GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN

GlobalFood
www.uni-goettingen.de/globalfood

RTG 1666 GlobalFood

Transformation of Global Agri-Food Systems:
Trends, Driving Forces, and Implications for Developing Countries

University of Goettingen

GlobalFood Discussion Papers

No. 108

Gender Price Gaps in Central Kenyan Vegetable Wet Markets

Lutz Depenbusch

October 2017

RTG 1666 GlobalFood · Heinrich Düker Weg 12 · 37073 Göttingen · Germany
www.uni-goettingen.de/globalfood

ISSN (2192-3248)

Suggested Citation:

Depenbusch, L. (2017). Gender Price Gaps in Central Kenyan Vegetable Wet Markets. GlobalFood Discussion Paper 108, University of Goettingen. http://www.uni-goettingen.de/de/213486.html.

Gender Price Gaps in Central Kenyan Vegetable Wet Markets

Lutz Depenbusch [*1]

[1]University of Goettingen

Abstract

Using survey data from Central Kenya, I find that the difference in prices received by female compared to male vegetable traders changes significantly in men's favor when the size of the transaction increases, *ceteris paribus*. This pattern in the price gap drives a gender difference in the value added by traders. If women had the same characteristics as men, they would make a 26.82 percent higher mark-up than men in the lowest quartile by traded quantities and receive the same price as men in the top quartile. Amongst suppliers, the price difference between men and women is significantly more favorable for women in rural compared to urban areas, when controlling for differences in other characteristics. Due to this effect, women experience a much smaller price reduction than men when selling in rural instead of urban areas. However, differences in the observable characteristics prevent female traders and suppliers from utilizing the advantage they have in part of the market. The results highlight the barriers in integrating women in large-scale vegetable trade, despite their traditional role in local vegetable trade. Furthermore, I show that gender values of the traders can explain the price gap among rural suppliers. This supports earlier findings connecting the gender price gap with gender stereotypes.

Keywords: gender, Gender Price Gap, inequality, value chains, food industry transformation, East Africa

JEL Classification: D63, J16, O13, Q13

Acknowledgments:

Financial support of the German Research Foundation (DFG) through the GlobalFood research training group is gratefully acknowledged. Thanks for valuable discussion and input go to Stephan Klasen and participants in a seminar at the RTG GlobalFood. Special thanks go to the staff and survey participants, who enabled me to do field research in Kenya.

[*]Corresponding author: ldepenb@uni-goettingen.de

1 Introduction

Gender gaps in labor markets are a well-researched topic that has found its way into the political arena a long time ago. Policies on this issue were passed in the UK in 1970 and in the European Union in 1975, which was followed by similar policies in other countries and high profile court cases (Smith, 2012; O'Reilly *et al.*, 2015). Nevertheless, these policies are insufficient to address womens economic inequality in many developing countries, where the gender pay gap is a poor indicator. Worldwide only 50 percent of economically active women receive a wage, compared to 80 percent of men (World Bank, 2012). This is particularly the case in Sub-Saharan Africa, where more than 80 percent of women's employment is non-wage work; while in Eastern Europe and Central Asia, it is less than 20 percent. Hence, only analyzing wage data will lead to a biased impression of global income differences between men and women.

This problem is addressed by the concept of the gender price gap (GPG), which is defined by Kricheli-Katz and Regev (2016) as the difference in the price received by a woman compared to a man for exactly the same product. This definition relates to the unexplained part of the gender wage gap that is often associated with direct discrimination (World Bank, 2011). Measuring the explained part is likewise important. It describes the part of the price gap that is caused by the unequal distribution of observable characteristics between men and women. Therefore, a meaningful analysis should try to measure both.

Currently the GPG has only been analyzed in five papers. Kricheli-Katz and Regev (2016) looked at non-commercial sellers of original products on the digital platform eBay in the United States. They found that women receive a price that is 5.3 percent lower than the price received by men, on average, after controlling for other characteristics such as reputation on the platform. Their experimental data backs up these results, showing a significantly lower willingness to pay for a gift card if the selling person is identified as having a female name. Looking at traded goods by category, they found large differences in the GPG over the kinds of traded goods. For some of these, as well as for used goods, they found that women receive a better price than men.

Three other papers use survey data from Sub-Sahara African agriculture. Banerjee *et al.* (2014) analyzed the case of cocoa farmers in Cameroon. In this context, women received a significantly worse price than men in individual sales, but in collective transactions, the difference was not significant. Women who sold individually were found to have assigned the marketing to a male household member. Thereby, enabling these women to avoid price discrimination but also partly losing control over the revenue, which reduces their bargaining power in the household. Similar findings were made by Handschuch and Wollni (2016) who analyzed finger millet sales in Western Province, Kenya. They found that amongst those farmers who market individually, women receive a worse price than men. In collective marketing, they did not find a significant gap. Interestingly, in group sales the gender of the group leader was not found to affect the price. In contrast to the findings of Banerjee *et al.* (2014), the GPG in individual transactions does not seem to act as a market barrier in this context. Female control is associated with a 21 percent higher likelihood of market participation in the western Kenyan case. Finally, in Depenbusch (2017) I found no GPG affecting the average Central Kenyan vegetable farmer. Instead, I found that the GPG follows a U-shape as the traded quantities increase. At very low and high quantities this benefits women but in the largest part of the sample, women seem to suffer under this pattern. I explain the form of this mechanism with the traditional role of women in the small-scale vegetable trade but I cannot explain the positive development for women amongst those trading very large quantities. The relation of the results to traditional gender roles is based on the findings of Kricheli-Katz and Regev (2017) who tested if gender stereotypes can explain the GPG. In an experimental auction, they found that the GPG disappears when the buyers are informed that the seller either received the offered voucher for volunteer work (thereby showing merit) or that she is competent with respect to the traded good.

As this paper analyzes traders in and around Nairobi, it relates to two important developments in the agri-food value chains in economically developing countries: the influence of urbanization and the connected transformation of the mid-segment of the value chain. The demand side effects of urbanization are driven by an expanding middle class and growing urban populations, backed up by increasing demand for fresh vegetables from richer consumers, as Minten *et al.* (2017) describe. On the supply side, they acknowledge an improved likelihood of farmers adopting new technologies if situated around cities and more direct transactions of rural traders with farmers who are better informed, thanks to expanding

cellphone usage. The transformation of the mid-segment of the agricultural value chain relates not only to wholesalers but also processing, storage, and logistics. According to Reardon (2015) this process of modernization and concentration is already well developed in Latin America and Asia and slowly arrives in Africa. Fresh vegetables are a product group that is usually affected relatively late, based on its high perishability and the late take-up of increased demand for it, according to the same source. One of the most important transformations described in this context is the increased direct sourcing of the produce by wholesalers and processors, resulting in decreasing importance of small rural traders. Based on the data from this survey, the process does not seem to have gained much traction in Nairobi's vegetable sector so far. Its beginnings are especially visible in the supermarket sector with the main brands either sourcing directly from farmers or buying from one exclusive company.[1] The literature on the gendered consequences of this transformation in Kenya is focused on farming, but it shows patterns that might also affect the mid-segment. While participation in the supermarket supply chain has been found to increase farmers' incomes (Rao and Qaim, 2011) and demand for female labor in particular (Rao and Qaim, 2013), it has also been found to reduce female control over vegetable production (Chege *et al.*, 2015). The same has been stated in relation to vegetable exports. Since the land needed for horticultural cash crops conflicts with the land used for subsistence crops, men are likely to break with customary rules by taking women's usufruct land, as Dolan (2001) found in Kenya's Meru district. She argues that this is the case even though male control over vegetables conflicts with the traditional gender role and goes along with an increased incidence of conflicts in the household. Another indicator of upcoming transformation is the introduction of private standards, according to Reardon (2015). Such domestic standards exist in the Kenyan horticultural export sector, as Tallontire *et al.* (2005) found, but in local trade their emergence seems to be limited to the supermarket sector.

