purely monetary and objective measure when studying decent work. Economists mostly rely on Clark's (1996) utility theory to assess job satisfaction. According to this theory, job satisfaction is defined as the utility derived from the combination of wage, working hours and a range of other job characteristics. First, wage is observed to be positively correlated with job satisfaction, but at a diminishing rate because people get used to higher welfare levels (Clark et al., 2008; Easterlin, 1995). Second, the number of working hours a job requires has a nonlinear relation with job satisfaction. Mostly, employees report lower job satisfaction levels with increasing number of hours worked (Clark, 1996), but in regions with large underemployment, employees report higher levels of job satisfaction when working more hours. This is illustrated for South Africa (Hinks, 2009), as well as for Madagascar and seven West African countries (Razafindrakoto & Roubaud, 2013). Third, a range of other job characteristics is found to be associated with job satisfaction, including companies' provision of additional services or fringe benefits (e.g. Erro-Garcés & Ferreira, 2019; Krumbiegel et al., 2018), intrinsic rewards, such as promotion opportunities, job content and autonomy (e.g. García-Mainar & Montuenga-Gómez, 2020; Herzberg, 1987; Wen et al., 2019), and contextual characteristics, such as the size of the firm and the working environment (e.g. temperature and noise at the workplace) (Bóo et al., 2010; Razafindrakoto & Roubaud, 2013; Erro Garcés & Ferreira, 2019).

Demographic characteristics matter as well for job satisfaction. Job satisfaction typically follows a U-shaped relationship with age (Clark et al., 1996) and decreases with the number of children and the education level of workers. Higher job satisfaction is often found for married employees, for employees in better health conditions as well as for women (Izvercian et al., 2016; Sousa-Poza & Sousa-Poza, 2000; van Praag et al., 2003). The latter has been documented for high-income countries (e.g. Clark, 1997; Dawson, 2017; Sousa-Poza & Sousa-Poza, 2003) and for urban areas in Vietnam (Anh et al., 2019) and in Madagascar and Western Africa (Falco et al., 2015; Razafindrakoto & Roubaud, 2013); and gave rise to the gender-job satisfaction paradox. Women are generally more likely to be in inferior jobs than men (Rai et al., 2019). Especially in developing countries labour markets are

highly gendered (Dolan & Sutherland, 2002; Maertens & Swinnen, 2012). Women have less access to (formal) jobs, resulting in lower participation rates for women (Nix et al., 2016; Van den Broeck & Kilic, 2019), but also contract arrangements differ between male and female employees. Various studies highlight gender wage gaps (Emran & Shilpi, 2018; ILO, 2018), occupational segregation (Dolan & Sorby, 2003; Maertens & Swinnen, 2012) and lower job security for women (Sehnbruch et al., 2020). Despite a lower job quality, women report on average higher levels of job satisfaction than men (Clark, 1997; Sousa-Poza & Sousa-Poza, 2003). This gap remains even when controlling for other demographic and job characteristics. This gender gap in job satisfaction seems to have decreased in the last decades in high-income countries (Green et al., 2018; Pita & Torregrosa, 2021) but large differences remain between countries. For example, evidence of a declining gender-job satisfaction paradox over time has been found for the UK, as women developed expectations closer to those of men (Green et al., 2018; Sousa-Poza & Sousa-Poza, 2003), whereas in many East-European countries (e.g. Bulgaria, Macedonia and Serbia), labour markets remained relatively unequal, and women still report higher levels of job satisfaction than men (Pita & Torregrosa, 2021).

Different explanations have been put forward for the gender-job satisfaction paradox. First, the gender gap may be the result of selection bias: women who are dissatisfied with a job may find it easier to leave the job, in comparison with men who are dissatisfied in a job, because of cultural norms in society regarding unemployed women, because of gender roles in income-earning responsibilities in a household, or because lower job security makes it easier to leave (Clark, 1997; Sousa-Poza & Sousa-Poza, 2003). Therefore, selection bias might result in overestimating gender differences in job satisfaction. Heckman selection models have been used to control for selection bias and this reduces, though not fully eliminates, estimated gender gaps in job satisfaction (Perugini & Vladisavljević, 2019; Sloane & Williams, 2000; Stevenson & Wolfers, 2009).

Second, men and women tend to value different job aspects (Clark, 1997). Men are generally found to attach more importance to earnings and promotion opportunities (extrinsic benefits) while women value internal rewards more than men do (Bender et al., 2005; Perugini & Vladisavljević, 2019; Sloane & Williams, 2000). Employees who value extrinsic benefits more, as men are more likely to do, tend to report lower job satisfaction compared to employees in the same jobs who value extrinsic benefits less. Similarly, employees who highly value social relations at work, as women are more likely to do, tend to report higher job satisfaction compared to others in the same job (Bender et al., 2005). Clark (1997) specifically controls for these differences in values – besides controlling for job and other demographic characteristics—but still finds a higher job satisfaction for women in the UK.

Third, the most discussed explanation for the gender job satisfaction paradox, relates to job expectations (Clark, 1997; Dawson, 2017). When expectations are low, they are more likely to be met and result in higher job satisfaction levels. Due to socio-economic inequality and discrimination in the labour market, women have lower expectations. As a consequence, their actual job characteristics, even if inferior to those of men, may better match their expectations, which then result in higher job satisfaction (Perugini & Vladisavljević, 2019). A considerable number of studies observe a larger gender gap in job satisfaction in regions with higher gender inequality, where women have adjusted to inferior working conditions (Brown et al., 2012). In regions where inequality reduced and job quality of women improved, expectations have increased and job satisfaction has reduced, such as in the UK (Green et al., 2018; Sousa-Poza & Sousa-Poza, 2003) and other Western and Central European countries (Perugini & Vladisavljević, 2019; Pita & Torregrosa, 2021).

3 Methods and Data

3.1 Research Background and Data Collection

Primary survey data were collected in three rural regions in Senegal: the Niayes region, the Senegal River Delta and the region around the Lac de Guiers. Since 2005, these regions have experienced fast agro-industrialization with the establishment of various large-scale agro-industrial companies that produce and handle fresh fruits and vegetables for the export market. Providing nearly year-round employment opportunities, these agro-industrial export companies have created more than 30,000 jobs on their plantations and in their condition centres (Maertens & Fabry, 2019). The activities often require few skills and many jobs are therefore accessible for the most vulnerable people in society, such as women, youth and uneducated people.

We collected data through a worker survey among 392 employees in ten different agro-industrial companies in March – April 2019. We used a two-stage sampling strategy. In the first stage we selected ten of the largest agro-industrial companies, of which five in the Les Niayes, three in the Delta region and two around Lac de Guiers. In the second stage we selected a stratified sample of employees in each of the ten selected companies. The structured quantitative questionnaire enquires about various demographic characteristics, detailed contract and work aspects, and job satisfaction. Seven respondents were removed from the analysis because of missing data. The final sample consists of 385 employees, of which 160 women.

3.2 Methodology

To determine the relation between gender and job satisfaction, we estimate the following linear model:

$$JS_i = \alpha_0 + \beta_0 G_i + \theta_0 C_i + \zeta_0 S_i + \varepsilon_{0i} \tag{1}$$

where JS_i is the reported level of job satisfaction for worker *i,* and gender is specified by G_i (a dummy variable equalling one for women). To account for differences across agro-industrial companies we control for company fixed effects (C_i). We also add surveyor fixed effects (S_i).

To assess how job quality influences the relationship between gender and job satisfaction we add a measure of job quality to the estimation of job satisfaction. A substantial change in the gender coefficient would reveal indirect gender effects that are mediated through job quality (Bartram, 2021b). To disentangle the different direct and indirect pathways through which gender relates to job satisfaction we estimate a multiple mediation model. On the one hand, we analyse how job quality, which comprises a set of job characteristics, and gender are directly linked to job satisfaction. On the other hand, we analyse the indirect link between gender and job satisfaction by estimating how gender is linked to job quality. We estimate a standard structural equation model which combines the following 5 equations (Mediation model 1):

$$JS_i = \alpha_0 + \beta_0 G_i + \sum_{j=1}^{4} \delta_{j0} J_{ji} + \theta_0 C_i + \zeta_0 S_i + \varepsilon_{0i} \tag{2}$$

$$J_{1i} = \alpha_1 + \beta_1 G_i + \theta_1 C_i + \varepsilon_{1i} \tag{3}$$

…

$$J_{4i} = \alpha_4 + \beta_4 G_i + \theta_4 C_i + \varepsilon_{4i} \tag{6}$$

where J_{ji} is a vector of four job quality indicators and the other factors as specified above.

However, demographic differences between men and women may also intervene in the association between gender and job satisfaction, as well as between gender and job quality (Bartram, 2021b). To disentangle the direct gender effects from the effect caused by differences in demographic characteristics we estimate a second mediation model (Mediation model 2):

$$JS_i = \alpha_0 + \beta_0 G_i + \gamma_0 X_i + \sum_{j=1}^{4} \delta_{j0} J_{ji} + \theta_0 C_i + \zeta_0 S_i + \varepsilon_{0i} \tag{7}$$

$$J_{1i} = \alpha_1 + \beta_1 G_i + \gamma_1 X_i + \theta_1 C_i + \varepsilon_{1i} \tag{8}$$

…

$$J_{4i} = \alpha_4 + \beta_4 G_i + \gamma_4 X_i + \theta_4 C_i + \varepsilon_{4i} \tag{11}$$

where X_i is a vector of demographic characteristics, including age, years of education, number of children, self-assessed health status (measured on an 11-point scale) and dummies for ethnicity (one if Oulof) and marital status (one if married). Mediation model 2 is likely most accurate in estimating direct and indirect gender effects but a comparison with mediation model 1 and the linear model helps to better distinguish total, direct and indirect gender effects. To allow for a correct interpretation of direct and indirect gender effects we additionally estimate Eqs. 2 and 7 using linear regressions without mediation, which would only capture a direct gender effect (Appendix 1).

To measure job satisfaction, employees were asked to rank their current job on an 11-point scale, where 0 represents the worst job possible and 10 the best possible job. This type of evaluative question to measure job satisfaction implies that employees reflect about their job as a whole, rather than focussing on the emotional attachment to their job (Brown et al., 2012; Graham & Nikolova, 2015). Alternatively, job satisfaction can be measured by asking the same question for specific job aspects (e.g. satisfaction about the wage, security, stability and other dimensions), and by aggregating all aspects into one job satisfaction variable. However, job satisfaction is more than a simple combination of aspects (Staelens et al., 2018; van Praag et al., 2003). Aggregating different aspects into one variable requires to weight satisfaction with different aspects of the job and is therefore prone to researcher bias. To avoid this issue, using a single question to measure job satisfaction is common and often preferred because of its simplicity (Gamero Burón & Lassibille, 2016).