To find out how the GPG affects the mid-segment of vegetable markets and to substantiate earlier results on the GPG, I analyze gender differences in Central Kenyan vegetable wet markets. To allow for a better understanding of the role of urbanization, I look at differences between rural and urban markets. The rural places analyzed in this context are not to be understood as a control group but in their role as gateways to Nairobi in parallel with catering for local consumers. Following the finding of Depenbusch (2017), I describe differences in the GPG and the mark up in larger transactions. I also show that transactions across genders (i.e. between men and women) are not driving the described patterns. In case of the GPG experienced by suppliers, I use trader's statements to show that the gap is at least partially connected to their perceptions on gender roles. I will begin by discussing the dataset and descriptive statistics, followed by a description of the econometric method. Lastly, I will present the results and conclude.

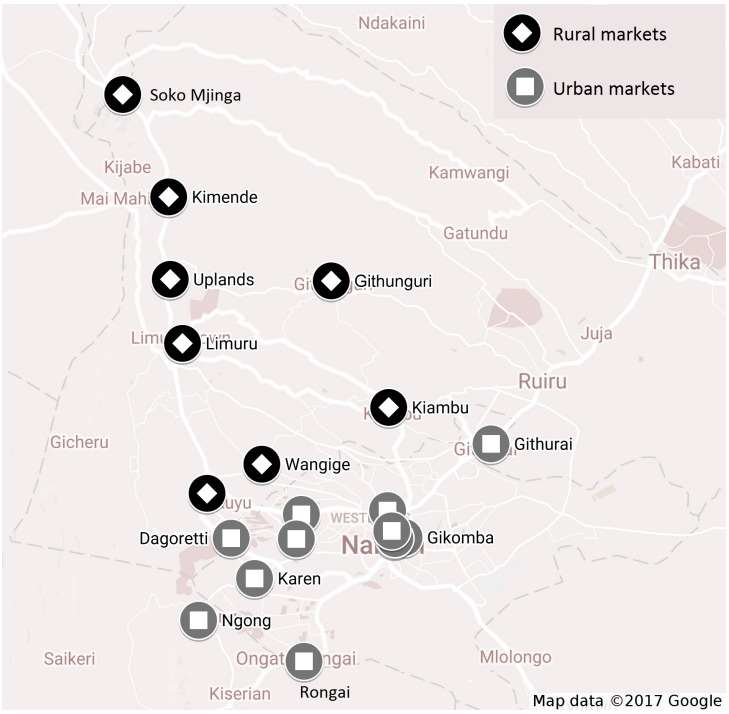
2 Dataset

The Survey was designed to be representative of all traders selling fresh vegetables in wet markets in Nairobi and the major vegetable producing areas of Kiambu County. I define Nairobi here in terms of the population agglomeration. For this reason, I include parts in the citys south-west region (Ngong and Rongai) even though they extend into Kajiado County. In defining the main vegetable producing areas of Kiambu County, I followed the identification of areas done and used by Rao and Qaim (2011). These areas cover mostly the west of the county as can be seen in Figure 1. Urban markets were chosen to cover the largest agglomerations of traders in Nairobi. For both, the identification and choice of the markets was done with the help of a local team and taking into account the information of local farmers and traders. Several of the markets are at least partially informal and therefore their size might change without notice in other parts of the survey area. Therefore, I cannot guarantee to have not missed an agglomeration of traders in Nairobi.

In this paper, I categorize markets in Kiambu County as rural vis-a-vis their urban counterparts in Nairobi. Some of the rural markets are close to Nairobi, yet undeveloped land stretched between them

[1] This observation is based on visits and interviews at supermarket headquarters during the study. Direct procurement is organized by the Uchumi chain, while the competitors Nakumatt and Tuskys source vegetables through Fresh An Juici Ltd.

Figure 1: Map of market locations



and the capital in all cases. Despite the short distance between markets (the largest distance between two markets is about 60km), traveling in and around Nairobi between these markets can take a long time, especially during rush hour. Although there are differences in the geographic setting of the eight rural and twelve urban markets they do share similarities: Both include markets mostly targeting end consumers and whole sale markets (e.g. Soko Mjinga in the rural areas and Marikiti in the center of Nairobi).

Together with a team of five local enumerators, I visited markets when most traders were present (especially in the case of whole sale markets after the traders received supply in the early morning) and on the market day, where this applied. In each market, we counted the number of traders, so that we could cover all of its sections with a random walk. Thereby, we ensured consistently randomized coverage of all of the different subsets of traders in each market. As market size varies substantially, we oversampled smaller markets. This allows us to control for market specific effects in the analysis. To produce descriptive statistics, I took into account the oversampling and the stratification by markets.

Data collection on each market was done in one day and the survey was completed in two weeks during November 2015. Hence, seasonality effects are not expected to have affected the data.

The questionnaire used in the survey consisted of three blocks. First, we asked traders about their own characteristics and business. In 19 cases, the answers were given by employees and in one case it was given by a family member of the owner. As this constitutes less than 0.03 percent of the sample, I ignore this difference in the remainder of the paper. Second, we asked about the last person they acquired vegetables from, the characteristics of their transaction partner, and the history of their business relationship. As part of this, we inquired detailed information on up to three vegetables that were bought in their last transaction. Lastly, we asked a set of questions regarding their perceptions. Most of these questions are taken from the 2010/2012 World Values Survey (World Values Survey Association, 2015). To these, I added direct questions regarding which groups of people are better farmers and which are better traders by asking for the perceived ability of large versus small farmers, men versus women, and

people of Kikuyu ethnicity versus those of other ethnicities. These questions can be found in Section B of the appendix. I used a seven-point Likert scale for all of these statements to allow for sufficient variation. The enumerators used a visual tool to simplify the answer.

Value statements can be expected to be rather supportive of womens participation in vegetable trade. In the Kikuyu ethnicity, which dominates the rural parts of the survey area and represents a large share of the urban population, women are traditionally responsible for local vegetable trade while men are in charge of long-distance trade (House-Midamba, 1995). This corresponds with the high importance of horticulture and the historically much stronger role of women in it. While this tribe is considered to have once been matrilineal (Wacker, 1994), women's role deteriorated especially during colonization. Only recently have a number of laws improved the *de jure* situation of women (House-Midamba, 1995). Yet, women often lack the power to enforce their rights (Wacker, 1994). Nonetheless, in the context of vegetable markets, women's standing is better than in many other countries, where, as Agarwal (1997) describes, social norms hinder women's participation in the often loud and aggressive sounding interactions of the market place.

2.1 Descriptives

Over all, we sampled 835 out of the 2908 traders we counted in the markets. Information on each of the up to three traded vegetables is used as an individual observation. For more than 75 percent of traders, only one vegetable was recorded, i.e. only one observation exists. On average, there are 1.11 observations per trader. Descriptive statistics are calculated with just one observation per trader. Regressions use the full set of observations as their setup allows to control for the vegetable type, which constitutes the main difference over the up to three observations per trader.

Table 1: Logistic regression of the likelihood of an observation to be excluded from the sample

	Exclusion	Exclusion
exclude		
Male trader	0.941	1.144
	(0.402)	(0.409)
Female supplier		1.245
		(0.378)
Transaction volume (Ksh)		1.000
		(0.00000768)
Avg transactions with supplier per month	0.902**	0.869***
	(0.0395)	(0.0384)
Years buying from supplier	0.961	0.994
	(0.0618)	(0.0497)
Vegetable suppliers per month	1.031**	1.033**
	(0.0160)	(0.0164)
Vegetables' share in turnover	1.005	1.003
	(0.00578)	(0.00598)
Share of vegetables self produced	1.015**	1.016*
	(0.00764)	(0.00836)
Store structure; base group: no fixed structure		
Wood, plastic structure	1.921**	2.102*
	(0.592)	(0.805)
fixed, at least partly cemented	1.056	1.558
	(1.241)	(1.954)
Observations	930	924

Exponentiated coefficients. Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Logistic regression of the likelihood of an observation to be excluded from the sample on trader characteristics. Standard errors are clustered at the market level.

Due to missing data, I dropped 43 of the 930 observations. Mostly, the missing information relates to information on the supplier, e.g. the age or the tribe, that a trader could not answer. Also, there were five cases where the data on prices or quantities was incomplete. To understand the pattern of missing answers, I specify a logit model with characteristics that are also given for all dropped observations on the right-hand side. The results are shown in Table 1. I first run the regression in a specification that includes all observations. In the second column, I include the transaction volume as an indicator of business size and the gender of the supplier. The latter comes at the cost of losing five observations where the transaction volume is missing and one where the gender is missing. As could be expected, in a transaction with more frequent trade, a trader is more likely to give all required answers, including those on the transaction partner. Traders with more vegetable suppliers and a higher share of self-produced vegetables are less likely to give the full set of information. This fits the lower importance of single suppliers for these respondents. Furthermore, traders with a fixed, not cemented, stall in the market are more likely to have missing data. It is unclear why this is the case but it might be related to the lower willingness of these respondents to share information. The gender of trader and supplier do not have a statistically significant effect. This is also the case when running the regression with the gender variables as the only controls or when interacting the traders gender with the transaction volume and the rural location of the market as only controls. Therefore, the exclusion of observations from the sample does not seem to be related to the gender variables and it is unlikely that it affects the results with respect to them. It might be the case, however, that our descriptive results are slightly biased against the characteristics of traders with a weak relationship to their supplier.[2]

The descriptive statistics can be analyzed with regard to the gender of the trader and the gender of the supplier. Taking into account the sampling weights, I estimate that 67.61 percent of the traders' and 38.05 percent of the suppliers' population are female. To get an overview of the market, I start with the traders in Table 2. The first rows show the price at which the trader bought from the supplier and at which she can usually sell the good in the market. Both values have been normalized by subtracting the mean price of the vegetable in the sampled population and dividing by the vegetable specific standard deviation. Given that up to three vegetables are recorded per trader, the normalized price was then weighted by the importance of it in value terms relative to the value of the last transaction in total. Both variables do not show to be significantly different amongst the groups when looking at the entire population. However, estimating the difference amongst rural and urban populations separately shows that while no significant gap exists in urban areas, the gap is wide in rural areas. Female traders receive a higher price than their male counterparts when selling in these markets. With 0.2 standard deviations this difference is not only statistically but also economically significant. For example, in the case of cabbage this represents about 11 percent of the average price in our sample. Likewise, in rural areas women pay a price that is about 0.26 standard deviations higher to their suppliers, compared to their male counter parts. These differences go along with a much wider rural-urban divide experienced by male vis-a-vis female traders. In line with these differences, women are about 19 percentage points more likely than men to be situated in a rural market. This also correlates with the fact that men were found to report transactions that were, on average, about three times larger in volume.[3] At the same time, women reported a 3.8 percent lower mark-up (defined as one minus the ratio of buying price over selling price). Overall, the mark up is on the higher end of what Reardon (2015) describes for the midstream part of the value chain. Women also report higher transaction costs (TC), even though the difference is only statistically significant for the time spent.[4] Part of the difference might relate to the significantly

[2]One could use inverse probability weights (Wooldridge, 2010) to make up for the potential bias. For the planned analysis this does not seem necessary, given that the influences are small, attrition limited, and the main variable of interest not affected.

[3]The transaction volume is calculated by simply multiplying quantities and unit price reported for every vegetable in the last transaction and summing up these values.

[4]We inquired transaction costs regarding contacting of the counterpart, transporting and loading, quality inspection, sorting and cleaning, and -where it applied- harvesting. With regard to the cash value and the time spent, the values were added up and divided by the traded quantity in unit terms. Information on the effort a trader put into the activities were recorded on a Likert scale ranging from 1 (very low effort) to 7 (very high effort), added up and divided by the number of indicators. Dividing the monetary and time added costs might seem contrary to Vakis *et al.* (2003), who argue that information costs before the exchange, monitoring costs and

higher likelihood of women to have bought leafy greens in the last transaction, as these are more delicate to handle than most other crops.

Extending the transaction, female traders sold more goods that were not fresh vegetables, produced a lower share of the sold vegetables by themselves, and sourced a larger share of the vegetables from women. Over all, in both groups men, on average, provide a larger proportion of the vegetables. Regarding the suppliers characteristics, women were more likely to buy from women and to buy a smaller share from the suppliers assumed production (which the trader might not know with a high degree of certainty). With regard to the traders' perceptions, women, on average, gave answers that are more pro-empowerment than the answers by men; yet, they are more likely to perceive men as better traders. Overall, there is strong opposition to statements that would preclude women from being active in the economy. Men and women largely reject the idea that a working mother is bad for children, that being a housewife is as fulfilling for a woman as a job, and that a university education is more important for boys than for girls. At the same time, only women widely reject the claim that men should have more right to a job than women, when jobs are scarce. Interviewed men are, on average, rather neutral with regard to the statement that a job is the best way for a woman to be independent, while women support this statement much more. Regarding the study context, it is interesting that men and women only slightly support the statements that men are better farmers and traders. This is surprisingly different from women's rather strong opposition to the idea that men make better business executives than women, while men slightly support the view. Women seem to distinguish strongly between their own business situation and medium- and large-scale enterprises. Overall, the value statements exemplify that both men and women are unified in the idea that women should participate in the economy. At the same time, there seems to be male opposition to the idea of women playing a more powerful role in the society. This is also visible in the fact that both groups support the statement that it causes problems if a women earns more than her husband.

Table 3 presents the comparison between male and female suppliers. There is no significant gender difference in the prices received by this group. Also, in the rural markets there is no significant difference. Nonetheless, the data show that men in rural areas are paid a significantly worse price than those selling to traders in urban markets. For women, this difference is not significant. The point estimates indicate that women receive a considerably worse price than men in urban markets but a better price in rural markets. However, given the large standard error, the difference is not significant. This pattern conforms to the fact that women are more likely than men to supply to rural markets. Also, they are more likely to deal in leafy greens and to be farmers themselves. They record, on average, about one transaction less than men per month and sell an about six percentage point smaller share of their production per transaction (which might be affected by traders' wrong estimation of the total amount sold by the supplier). Women's transaction volumes are estimated to be, on average, about 30 percent smaller than men's but this difference is not statistically significant. Again, this is related to womens higher likelihood to supply to rural markets. The transaction volume in rural markets is, on average, about a third lower than in urban markets.[5] Additionally, women's significantly lower likelihood to sell to male traders can also be related to their higher involvement in rural markets. In total, this creates a picture in which women are, on average, less involved in trade and in more cases, they are directly selling their own production, instead of being intermediaries between farmers and traders. This difference is related to the rural-urban divide, yet it cannot be inferred from the data in which direction causality might run.

3 Method

Due to our limited knowledge of the traders choice of a supplier and the suppliers choice of a trader, it is hardly possible to design a model that rules out omitted variables and reverse causality. For example,

bargaining and negotiation costs do not depend on the transferred quantities. However, my main interest is in how much a trader has to decrease the price payed to the supplier and for this she needs to take into account fixed and variable costs equally.

[5]Urban transaction volumes are estimated to average 9898 Ksh. (ca. 89 Euros at the time of the survey) while rural ones average 6516 Ksh. (ca. 59 Euros). The estimated difference of 3382 Ksh. has a standard error of 1829 Ksh., which means that the difference is significant at the ten percent confidence level.