To measure job quality, we consider four indicators that relate to Clark's utility framework, and are relevant in the literature on job satisfaction and for our specific case-study. First, we consider the average hourly wage in logarithmic terms and measured in FCFA

(*Franc de Communauté Financière d'Afrique*) per hour (log FCFA/h).[1] Second, we investigate nonwage benefits, as the agro-industrial companies provide a range of services to their employees, including trainings, housing, meals, health care services on the work site and transportation. We use a count variable which equals the number of nonwage benefits that the employee receives (ranging between zero and five). Third, we analyse the average weekly working hours. Fourth, we evaluate the employment status of the employee with a dummy variable for casual employment. An important share of the employees in the agro-industrial companies is employed on a daily basis, which is typically associated with lower wages and little job security.

To estimate the mediation models we use Stata's SEM package and assume a linear regression model in all equations.[2] As suggested by van Praag and Ferrer-i-Carbonell (2004) and Pita and Torregrosa (2021) we apply a probit-adapted ordinary least squares method (POLS) to estimate the job satisfaction equation. The POLS method rescales the ordinal job satisfaction variable into a normally distributed measure. This approach entails several advantages, such as a more straightforward interpretation of the coefficients and easier computation of the model (Navarro & Salverda, 2019). We estimate linear functions for the four job quality indicators, as they predict values that are in the range of the actual values (even though the variables of nonwage benefits and employment status are not continuous or normally distributed). We estimate a multiple mediation model, including all four job quality indicators simultaneously (Van Aerden et al., 2016). To account for possible correlation among the mediating variables we include non-zero covariance between the four job quality indicators (Preacher & Hayes, 2008). Correlation among the mediating variables may attenuate the estimated coefficients of individual job quality characteristics in the job satisfaction equation. We therefore additionally estimate four single mediation models, in which each of the four job quality indicators is included separately as mediating factor (Appendix 2). These single mediation models provide a complementary view on the effect of each individual job quality indicator on job satisfaction. In addition, we relax the linearity assumption by including gender interaction effects with all other variables in the model (Appendix 3). As we do not find any significant interaction effects in these models, we rely on the linear models without interaction effects in reporting and discussing the results.

We calculate the indirect effect of gender on job satisfaction based on Mediation model 2, by multiplying the gender coefficients from the job quality regressions (β_j in Eqs. 8-11) with the coefficient of the respective job quality indicator from the job satisfaction regression (δ_{j0} in Eq. 7), as in Eq. 12. The total indirect effect is calculated as the sum of all four indirect effects (Eq. 13) (Preacher & Hayes, 2008). We report the normal unstandardized coefficients (sometimes referred to as B coefficients or alpha-level coefficients) as well as the standardized coefficients (sometimes referred to as beta-coefficients). The latter allows for comparing the relative magnitude of the explanatory variables within and across regression models and rules out scale effects.

$$Specific\ indirect\ effect = \beta_j * \delta_{j0}, \forall j \in (1,4) \tag{12}$$

[1] Akay & Martinsson (2011) and Kuegler (2009) found that for the very poor absolute income matters more than the relative income. Since the horticultural sector typically employs the poorest members of society, we decided to include absolute rather than relative wage.

[2] We tested the model including squares of age, wage and hours; yet as none of the squared terms are statistically significant this is not reported.

$$Total\ indirect\ effect = \sum_{j=1}^{4}(\beta_j * \delta_{j0}) \tag{13}$$

We should note that the estimated coefficients cannot be interpreted as causal effects but should be interpreted as correlations. However, the models allow to look beyond direct associations between gender and job satisfaction, and to disentangle the direct and indirect effect of gender and job quality on job satisfaction, which is not possible with single linear regression estimations (such as Eq. 1).

4 Results

4.1 Descriptive Statistics

On average, women in our sample report higher levels of job satisfaction than men (Fig. 1), while their jobs are of lower quality (Table 1). Women's wages are on average 22% lower than those of men who work in the same regions, the same sector and the same companies. Women in the sample are more likely than men to earn a wage that is below the minimum wage of 213 FCFA/h (19% of women versus 7% of men) (Fig. 2). We do not find a difference in the number of company benefits that men and women receive, but they enjoy different types of benefits. Housing and meals are more likely to be offered to men, while women are more likely to use employer transportation services. Healthcare services and training opportunities are equally available to male and female workers. Women are more often employed on a casual daily basis (78% of sampled women) than men (52% of sampled men). Weekly working hours are rather high in the sample (52 on average), which reflects the peak season of employment in the

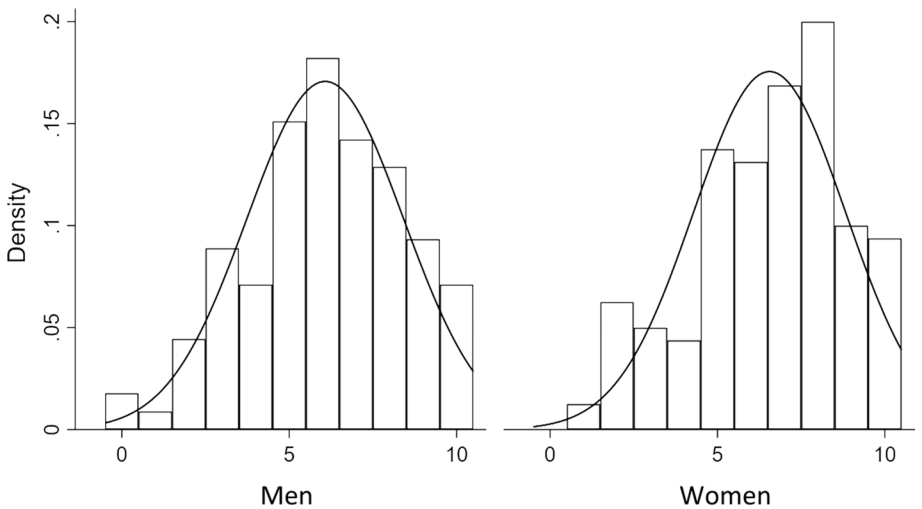

Fig. 1 Job satisfaction ($n = 385$). Total sample Mean: 6.27, SD: 2.32 – Men ($n = 225$) Mean: 6.08, SD: 2.34 – Women ($n = 160$) Mean: 6.56, SD: 2.27) t-stat: -2.01