Table 2: Comparison among transactions of male and female traders

	Female trader		Male trader		Difference		
	Mean	Std.Err	Mean	Std.Err	Difference	Std. Error	N
Normalized price	0.021	0.044	-0.021	0.061	0.042	0.076	792
Normalized price (urban)	0.042	0.054	0.038	0.072	0.004	0.092	473
Normalized price (rural)	-0.013	0.075	-0.273	0.087	0.260**	0.114	319
Normalized avg. selling price	0.009	0.044	-0.008	0.058	0.017	0.074	792
Normalized avg. selling price (urban)	-0.004	0.058	0.030	0.068	-0.034	0.092	473
Normalized avg. selling price (rural)	0.030	0.065	-0.172	0.092	0.202*	0.112	319
Buying price/Selling price	0.644	0.009	0.606	0.011	0.038***	0.014	792
Transaction volume (Ksh)	5727	521	15300	2836	-9574***	2890	792
Quality	5.914	0.038	5.897	0.064	0.017	0.075	792
Leafy green	0.253	0.020	0.136	0.022	0.117***	0.031	792
Rural market	0.378	0.011	0.188	0.021	0.19***	0.032	792
Transaction cost - Ksh	22.767	4.348	20.151	6.704	2.616	8.036	792
Transaction cost - hours	0.267	0.029	0.130	0.026	0.137***	0.039	792
Transaction cost - effort	1.859	0.034	1.796	0.052	0.063	0.064	792
Trader's characteristics							
Share of vegetables self collected	47.015	2.163	53.203	3.124	-6.188	3.874	792
Share of vegetables self harvested	13.790	1.474	17.072	2.483	-3.282	2.937	792
Share of sales that are vegetables	83.574	1.101	89.052	1.411	-5.479***	1.828	792
Share of vegetables self produced	1.839	0.347	4.521	0.812	-2.682***	0.893	792
Share of veg supplied by women	45.885	1.556	38.269	1.971	7.616***	2.567	792
Supplier's characteristics							
Female supplier	0.427	0.023	0.283	0.030	0.144***	0.038	792
Supplier is a farmer	0.331	0.021	0.374	0.032	-.042	0.039	792
Years buying from supplier	4.005	0.170	3.951	0.233	0.054	0.290	792
Avg transactions with supplier per month	9.748	0.307	10.238	0.434	-.49	0.543	792
Share of veg supplier provides	28.096	1.132	25.784	1.695	2.313	2.032	792
Share of suppliers production bought	26.058	1.228	34.646	2.157	-8.588***	2.523	792
Trader's perceptions							
Men are better farmers	4.255	0.077	4.687	0.126	-.432***	0.148	792
Men are better traders	4.879	0.085	4.571	0.138	0.308*	0.163	792
Men should get jobs	2.878	0.102	4.419	0.162	-1.541***	0.192	792
Women earning more causes problems	4.753	0.092	5.250	0.140	-.497***	0.168	792
Job best for female independence	5.397	0.093	4.538	0.141	0.859***	0.168	792
Main goal make parents happy	4.789	0.112	5.027	0.145	-.239	0.183	792
Working mother, children suffer	2.492	0.098	2.748	0.135	-.256	0.167	792
Men better political leaders	4.721	0.095	5.712	0.112	-.991***	0.147	792
University edu. more important for boys	2.216	0.086	3.024	0.159	-.807***	0.181	792
Men better business executives	3.287	0.096	4.736	0.140	-1.449***	0.170	792
Being housewife as good as job	1.997	0.076	2.538	0.119	-.541***	0.142	792

*** p<0.01, ** p<0.05, * p<0.1. The estimation accounts for survey weights and stratification. Perceptions are measured on a seven-point Likert scale from 1(strongly disagree) to 7 (strongly agree).

Table 3: Comparison among transactions with male and female suppliers

	Male supplier		Female supplier		Difference		
	Mean	Std.Err	Mean	Std.Err	Difference	Std. Error	N
Normalized price	0.032	0.046	-0.032	0.056	.064	0.073	792
Normalized price (urban)	0.079	0.054	-0.035	0.071	0.114	0.091	473
Normalized price (rural)	-0.095	0.088	-0.028	0.092	-0.067	0.128	319
Buying price/Selling price	0.635	0.008	0.627	0.014	.008	0.016	792
Transaction volume (Ksh)	10047	1316	6845	1544	3203	2052	792
Quality	5.914	0.041	5.900	0.057	.014	0.070	792
Leafy green	0.157	0.017	0.309	0.028	-0.152***	0.034	792
Rural market	0.270	0.013	0.391	0.022	-0.121***	0.035	792
Transaction cost - Ksh	19.095	4.087	26.516	6.921	-7.421	8.086	792
Transaction cost - hours	0.198	0.023	0.263	0.041	-0.064	0.047	792
Transaction cost - effort	1.808	0.036	1.889	0.045	-0.08	0.059	792
Years buying from supplier	4.110	0.171	3.787	0.231	0.323	0.289	792
Avg transactions with supplier per month	10.431	0.326	9.054	0.387	1.376***	0.516	792
Share of veg supplier provides	27.862	1.214	26.509	1.514	1.353	1.946	792
Share of suppliers production bought	31.282	1.453	24.868	1.575	6.413***	2.181	792
Supplier's characteristics							
Male trader	0.375	0.023	0.241	0.027	.134***	0.036	792
Supplier is a farmer	0.300	0.022	0.419	0.030	-.119***	0.038	792

*** p<0.01, ** p<0.05, * p<0.1. The estimation accounts for survey weights and stratification.

the quality measure might be incomplete, one gender might be more likely to misreport prices, or the price a supplier is willing to accept could limit the choice of traders. Therefore, I can only reduce the potential effect of endogeneity in the analysis of the data. Under these circumstances, I follow the argument of Imbens (2015) that given a limited overlap between the distribution of the covariates of the two groups, an ordinary least squares estimation (OLS) is likely to be vulnerable to slight changes in the model. Therefore, I drop extreme observations where necessary and apply a weighting method to ensure comparability between the two groups. As I cannot match on all possible controls and in order to analyze effects in subsets of the sample, I apply an OLS on the pre-processed data, as advised by Hainmueller (2012). The regressions relate to three different dependent variables. In regressions on the price payed by the trader to the supplier the gender of the supplier is of primary interest. Where the dependent is the average sales price on the market and the ratio of the price of the supply over the average selling price, the gender of the trader is the variable of interest.

For pre-processing, I apply entropy balancing, developed by Hainmueller (2012). This method uses a Lagrangian optimization to fit weights that diverge as little as possible from the original weighting,[6] while ensuring that the difference in observables between the two groups is limited to a previously specified level. This method has several advantages over comparable methods, including those based on the propensity score (Hainmueller, 2012). Firstly, it allows me to balance the groups, not only by the mean, but also on higher moments. Secondly, the method allows for higher efficiency as it uses smooth weights instead of discarding a set of observations. Thirdly, as the result is simply a set of weights, it can easily be combined with other estimation methods, as done here. Fourthly, the estimation is computationally easy. And fifthly, the method avoids an iterative process of estimating and applying, as is the case with propensity weights. I apply the method using the statistical software package developed by Hainmueller and Xu (2013) for STATA. Considering all of these advantages, it remains the fact that endogeneity cannot be ruled out when using entropy balancing. This method can only reduce the influence of differences in the distributions of the observables. Only as far as they are correlated with the balanced observables, the method might also reduce biases due to unobservables. The coefficients

[6]The difference is minimized in terms of the entropy distance, defined as $\min_{\omega_i} H(\omega) = \sum_{\{i|D=0\}} \omega_i log(\omega_i/q_i)$, where ω_i are the weights that are assigned, $D = 0$ describes the control group and $q_i = 1/n_0$ is the base weight.

from the unweighted and weighted regressions should both be viewed as potentially endogenous, yet the weighted regressions are supposed to be considerably closer to the real value.

As I am looking at effects amongst traders and suppliers, I also need to balance the groups separately. I am balancing on the first three moments (mean, variance, skewness). For dummy variables, balancing on the mean implies balancing on the two higher moments already. The choice of variables to balance on is based on the comparison of the descriptive statistics and the preconceptions from the fieldwork of what might affect prices while being correlated with gender. I include a large set of variables as this ensures that by balancing one variable the difference in other variables does not unintentionally increase (Hainmueller and Xu, 2013). The variables are presented in Table 9. Given that the differences between men and women (as shown) are larger amongst traders than amongst suppliers, it was not possible to balance on the same variables. For the same reason, I had to drop the top one percent of the observations in terms of the transaction volume in the analysis of the traders. The sales price was excluded from balancing amongst traders as it is an outcome variable in analyzing them. A main characteristic to balance on is a set of market dummies. They capture the differences in the kind of customers and their purchasing power, the cost of the trader related to having a stand there (e.g. fees payed to the county), and the competition from other traders in the same and close-by markets amongst others. These also make it redundant to use an additional dummy for the market being in a rural area. The set of perceptions is kept limited as these are relatively hard to balance. The balancing uses the logarithm of all continuous variables because the estimated OLS models also follow a log-log specification. Perception values have been divided by the standard deviation before taking the logarithm to enable an easier comparison of their coefficients later on. All variables have been balanced so that their first three moments do not differ by more than 0.015 units amongst the two groups. I assign uniform weights (for each transacted vegetable) as a base weight. Given that the estimates from the weighted regressions and unweighted OLS should be comparable, I refrain from using the survey weights as base weights. The decision not to use survey weights in the OLS is based on the argument of Deaton (2000): When covariates are not identically distributed over strata (in this case markets), weighted and unweighted least squares estimators will both be inconsistent. So the advantage of the unweighted estimator is that, based on the Gauss-Markov-theorem, it will be more efficient. Additionally, the regression is following a behavioral model and, in this context, it would be unclear how to interpret the outcome of a weighted result.[7]

The regression model to be run on the weighted and unweighted data follows a log-log specification. This implies that the different variables affect the price in a multiplicative manner. Additionally, this helps to normalize the distribution of the continuous variables and allows to interpret the regression results of the latter as elasticities. My interpretation of the dummy variables will take into account the correction introduced by Kennedy (1981). It states that when the natural logarithm of the dependent variable is regressed on a dummy, the correct percentage change in the dependent should be calculated as $100g^*$, where

$$g^* = exp(\hat{\beta} - \frac{1}{2}\hat{V}(\hat{\beta})) - 1,$$

with $\hat{\beta}$ being the estimated coefficient of the dummy and $\hat{V}(\hat{\beta})$ being the estimated variance in the latter. Furthermore, the standard errors will be clustered at the level of the strata (i.e. markets) to account for differences in the variation between and within strata, as advised by Deaton (2000). Clustering the errors at the level of the trader is not advisable as only 1.12 observations per trader are recorded, on average, in the analytical sample.

In the regressions, I use two sets of controls. One set will be described as full controls and the other as few controls in the following. The variables are listed in Table 4. Dummies for vegetables, market and business type are supposed to capture the fact that the main differences in the expected price depend on the vegetable and the transaction partners available to the trader. These three variables explain more than 97 percent of the variation in the price at which traders buy and sell their product. Differences in the traders' costs are additionally covered by the TC and information on the store structure. The other

[7] As Deaton (2000) argues survey weighted regressions have their place were the interest is in describing population characteristics. In this case, a weighted least squares model can be used to describe one population characteristic while controlling for others.

Table 4: Sets of controls used in the regressions

Transaction

- *Quantity*
- *Quality* (Likert scale)
- *TC* (money/time/effort)
- *Max. days price is fixed*
- *Frequency of trade*
- *Vegetable*
- *Market*
- *(Avg. selling price of trader)**
- Share supplied
- Years buying from supplier
- Other relationship to sup.

Trader

- *Business type*
- *Store structure*
- *Share of veg self produced*
- No. of suppliers
- Years in veg. trade
- Share of veg in sales
- Marital status
- Age
- Tribe

Supplier

- *Tribe*
- *Farmer*
- Age
- County of residence

**Only in the regressions on suppliers, the sales price is used as a control.*
All listed variables are used were "full controls" are stated. Were "few controls" are stated only the ones in italics are used.

variables are supposed to control for differences in the market power of both partners, and possible other discriminatory factors in the pricing besides the gender (especially the tribe). In the regressions on the price the supplier receives, also the expected sales price of the trader is included. This variable is not included in regressions where the trader is of primary interest because it is either the outcome, or an intermediate part of it in that case.

Where a GPG becomes visible in the regression of the price received by the supplier on the supplier's gender, the traders' perceptions could explain the gap. To test this, I add the perceptions, as well as its interactions, with the suppliers gender to the regression. A negative perception of women's competence or entitlement should only affect female suppliers. Hence, only the interaction should be significant.

Additional to the basic model I will consider three subgroups in each set of regressions. I will first test each interaction separately and then include them all in the same model. Following the results of Depenbusch (2017), I consider if the GPG differs across traded quantities. According to the mentioned paper, women would be expected to do relatively well compared to men when handling small quantities, worse at rising quantities, and only at very large quantities would they again experience a better price compared to men. Given the sufficient number of variables, I will also add an interaction between the gender variable and the vegetable type. As the distribution of traded quantities varies over products, as well as the likelihood of women handling them, this could introduce a bias otherwise. Secondly, considering the descriptives, I will look into the differences in the GPG between rural and urban markets. Thirdly, I will address the question if the GPG differs in transactions between two persons of the same gender compared to those across genders. As the GPG is the unexplainable part of the gender gap in prices, I will compare the results to the raw gender gap, i.e. the gap that is observable when not controlling for differences in the characteristics between men and women besides the vegetable type and the variable of interaction of interest. This allows for a simple overview of the aggregate effect caused by the unequal distribution of other characteristics.

4 Results

4.1 Price ratio

The first set of regressions analyzes gender differences in the share of the selling price the trader spends on purchasing the good from the supplier. Therefore, deducting this value from one gives the mark up

on the price before deducting additional costs that are not accounted for in the regressions, e.g. the cost to sell the good on the market (while we control for the cost of getting the good to the market). Table 10 shows the baseline regression. The coefficient on the trader's gender is small and insignificant. This indicates that the significant difference seen in the descriptive variables is caused by the different set of vegetables traded by women as compared to men.

Only few of the control variables have a significant coefficient. When looking at the control variables, it is preferable to interpret the unweighted regressions. These are more efficient and the weighting affects the results in that it downward biases the influence of observations of female traders that are dissimilar from the observations of male traders. In case of the price ratio, higher transaction costs are associated with a lower share of the selling price spent on the supply. This is to be expected as higher TC should imply a lower buying price and higher costs that need to be covered by the mark-up. If the trader and the supplier are from the same village, the price ratio is lower as well. Given that the weighted regression shows the opposite effect, this seems to be related to differences in other factors that are correlated with this one.

Table 11 shows the regression including interactions with the traded quantities. Without controls and in the weighted regressions with few controls, the interaction with the squared quantity is negative and significant. In the weighted regression without controls besides the vegetables and their interaction with the trader's gender also the interaction with the linear term of the quantity is significant but positive. The signs of the interactions are the same in all regressions. They indicate a U-shaped relationship with a very low turning point (according to the weighted regression with all controls, the turning point fits the 18th percentile of traded quantities in the sample). However, the fact that none of the coefficients are significant when adding all controls indicates that the pattern is not robust.

Building quartiles over the traded quantities and interacting these with a traders gender, instead of using interactions with the continuous variable, the picture becomes clearer in Table 12. It shows that the gap between the share that men and women pay for their supply is significantly more favorable for men in the highest quartile than in the lowest. This interaction is significant in all six regressions. However, in the weighted regression with all controls, the baseline effect of the trader being male is also significant and positive. The latter regression indicates that men have to pay a higher share of what they make on their supply in all quartiles but the highest. Amongst traders dealing with very large quantities, men and women seem to spend equal shares on supply (the Wald test on equality of the two coefficients is significant at the five percent confidence level). In the lowest quartile (i.e. at small quantities), men would need to pay a 33.49 percent (not percentage point) higher share on supply than women, taking everything else into account. When not controlling for all other factors, the main effect on the trader's gender is no longer significant. The unweighted regression without controls instead indicates a 9.21 percent higher share that women need to spend on supply in the highest quartile. However, this effect is not significant. The difference between the two sets of results suggests that the characteristics of women prevent them from obtaining the advantage they would normally have, potentially even giving them a disadvantage in large-scale trade.

In Table 13 the regression results show no significant gender gap in the price ratio when considering the location in rural versus urban markets. The same applies for the regressions with an interaction between the trader's and the supplier's gender, as can be seen in Table 14.

Adding all interactions in parallel (Table 5) supports the finding that only in differentiating over traded quantities, does a significant gender gap become visible. As before, the difference in this pattern between the regression with and without full controls suggests that the observable difference is accounted for by characteristics that penalize women. Without these characteristics, women would instead have to pay a smaller share of their income on supply, compared to men, in the three lower quartiles. Distinguishing between rural and urban markets, as well as the gender of suppliers, no significant gender gap is found.