Table 1 Descriptive statistics of job and demographic characteristics

	Total sample	Men	Women	Comparison of mean
Job characteristics				
Hourly wage (FCFA/h)	343.94	378.78	294.95	***
	(153.81)	*(160.99)*	*(128.41)*	
Nonwage benefits	1.62	1.64	1.58	
	(1.11)	*(1.17)*	*(1.03)*	
-Training	51.17%	51.56%	50.63%	
-Housing	5.97%	8.89%	1.88%	***
-Meals	16.36%	20.44%	10.63%	**
-Health care	38.70%	40.89%	35.63%	
-Transportation	49.61%	42.67%	59.38%	***
Employment status (Casual)	62.86%	52.00%	78.13%	***
Weekly working hours	51.62	54.97	46.91	***
	(12.80)	*(13.47)*	*(10.08)*	
Demographic characteristics				
Age	33.39	32.21	35.05	**
	(11.43)	*(10.78)*	*(12.13)*	
Oulof ethnicity	40.52%	34.22%	49.38%	***
Married	52.73%	52.44%	53.13%	
Number of children	1.88	1.43	2.52	***
	(2.45)	*(2.26)*	*(2.57)*	
Years of schooling	5.37	5.60	5.04	
	(4.98)	*(5.11)*	*(4.98)*	
Health status	7.68	7.92	7.35	***
	(1.55)	*(1.48)*	*(1.59)*	
Observations	*385*	*225*	*160*	

* $p<0.1$; ** $p<0.05$; *** $p<0.01$. *Standard deviations in parentheses*. Comparison of means through two-sided t-tests (continuous variables) and z-tests (binary variables)

agro-industrial companies at the time of the survey. Women work on average slightly fewer hours per week than men (47 compared to 55).

Demographic characteristics of the sample are presented in Table 1. The sampled employees are on average 33 years old, 50% are married and most of them have one or two children. Women are found to be slightly older, have more children and have a slightly lower self-assessed health status than men. Oulof is the major ethnicity in our case study regions, and male employees are more likely to belong to one of the ethnic minority groups than female employees. The average schooling level is only five years of education (with no significant difference between men and women), reflecting the abundance of low-skilled jobs in agro-industrial companies.

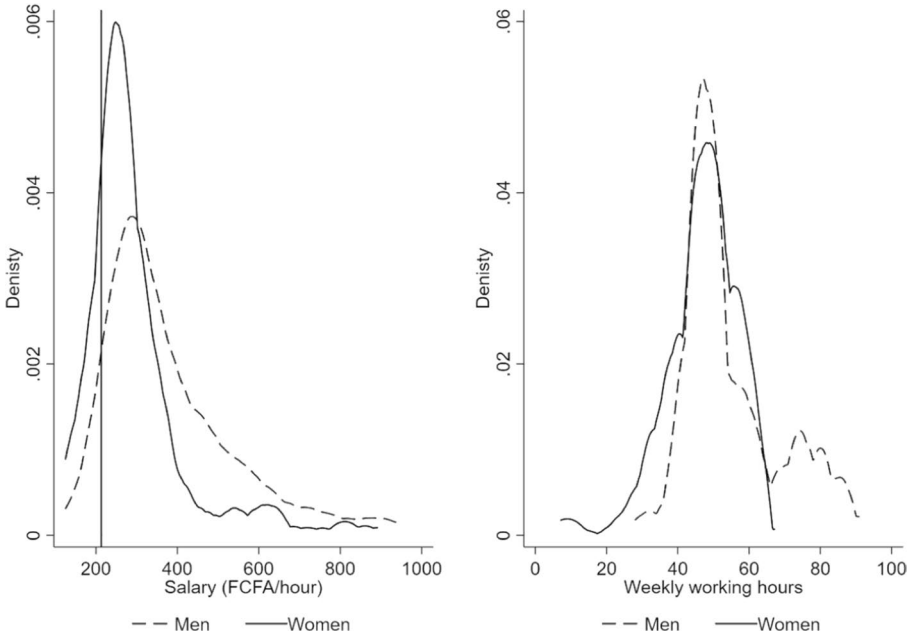

Fig. 2 Density plot of the average hourly wage (left) and average weekly working hours (right)

4.2 Model Results

Table 2 presents the estimation of job satisfaction, as specified by Eq. 1 (Linear model), Eq. 2 (Mediation model 1), and Eq. 7 (Mediation model 2). The estimated coefficient for gender is small and not significant in the Linear model, implying that the total gender effect is small and insignificant. The coefficient for gender is significant in the mediation models and substantially larger in Mediation model 2. This implies that job quality and demographic characteristics influence the association between gender and job satisfaction. The mediation models reveal that the direct gender effect on job satisfaction is positive and significant. Women's job satisfaction is on average 0.18 points higher than the job satisfaction of men in jobs with the same job quality characteristics (Mediation model 1) and 0.41 points than the job satisfaction of men with similar demographic characteristics and in jobs with the same quality characteristics (Mediation model 2). These results confirm the gender-job satisfaction paradox.