4.2 Selling price

The average selling price reported by traders does not show a price gap at the mean of the sample, as can be seen in Table 15. In addition, the significant variables in the models show some interesting

Table 5: Regression of the price ratio including all interactions

	Unweighted Veg. only ln(p.ratio)	Weighted Veg. only ln(p.ratio)	Unweighted Few contr. ln(p.ratio)	Weighted Few contr. ln(p.ratio)	Unweighted Full contr. ln(p.ratio)	Weighted Full contr. ln(p.ratio)
Male trader	0.137	0.222	0.0622	0.225	0.000465	0.364**
	(0.103)	(0.141)	(0.0881)	(0.140)	(0.0923)	(0.148)
Quantity 2nd quartile	0.0175	0.0229	-0.0206	-0.000784	-0.0123	0.0108
	(0.0442)	(0.0802)	(0.0535)	(0.0726)	(0.0418)	(0.0845)
Quantity 3rd quartile	0.0600	0.0472	-0.0126	0.0390	0.000989	0.0816
	(0.0442)	(0.0967)	(0.0584)	(0.0905)	(0.0510)	(0.0879)
Quantity 4th quartile	0.124*	0.203**	0.0244	0.182*	0.0455	0.238**
	(0.0593)	(0.0789)	(0.0760)	(0.0876)	(0.0677)	(0.101)
Male trader*Quant. 2nd quart.	-0.0892*	-0.0946	-0.0989*	-0.147	-0.109***	-0.174
	(0.0504)	(0.0816)	(0.0476)	(0.0892)	(0.0370)	(0.104)
Male trader*Quant. 3rd quart.	-0.0918	-0.0789	-0.108	-0.155	-0.124	-0.199*
	(0.0707)	(0.114)	(0.0769)	(0.125)	(0.0771)	(0.113)
Male trader*Quant. 4th quart.	-0.173**	-0.252**	-0.168**	-0.313***	-0.175**	-0.337***
	(0.0700)	(0.0946)	(0.0781)	(0.107)	(0.0708)	(0.111)
Rural market	-0.0750**	-0.0178	-0.133***	0.00119	-0.0859**	0.0443
	(0.0278)	(0.0561)	(0.0284)	(0.0567)	(0.0387)	(0.0688)
Male trader*Rural market	0.0112	-0.0460	0.0418	-0.0502	0.0215	-0.0707
	(0.0402)	(0.0710)	(0.0318)	(0.0687)	(0.0344)	(0.0636)
Female supplier	-0.00786	0.0148	-0.00123	-0.0381	-0.0101	-0.0212
	(0.0265)	(0.0589)	(0.0285)	(0.0579)	(0.0289)	(0.0530)
Male trader*Female supplier	-0.0700**	-0.0926	-0.0531	-0.0303	-0.0463	-0.0410
	(0.0333)	(0.0631)	(0.0357)	(0.0625)	(0.0331)	(0.0593)
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of ratio of the price vegetables are sold at over their selling price on the gender of the supplier, including interactions with rural location of the market, traded quantity, and gender of the trader. All regressions contain an interaction between the gender of the supplier and the vegetable dummies. Standard errors are clustered at the market level.

influences on the price. The consistently significant negative coefficient on the traded quantities is likely to relate to a quantity discount. Against expectations, higher TC in terms of effort are associated with a significantly lower price.

The differentiation of the price gap along traded quantities is even more pronounced for the selling price than for the price ratio. In Table 16 a U-shaped relation between the GPG and the traded quantities is visible. At small quantities, I find a very weak indication that men receive a better price than women, but as the quantity increases they start to get a worse price. While the quantities increase further, male traders start to experience a better price than women. According to average marginal effects estimated from the weighted regression with all controls, more than 20 percent of the observations record quantities that would indicate a worse price for women and for the top 10 percent of the sample -in terms of quantities- the positive effect for men is significant. Running the same regressions with quartiles over traded quantities instead of the continuous variables supports the finding. In the weighted regression with controls in Table 17, the results indicate a sizable but statistically insignificant disadvantage of men in the lowest quartile. At very large quantities the gap between prices received by man and women is significantly more favorable for men. Due to this, men receive, on average, a price that is 14.71 percent higher than that of women in the highest quartile according to the regression with full controls and weighted data. However, this gap is statistically not significantly different from zero. The unweighted regressions instead show that men in the lowest quartile of traded quantities receive an about 34.98 percent higher price. The gap reduces at higher quantities but the respective coefficients are not significant.[8] Therefore, the results indicate that women do not receive a worse price than men in any

[8]The total effect indicates a significantly better price for men only at the lowest and the highest quartile. In the second and third quartile the total effect is not significantly different from zero.

Table 6: Regression of the average selling price received by the trader including all interactions

	Unweighted Veg. only ln(s. price)	Weighted Veg. only ln(s. price)	Unweighted Few contr. ln(s. price)	Weighted Few contr. ln(s. price)	Unweighted Full contr. ln(s. price)	Weighted Full contr. ln(s. price)
Male trader	0.271	0.426	0.289	-0.120	0.402**	-0.328
	(0.173)	(0.329)	(0.216)	(0.310)	(0.181)	(0.332)
Quantity 2nd quartile	-0.182**	-0.280	-0.174**	-0.269	-0.176**	-0.341
	(0.0679)	(0.270)	(0.0739)	(0.246)	(0.0649)	(0.256)
Quantity 3rd quartile	-0.507***	-0.845***	-0.472***	-0.677***	-0.477***	-0.726***
	(0.100)	(0.272)	(0.105)	(0.235)	(0.0951)	(0.234)
Quantity 4th quartile	-0.602***	-0.971***	-0.532***	-0.961***	-0.546***	-1.066***
	(0.111)	(0.267)	(0.112)	(0.283)	(0.108)	(0.264)
Male trader*Quant. 2nd quart.	-0.199	-0.107	-0.244	-0.00303	-0.248	0.0764
	(0.146)	(0.348)	(0.196)	(0.248)	(0.196)	(0.265)
Male trader*Quant. 3rd quart.	-0.148	0.183	-0.0615	0.311	-0.0789	0.339
	(0.216)	(0.361)	(0.196)	(0.257)	(0.178)	(0.247)
Male trader*Quant. 4th quart.	-0.138	0.226	-0.0422	0.486	-0.0813	0.494*
	(0.188)	(0.329)	(0.187)	(0.294)	(0.174)	(0.262)
Rural market	-0.0812	0.0710	0.330***	0.429***	0.442***	0.468***
	(0.0697)	(0.110)	(0.0547)	(0.108)	(0.0927)	(0.139)
Male trader*Rural market	-0.0154	-0.165	-0.0528	-0.145	-0.0458	-0.140
	(0.110)	(0.119)	(0.0934)	(0.124)	(0.100)	(0.124)
Female supplier	-0.0169	-0.0336	0.0198	0.0769	0.0220	0.0628
	(0.0464)	(0.0670)	(0.0436)	(0.0463)	(0.0423)	(0.0496)
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the average selling price received by the trader on the gender of the trader, considering differences between rural and urban markets and over quantities. All regressions include vegetable dummies and their interaction with the gender of the trader. Standard errors are clustered at the market level.

part of the market when controlling for characteristics while they are doing worse than men, when not controlling for it. This conforms to the results of the same specification for the price ratio but the pattern is weaker. In both cases women's worse position in large parts of the market is accounted for by their characteristics.

Testing for differences in the GPG between the rural and urban markets, Table 18 shows that in rural markets male traders get a worse price compared to their female counterparts. The effect is insignificant without weighting and controls. Other characteristics seem to prevent men from experiencing the estimated 17.89 percent reduction in the price to the full degree but also without controls and weighting the coefficients show the same pattern. Accounting for both sets of controls, the price received in rural markets is considerably higher than in urban areas. The results suggest that men also benefit from this higher price but due to their disadvantage in this areas to a lower degree.

Testing the effect of the gender of the supplier on the price, does not make sense in the given context. Such an effect would only be plausible if the goods were of varying quality levels, or the price was significantly different and this difference would be rolled over on consumers. Yet, the stated quality of the products does not correlate with the gender of the supplier (r=-0.036) and my regressions show no significant effect of the gender of the supplier on the price, on average, as I will show further down.

The regressions in Table 6 combine the interaction of the trader's gender with the quartiles of the quantity and the interaction with the rural location of the market. The GPG in the highest quartile of traded quantities is slightly smaller than in the earlier regression and only becomes significant in the weighted regressions with controls. This result suggests that men receive a price that is, on average, 15.43 percent higher than that received by women in this group, *ceteris paribus*. While the difference to the gap in the lowest quartile is significant the gap between man and women in the highest quartile is not significant. However, the indication for a difference in the gender gap between the lowest and the highest quartile of traded quantities becomes weaker. Only in the weighted regression, with full controls,

is the coefficient still significant. The coefficient on the interaction with the rural location of the market is much smaller and no longer significant. This indicates that parts of the gap found before, are better explained by the traded quantities, which are smaller in rural areas. Even if the correlation is not very strong between rural placement and the quantity quartile (r=-0.11), the share of rural and urban traders in the highest quantity group differs strongly. 27.10 percent of urban traders are in this group but only 17.66 percent of rural ones. Therefore, it is not surprising that both effects become smaller. Multicollinearity does not seem to be a major problem in the regression as the mean variance inflation factor is 12.84, despite all interaction terms in the specification. In this table, the unweighted regression without controls does not show the generally lower price for women, seen in the earlier specifications. Still, the same effect is now significant in the unweighted regression with full controls, indicating the same pattern.

The GPG in the selling price also shows to be the driving factor behind the gap in the price ratio amongst large-scale traders. To examine this question using regression analysis, the price ratio can be separated in its two parts (i.e. $log(buying\ price/sales\ price) = log(buying\ price) - log(sales\ price)$). For this I run the same regressions as in Table 6 with the buying price as the dependent variable and the same set of explanatory variables. The results are presented in Table 19. They show that the interaction between a traders gender and the fourth quartile of the quantities is not significant in any regression but the unweighted one without the sets of controls. In the weighted regressions with controls, the value is positive, indicating that if anything, men spend more on buying their supply than women in this group. This makes up for part of the higher selling price received by these male traders. Subtracting the respective coefficient from the regression on the selling price from the coefficient in this table provides an almost identical value as received from the regression on the price ratio (-0.329 compared to -0.337), which suggests that the applied technique works. With regard to rural-urban differences, the weighted regressions in Table 19 show that in rural areas, men pay a lower price for their supply than women. As the respective coefficients in the regressions on the selling price also displays a lower value, the lower price payed for the supply does not translate into a preferential price ratio for men in rural areas.

For the regression without weighting and a set of controls, the regressions show that men, on average, pay a significantly higher price to buy their supply when they are in the lowest quartile. This is compensated by the (insignificantly) higher price they receive when selling in this market segment. In the highest quartile, the insignificantly lower price men receive does not account for the much lower price men have to pay for the supply. This shows that the lower buying price of men drives the gender difference without controls, i.e. the explainable part of the gap, in the mark-up.

4.3 Price received by suppliers

Columns one and two of Table 20 show that when only controlling for the traded vegetable no statistically significant GPG exists. The fact that the entropy weighted estimate is positive, while the unweighted is negative, indicates that the observed characteristics of women in the sample have a tendency to negatively affect the price they receive. This pattern holds in the next two columns using few controls and the last two using full controls.

The regression also shows some interesting effects related to the control variables. First of all, the elasticity of the price received by the supplier with regard to the price the trader receives on the market (i.e. the coefficient on ln(sell. price)) is extremely high. This indicates that price changes are almost fully rolled over on the supplier. With the given data it is not possible to infer if this applies equally for negative as well as positive changes in the price. The values only indicate that suppliers share largely in the price differences in the downstream markets. A higher frequency of trade is associated with a higher price payed to the supplier. This could either be related to a social effect, lower monitoring costs in a long running relation (which would imply that the controls for TC are not sufficient), an effort to keep the supplier in the relationship, or a combination of these. Being a farmer is associated with a lower price. In the model with all controls, the effect size relates to a 4.51 percent lower price received by farmers. The statistically significant coefficient on the dummy for people of the Kisii ethnicity should not be overrated as this group consists of only 6 observations. With 16 observations, the group of suppliers who are from the same village as the trader (which is associated with a significantly lower price) is small

as well. Among TC measures, the time spend is the only variable that significantly affects the price. The effect goes in the expected direction but a reduction in the price by 0.02 percent per 1 percent increase in the hours spend per unit is a very small effect.

I test a relation between the traded quantities and the GPG in Table 21. No clear pattern emerges from these interactions. The interaction of interest is only showing significant results in the unweighted regression without any controls. These follow an inverted U-shape and therefore the opposite form of what I found in Depenbusch (2017). In the other specifications, the interaction becomes insignificant and loses strongly in size, suggesting that the effect is due to characteristics that go along with the traded quantities. As Depenbusch (2017) analyzes farmers, I also run the regressions with the subset of suppliers who are farmers. Also these results are highly insignificant. Using all controls these regressions show the U-shape found in Depenbusch (2017). When using dummies of the quartiles of traded quantities and the interactions of these, the results indicate a statistically insignificant GPG in the three largest quartiles, which would relate to a lower price received by women. Given the small size of the subpopulation (with 308 observations), the results should be considered with caution but they are in line with the findings of Depenbusch (2017).

Table 22 shows the results of adding an interaction between being in a rural market and the gender of the supplier. In all but the unweighted regression with full controls, a significantly lower price in rural compared to urban markets is observed for all suppliers. In the weighted regressions with more controls than just for vegetables, the significant results on the interaction show that taking other characteristics into account, women do get a better price than men in rural areas. Using an adjusted Wald test, it cannot be ruled out that the higher price women receive in rural markets makes up for the generally lower price in these areas. The test is significant at the ten percent confidence level. This suggests that women do not receive a lower price in rural than in urban areas but men do, *ceteris paribus*. The fact that the interaction is only significant with weights and controls shows that inequalities in the distribution of characteristics prevent women from utilizing the advantage they have. This resembles the pattern amongst traders. The regressions do not show a GPG in urban areas. The coefficient is not only insignificant but also small. These results are in line with the descriptive data.

The specifications presented in Table 23 test for differences in the GPG depending on the gender of the trader. The interaction stays insignificant in all specifications. This is in line with the descriptives, which only show a slightly smaller GPG where sales go to women compared to those going to men. In both cases, the difference is far from being statistically significant.

I add up all interactions in the regressions in Table 7. As before, there is no evidence of heterogeneous effects with regard to the gender of the trader. The interaction with the quantities has the same direction in all specifications but it is not significant when using the balanced data set. This indicates that the correlation of the interaction with characteristics that are relevant for the price are not controlled for without the weighting. At the same time, the model supports the finding of heterogeneous effects between the rural and urban populations. Holding all else constant, the model with balanced data and full controls indicates that women receive a price that is 3.74 percent above mens in rural markets. This effect is statistically not significantly different from zero. In contrast to the earlier finding, which used an adjusted Wald test with the regression in Table 22, it cannot be shown that women's advantage and the general disadvantage in rural areas sum to zero. In fact, a linear combination of the coefficients suggests that women in rural markets still receive a 7.63 percent lower price than in urban markets. However, this difference is not significantly different from zero. The point estimate related to selling in rural areas is larger (9.99 percent) and significant at the ten percent confidence level when running a regression with the same controls on the observations on female suppliers only. Hence, including all interactions, it seems that women also experience a lower price in rural markets but not as much as men do. Looking at the difference between the regression with all controls and weighting and the regressions without weighting and a set of controls shows the influence of gender inequality in characteristics on the GPG. In difference to the results in Table 22, the size of the coefficient on the interaction between gender and rural location has almost the same size as in the weighted regressions. It seems that the interaction between traded quantity and gender controls for an influence that was downward biasing the coefficient before. This is related to the larger share of women in rural areas that fall into the part of the distribution where the quantity effect implies a lower price for them , according to the first column.