Mediation model 2 reveals that job satisfaction varies more with gender than with job quality indicators and other demographic characteristics, as shown by the estimated standardized coefficients. Nevertheless, some aspects of job quality are strongly associated with job satisfaction. Not surprisingly, wage is the most important job quality indicator to determine job satisfaction: a ten percent increase in wage will increase job satisfaction by 0.05 points. Moreover, our results highlight that also nonwage benefits are strongly correlated with higher levels of job satisfaction. The results of the single mediation models (reported in Appendix 2) illustrate that also the casual employment status and the working hours are negatively associated with job satisfaction. However, when including the wage and nonwage benefits the employment status and working time contribute only little to the variation in job satisfaction, as revealed by Mediation Model 2. When turning to the demographic

Table 2 Results from a Probit-adapted OLS estimation for job satisfaction

	Linear model		Mediation model 1		Mediation model 2	
	Unst. coef	St. coef	Unst. coef	St. coef	Unst. coef	St. coef
Women	0.11	0.05	0.18**	0.09**	0.41***	0.21***
	(0.11)	*(0.06)*	*(0.12)*	*(0.06)*	*(0.11)*	*(0.05)*
Job characteristics						
Log (wage)			0.65***	0.26***	0.47***	0.19***
			(0.18)	*(0.07)*	*(0.16)*	*(0.07)*
Nonwage benefits			0.07	0.07	0.12***	0.14***
			(0.05)	*(0.06)*	*(0.05)*	*(0.05)*
Employment status (Casual)			0.28	0.14	0.06	0.03
			(0.15)	*(0.07)*	*(0.14)*	*(0.07)*
Working hours			0.00	0.04	−0.00	−0.06
			(0.00)	*(0.06)*	*(0.00)*	*(0.06)*
Demographic characteristics						
Age					0.15	0.02
					(0.61)	*(0.07)*
Married					0.12	0.06
					(0.10)	*(0.05)*
Oulof					0.01	0.01
					(0.09)	*(0.04)*
Years of schooling					−0.03***	−0.16***
					(0.01)	*(0.05)*
Total children					−0.09***	−0.23***
					(0.03)	*(0.07)*
Health					0.26***	0.41***
					(0.03)	*(0.04)*

* $p<0.1$; ** $p<0.05$; *** $p<0.01$. *Standard errors in parentheses*. N = 385

Company fixed effects and enumerator fixed effects are included in all models. The Linear model is given in Eq. 1, the Mediation model 1 in Eq. 2, and the Mediation model 2 in Eq. 7

characteristics, we find that job satisfaction varies most importantly with workers' health status. Job satisfaction is negatively correlated with the number of children, which likely relates to an increasing challenge in life-work balance. In addition, job satisfaction is negatively correlated with the years of schooling, which may relate to an increase in expectations. Interestingly, job satisfaction varies more with gender than with the education level of workers. There is no significant correlation with age, marital status and ethnicity. We find no significant gender interaction effects (Appendix 3), indicating that job satisfaction varies with observable characteristics in a similar way for men and women.

Table 3 presents the estimation results of Eq. 3–6 (Mediation model 1) and Eq. 8–11 (Mediation model 2), which relate to the gender inequality in job quality. Mediation models 1 and 2 provide similar results, which suggests that the impact of gender on job quality is not mediated by differences in demographic characteristics. Results show that women have jobs of lower quality, as they earn lower wages, receive less complementary nonwage benefits, are more likely to be in casual employment and work fewer hours. Moreover, the standardized coefficients reveal that gender is the most important characteristic explaining

Table 3 Results from OLS estimations for job quality indicators

	Wage		Nonwage benefits		Employment status (Casual)		Hours	
	Unst. coef	St. coef	Unst. coef	St. coef	Unst. coef	St. coef	Unst. coef	St. coef
Mediation model 1								
Women	−0.22***	−0.28***	−0.22**	−0.10**	0.38***	0.38***	−4.85***	−0.19***
	(0.04)	*(0.04)*	*(0.10)*	*(0.04)*	*(0.04)*	*(0.00)*	*(1.12)*	*(0.00)*
Mediation model 2								
Women	−0.21***	−0.26***	−0.25**	−0.11**	0.37***	0.38***	−3.60***	−0.14***
	(0.04)	*(0.05)*	*(0.10)*	*(0.05)*	*(0.04)*	*(0.04)*	*(1.19)*	*(0.05)*
Age	0.50**	0.14**	0.85	0.09	−0.48*	−0.11*	5.27	0.05
	(0.24)	*(0.07)*	*(0.65)*	*(0.07)*	*(0.28)*	*(0.07)*	*(7.55)*	*(0.07)*
Married	0.05	0.06	−0.19*	−0.09*	−0.11**	−0.11**	1.27	0.05
	(0.04)	*(0.05)*	*(0.11)*	*(0.05)*	*(0.05)*	*(0.05)*	*(1.29)*	*(0.05)*
Oulof	0.06**	0.08**	0.01	0.00	−0.05	−0.05	−2.19**	−0.08**
	(0.03)	*(0.04)*	*(0.09)*	*(0.04)*	*(0.04)*	*(0.04)*	*(1.10)*	*(0.04)*
Years of schooling	0.02***	0.21***	0.03***	0.13***	−0.02***	−0.16***	−0.08	−0.03
	(0.00)	*(0.05)*	*(0.01)*	*(0.05)*	*(0.00)*	*(0.04)*	*(0.12)*	*(0.05)*
Total children	−0.01	−0.04	0.02	0.05	0.01	0.05	−0.57	−0.11
	(0.01)	*(0.07)*	*(0.03)*	*(0.07)*	*(0.01)*	*(0.07)*	*(0.36)*	*(0.07)*
Health	0.01	0.04	−0.03	−0.04	0.01	0.04	0.78**	0.09**
	(0.01)	*(0.04)*	*(0.03)*	*(0.04)*	*(0.01)*	*(0.04)*	*(0.00)*	*(0.04)*

* $p<0.1$; ** $p<0.05$; *** $p<0.01$. *Standard errors in parentheses*. N = 385

Company fixed effects are included. Mediation model 1 is given in Eq. 3–6, and mediation model 2 in Eq. 8–11

variation in job quality: It is extremely important in determining the employment status, it is the most important characteristic explaining differences in wages and working hours and it is the second most important characteristic to determine the number of non-wage benefits. Apart from gender, we find that the level of education is strongly related to job quality. Better educated employees receive a higher wage and more nonwage benefits, and are less likely to be in casual employment. Wages and the chances of being in non-casual employment increase with the age of the employee. The number of children does not seem to be associated with job quality, but being married is negatively correlated with the number of nonwage benefits and casual employment status. Belonging to the major ethnicity is positively linked to wage but negatively to working hours, while health is positively related to the working time.

The indirect effects of gender on job satisfaction are presented in Table 4. In line with our expectations, we find overall a negative indirect effect, which implies that women's job satisfaction is lowered because of gender inequality in job quality. The positive direct gender effect on job satisfaction is negatively mediated through job quality. Wage and nonwage benefits are the major mediators that contribute to this indirect effect, while employment status and working time do not contribute.

Figure 3 summarizes the direct and indirect effects of gender on job satisfaction (based on results from Mediation model 2). We find that the positive direct gender effect (0.21) is

Table 4 Estimated indirect effects of gender on job satisfaction

	Mediation model 2	
	Unst. coef	St. coef
Log (wage)	−0.10***	−0.05***
	(0.04)	*(0.04)*
Nonwage benefits	−0.03**	−0.02**
	(0.02)	*(0.02)*
Employment status (Casual)	0.02	0.01
	(0.05)	*(0.05)*
Working hours	0.02	0.01
	(0.02)	*(0.02)*
Total	−0.09*	−0.04*
	(0.05)	*(0.05)*

* p < 0.1; ** p < 0.05; *** p < 0.01. *Standard errors in parentheses.* N = 385

Mediation model 2 is given in Eq. 12 & 13

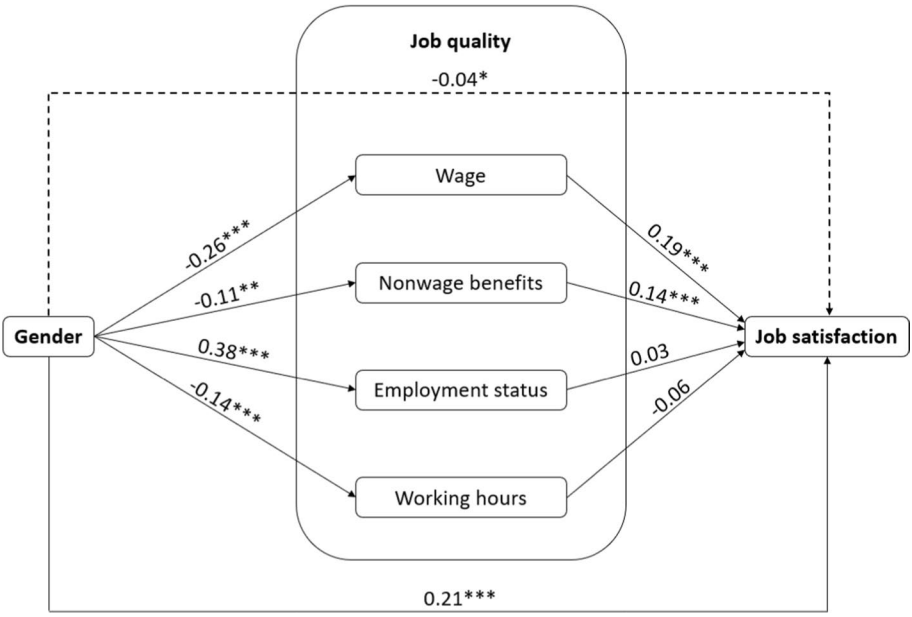

Fig. 3 Summary of the estimated standardized coefficients from the multiple mediation model (Mediation model 2). Full regression results are presented in Tables 2, 3 and 4. Direct effects are indicated with a solid line, indirect effects with a dashed line

about 5 times larger in magnitude than the negative indirect gender effect (−0.04). Combining the direct and indirect effects results in a total gender effect of 0.16, which is positive and significant. In other words, the positive gap in job satisfaction between men and women with similar demographic characteristics remains after controlling for the gender inequality in job quality. Yet, this gap is smaller than what we find from estimating a single

job satisfaction equation without mediation (0.21 instead of 0.16), which reveals only the direct gender effect (results reported in Appendix 1).

5 Discussion

We derive three main findings from our study on job quality, gender and job satisfaction. First, we find that some aspects of job quality are positively related to job satisfaction. Wage and nonwage benefits are associated with higher job satisfaction, while employment status and working hours seem to matter less for job satisfaction. These results are in line with similar case studies on wage employment on pineapple plantations in Ghana (Krumbiegel et al., 2018) and the cut-flower industry in Ethiopia (Staelens et al., 2018). Both studies find that wage in particular is associated with higher levels of job satisfaction. In addition, employees in Ghana are found to report higher job satisfaction when they receive trainings and health care services (Krumbiegel et al., 2018).

Second, our findings confirm the gender gap in job satisfaction as well as the gender-job satisfaction paradox in agro-industry employment in the horticultural sector in Senegal. We find that women report higher levels of job satisfaction, despite performing jobs of lower quality. Our findings are in line with Anh et al., (2019), Falco et al., (2015) and Razafindrakoto and Roubaud, (2013) who find evidence of a positive gender gap in job satisfaction for respectively Vietnam, urban Ghana and capital cities of eight West African countries and Madagascar. Our findings contradict findings from other agro-industry sectors in Ghana (Krumbiegel et al., 2018), Ethiopia (Staelens et al., 2018) and Kenya (Mulinge & Mueller, 1998) and from various sectors in South-Africa (Hinks, 2009), Honduras (Montero & Rau, 2015) and Chile (Bóo et al., 2010) where no gender differences in job satisfaction are found. Our study is the first to explicitly link gender to both job quality and job satisfaction, and to confirm the gender-job satisfaction paradox in a developing country context. Moreover, we find that gender is a more important determinant of job satisfaction than wages or other job quality characteristics, and more important than education or other worker characteristics.

Third, we find that inequality in job quality mitigates the positive relationship between gender and job satisfaction. According to our knowledge, no previous studies have investigated this indirect effect in the gender-job satisfaction paradox. However, recent research has pointed out the role of mediating variables and the need to distinguish total, direct and indirect effects in subjective wellbeing research (e.g. Bartram, 2021a, 2021b). Our results illustrate interesting differences between estimating a single regression model that estimates the direct effects only, or a model that accounts for mediation and estimates direct as well as indirect effects. Earlier studies focussing on the direct effects have reasoned that reducing gender inequality may negatively affect women's wellbeing because it would increase women's expectations and thereby lower their job satisfaction. This has been argued for the UK where the gender gap from the early 1990s has vanished because of increasing job market expectations of women (Green et al., 2018), as well as for various other European countries, where between 1960 and 2015 women's job satisfaction has reduced while gender equality has significantly improved (Perugini & Vladisavljević, 2019). Our results show that opposing indirect effects through job quality may reduce (but not completely offset) the positive direct gender effect on job satisfaction. For our case-study, this indirect effect suggests that reducing gender inequality in job quality, particularly gender differences in

wage and nonwage benefits, would indirectly increase women's job satisfaction because of the mediating effect.

A specific limitation of our study is the lack of data to estimate long-run effects. While reducing gender inequality would benefit the current generation of working women, the changing expectations and values that result from this would likely affect job satisfaction more in the long run because it takes time to adapt expectations and norms. Perugini and Vladisavljević (2019) for example illustrate that particularly gender equality in early stages of life shape women's expectations and values. The long-run effect of reduced gender inequality on job satisfaction therefore depends on the pace of the change in expectations, as well as on the magnitude of this change. Nevertheless, even if job satisfaction may be negatively impacted by reduced gender inequalities, the overall subjective wellbeing of women will improve: lower gender inequalities will facilitate women's ability to determine their own expectations and values, without a downward bias caused by the inequality in which they grew up (Perugini & Vladisavljević, 2019). Being able to form deliberate judgments on various domains of life, including work, and without being constrained by political or social conditions is also an essential part of development as put forward in Sen's (1999) capabilities approach.

6 Conclusion

In this paper we examine the complex relationship between gender, job quality and job satisfaction among agro-industrial workers in Senegal. We use a multiple mediation model to disentangle direct and indirect pathways through which gender relates to job satisfaction, and rely on primary data from a worker survey. Our analysis complies with the statement of Rai et al. (2019) to have a more gendered approach in the assessment of progress in SDG 8, as well as with the demand to use subjective indicators to complement objective measures for the assessment of decent work. We demonstrate that the gender-job satisfaction paradox, which has been thoroughly documented in the context of formal employment in high-income countries, also holds for employment in the agro-industry in Senegal. We document that female workers in the agro-industry are more satisfied with their job than men, despite earning lower wages, receiving fewer nonwage benefits, being more likely to be casually employed, and working fewer hours. In addition, we find that gender inequality in job quality mitigates the positive relationship between gender and job satisfaction, with wage and nonwage benefits as major mediating variables that contribute to this indirect effect. This indirect effect does not outweigh the direct positive effect of job quality on job satisfaction, but brings important nuances in the relation between gender, job quality and job satisfaction. While previous studies conclude that reducing gender inequality in job quality might increase women's expectations and thereby reduce their job satisfaction, our findings imply that improving gender equality might positively affect women's job satisfaction. Our results suggest that reducing gender inequality in wages and nonwage benefits in agro-industry employment in Senegal would increase women's job satisfaction because the gender gap in job satisfaction is mediated through job quality.

Our research is limited by the use of cross-sectional data, which cannot account for long-run effects. In addition, our results should be interpreted as correlations between gender, job quality and job satisfaction, and not as causal effects. Our findings contribute to the scarce literature on job satisfaction in low- and middle-income countries, but generalizing

findings requires more studies on gendered labour markets and job satisfaction in various countries and employment sectors.

Appendix

Appendix 1: OLS regression results

	Linear model 1		Linear model 2	
	Unst. coef	St. coef	Unst. coef	St. coef
Women	0.18**	0.09**	0.41***	0.21***
	(0.12)	*(0.06)*	*(0.12)*	*(0.05)*
Job characteristics				
Log (wage)	0.65***	0.26***	0.47***	0.19***
	(0.19)	*(0.07)*	*(0.16)*	*(0.07)*
Nonwage benefits	0.07	0.08	0.12***	0.14***
	(0.06)	*(0.06)*	*(0.05)*	*(0.05)*
Employment status (Casual)	0.28	0.14	0.06	0.03
	(0.16)	*(0.07)*	*(0.14)*	*(0.07)*
Working hours	0.00	0.04	−0.00	−0.06
	(0.01)	*(0.06)*	*(0.01)*	*(0.06)*
Demographic characteristics				
Age			0.15	0.02
			(0.63)	*(0.07)*
Married			0.12	0.06
			(0.11)	*(0.05)*
Oulof			0.01	0.01
			(0.09)	*(0.04)*
Years of schooling			−0.03***	−0.16***
			(0.01)	*(0.05)*
Total children			−0.09***	−0.23***
			(0.03)	*(0.07)*
Health			0.26***	0.41***
			(0.03)	*(0.04)*

* $p<0.1$; ** $p<0.05$; *** $p<0.01$. *Standard errors in parentheses*. N = 385

Company fixed effects and enumerator fixed effects are included in all models. Linear model 1 is given in Eq. 2 and linear model 2 in Eq. 7.- both are estimated without mediation.

Appendix 2: Results from single mediation models

	Wage		Non-wage benefits		Employment status		Working hours	
	Unst. coef	St. coef	Unst. coef	St. coef	Unst. coef	St. coef	Unst. coef	St. coef
Women	0.43***	0.21***	0.37***	0.18***	0.40***	0.20***	0.30***	0.15***
	(0.11)	*(0.05)*	*(0.11)*	*(0.05)*	*(0.11)*	*(0.06)*	*(0.11)*	*(0.05)*
Job characteristics								
Log (wage)	0.51***	0.20***						
	(0.13)	*(0.05)*						
Nonwage benefits			0.15***	0.17***				
			(0.05)	*(0.05)*				
Employment status (Casual)					−0.21*	−0.10*		
					(0.11)	*(0.06)*		
Working hours							−0.01*	−0.10*
							(0.00)	*(0.05)*
Demographic characteristics								
Age	0.18	0.02	0.31	0.04	0.33	0.04	0.49	0.06
	(0.61)	*(0.07)*	*(0.61)*	*(0.07)*	*(0.62)*	*(0.07)*	*(0.62)*	*(0.07)*
Married	0.08	0.04	0.14	0.07	0.09	0.05	0.12	0.06
	(0.10)	*(0.05)*	*(0.10)*	*(0.05)*	*(0.11)*	*(0.05)*	*(0.10)*	*(0.05)*
Oulof	0.01	0.01	0.04	0.02	0.03	0.01	0.03	0.01
	(0.09)	*(0.04)*	*(0.09)*	*(0.05)*	*(0.09)*	*(0.05)*	*(0.09)*	*(0.05)*
Years of schooling	−0.03***	−0.14***	−0.02**	−0.12**	−0.02**	−0.12**	−0.02**	−0.11**
	(0.01)	*(0.05)*	*(0.01)*	*(0.05)*	*(0.01)*	*(0.05)*	*(0.01)*	*(0.05)*
Total children	−0.09***	−0.22***	−0.09***	−0.23***	−0.09***	−0.22***	−0.10***	−0.24***
	(0.03)	*(0.07)*	*(0.03)*	*(0.07)*	*(0.03)*	*(0.07)*	*(0.03)*	*(0.07)*
Health	0.25***	0.40***	0.27***	0.42***	0.26***	0.41***	0.27***	0.42***
	(0.03)	*(0.04)*	*(0.03)*	*(0.04)*	*(0.03)*	*(0.04)*	*(0.03)*	*(0.04)*

* $p<0.1$; ** $p<0.05$; *** $p<0.01$. *Standard errors in parentheses*. N = 385

Company fixed effects and enumerator fixed effects are included in all models.

Appendix 3: OLS regression results with gender interaction terms

	Baseline (Gender = 0: Men)	Interaction effect (Gender = 1: Women)
Job characteristics		
Log (wage)	0.40	0.06
	(0.26)	*(0.37)*
Nonwage benefits	0.07	0.13
	(0.07)	*(0.11)*
Employment status (Casual)	−0.09	0.35
	(0.21)	*(0.31)*
Working hours	−0.01	0.00
	(0.01)	*(0.01)*
Demographic characteristics		
Age	−0.10	0.19
	(1.03)	*(1.40)*
Married	0.19	−0.10
	(0.16)	*(0.23)*
Oulof	−0.00	0.06
	(0.13)	*(0.20)*
Years of schooling	−0.03**	0.00
	(0.01)	*(0.02)*
Total children	−0.09**	0.01
	(0.04)	*(0.06)*
Health	0.23***	0.05
	(0.05)	*(0.07)*

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. *Standard errors in parentheses*. N = 385

Company fixed effects and enumerator fixed effects are included in all models

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