Table 7: Regression of the price received by the supplier including all interactions

	Unweighted Veg. only ln(u. price)	Weighted Veg. only ln(u. price)	Unweighted Few contr. ln(u. price)	Weighted Few contr. ln(u. price)	Unweighted Full contr. ln(u. price)	Weighted Full contr. ln(u. price)
Female supplier	-0.361	-0.262	-0.147	-0.0719	-0.159*	-0.0643
	(0.291)	(0.318)	(0.0973)	(0.142)	(0.0854)	(0.128)
ln(quantity)	-0.122**	-0.0760	-0.0336*	-0.0373	-0.0322*	-0.0567
	(0.0458)	(0.0945)	(0.0169)	(0.0384)	(0.0179)	(0.0431)
Female supplier*ln(quantity)	0.141*	0.0958	0.0422	0.0322	0.0432*	0.0381
	(0.0755)	(0.0844)	(0.0294)	(0.0499)	(0.0216)	(0.0410)
$\ln(\text{quantity})^2$	0.00388	0.00281	0.000775	0.00235	0.00101	0.00420
	(0.00605)	(0.0119)	(0.00154)	(0.00405)	(0.00158)	(0.00359)
Female supplier*$\ln(\text{quantity})^2$	-0.0159**	-0.0149	-0.00249	-0.00245	-0.00251	-0.00333
	(0.00704)	(0.0103)	(0.00341)	(0.00530)	(0.00280)	(0.00429)
Rural market	-0.188***	-0.185**	-0.111***	-0.191***	-0.0534	-0.186***
	(0.0637)	(0.0840)	(0.0364)	(0.0441)	(0.0395)	(0.0406)
Female supplier*Rural market	0.102	0.0977	0.0233	0.115*	0.0321	0.110*
	(0.0880)	(0.0975)	(0.0329)	(0.0662)	(0.0289)	(0.0584)
Male trader	0.0550	0.0434	0.00261	0.0515	0.00244	0.0321
	(0.0710)	(0.0904)	(0.0219)	(0.0360)	(0.0209)	(0.0424)
Female supplier*Male trader	0.0731	0.0848	-0.0225	-0.0595	-0.0211	-0.0516
	(0.111)	(0.110)	(0.0433)	(0.0611)	(0.0389)	(0.0565)
Observations	808	808	808	808	808	808

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the received price on the gender of the supplier, including interactions with rural location of the market, traded quantity, and gender of the trader. All regressions contain an interaction between the gender of the supplier and the vegetable dummies. Standard errors are clustered on the market level.

4.3.1 Perceptions and the Gender Price Gap

If the GPG is based on stereotypes as Kricheli-Katz and Regev (2017) argue, it should be possible to explain it with the traders' stated perceptions. I test this by adding the perceptions and their interaction with the supplier's gender to the last specification. I chose the regression with the set of few controls to reduce the degrees of freedom the regression uses. The results from the specification without perceptions can be seen in the first column of Table 8. In the second column, a large set of gender perceptions and their interactions with the supplier's gender are added. Only the interactions are recorded in the table as the interest is with the specific effect of the perception on how women are treated different from men. The coefficient on the perception itself is likely to also reflect other characteristics of the trader that are correlated with them (e.g. if certain perceptions are correlated with the quality of the trader's education).

Adding the variables, the coefficient on the interaction between the supplier's gender and rural location reduces by about a third and becomes insignificant (column two). Through step wise deletion of variables from the regression, these are reduced to two questions and their interactions. As can be seen in column three, adding these two variables leads to a reduction in the effect size of the rural-gender interaction by about one-fourth. Likewise, the coefficient loses significance. However, the perception that women are worse farmers and that university education is more important for boys, are not significant.

5 Conclusion

The results depict important differences in the GPG between rural and urban areas, as well as small and large-scale transactions amongst traders. They also show that women's characteristics impair their situation in the market. Looking at the unexplainable part of price gap, being in a rural area, the gender price gap is more favorable for female suppliers than in urban areas. At the same time, also in urban

Table 8: Regression of the price received by the supplier including all interactions and traders' perceptions

	Weighted Few contr. ln(u. price)	Weighted Few contr. ln(u. price)	Weighted Few contr. ln(u. price)
Female supplier	-0.0719	-0.105	-0.0839
	(0.142)	(0.131)	(0.141)
ln(quantity)	-0.0373	-0.0534	-0.0590
	(0.0384)	(0.0386)	(0.0376)
Female supplier*ln(quantity)	0.0322	0.0344	0.0358
	(0.0499)	(0.0395)	(0.0461)
$\ln(\text{quantity})^2$	0.00235	0.00264	0.00337
	(0.00405)	(0.00292)	(0.00386)
Female supplier*$\ln(\text{quantity})^2$	-0.00245	-0.00279	-0.00327
	(0.00530)	(0.00386)	(0.00468)
Rural market	-0.191***	-0.146***	-0.183***
	(0.0441)	(0.0479)	(0.0483)
Female supplier*Rural market	0.115*	0.0763	0.0874
	(0.0662)	(0.0695)	(0.0686)
Male trader	0.0515	0.0407	0.0253
	(0.0360)	(0.0356)	(0.0298)
Female supplier*Male trader	-0.0595	-0.0733	-0.0451
	(0.0611)	(0.0613)	(0.0521)
Trader's values, interactions with supplier's gender			
Fem. sup.*ln(Men are better farmers)		-0.0384	-0.0376
		(0.0322)	(0.0377)
Fem. sup.*ln(Men are better traders)		0.0137	
		(0.0380)	
Fem. sup.*ln(Main goal make parents happy)		0.0501	
		(0.0299)	
Fem. sup.*ln(Working mother, children suffer)		-0.00596	
		(0.0324)	
Fem. sup.*ln(Men better political leaders)		-0.00592	
		(0.0342)	
Fem. sup.*ln(University edu. more important for boys)		-0.0887**	-0.0485
		(0.0405)	(0.0349)
Fem. sup.*ln(Men better business executives)		-0.0389	
		(0.0332)	
Fem. sup.*ln(Being housewife as good as job)		0.0678	
		(0.0492)	
Fem. sup.*ln(Men should get jobs)		0.0673	
		(0.0416)	
Fem. sup.*ln(Women earning more causes problems)		-0.000849	
		(0.0512)	
Fem. sup.*ln(Job for female independence)		0.0238	
		(0.0401)	
Constant	-0.391	-0.480*	-0.279
	(0.229)	(0.253)	(0.240)
Observations	808	808	808

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the received price on the gender of the supplier, including interactions with rural location of the market, traded quantity, and gender of the trader. All regressions contain an interaction between the gender of the supplier and the vegetable dummies. In columns two and three the trader's perceptions and their interactions with the supplier's gender are added. Standard errors are clustered on the market level.

areas no significant difference in the prices received by men and women exists. Amongst traders, the same pattern can be observed but is not robust to the addition of controls relating to gaps over traded quantities. The locational effect could be related to a stronger role of tradition in rural areas. Given that women have traditionally assumed the role of running small scale vegetable trade (House-Midamba, 1995), women's perceived competence might be higher than men's in these markets. Local stereotypes relating to merit and competence could therefore be behind this pattern as Kricheli-Katz and Regev (2017) argue. This theory is supported by the fact that the perceptions of traders explain a fourth of the GPG amongst suppliers. It should be recognized that in these markets not women but men are found to be suffering from this structure. However, due to differences that are related to their observable characteristics, women are not able to utilize their advantage

Gender gaps amongst traders differ significantly between small-scale and large-scale trade. Only in the top quartile of transaction sizes women receive a (insignificantly) worse price than men, *ceteris paribus*. This translates into a (also insignificantly) higher mark-up amongst large-scale male traders compared to their female colleagues in this segment. In the lowest quartile women are making a significantly higher mark-up. Without entropy weights, the regressions show that women are not receiving a significantly better price in any quartile. Instead, they indicate a worse price in the highest quartile of traded quantities. As for the suppliers, factors related to female traders' observable characteristics impair their activity in the market.

The finding that, controlling for all else, women receive a worse price at high quantities are close to my finding in Depenbusch (2017). The new finding is more pronounced than the old one and does not show a favorable pattern for women at very high quantities. Instead, it is only the highest quartile that experiences a significantly higher GPG than the lowest quartile. Also, the result is only found amongst traders (while slight indications exist for suppliers who are farmers). The differences to the results of Depenbusch (2017) are possibly due to the mix of supply chains analyzed in the earlier paper and the fact that I could not control for the location of the targeted market in rural versus urban areas.

For suppliers and traders, the results present incentives for women to not expand into the large-scale trade of fresh vegetables into Nairobi. They also show that the traditionally strong role of women, which is still existent in rural areas, does not prevent this pattern. Thereby, women are at risk to losing out in the transformation of the mid-stream of the value chain that was described by Reardon (2015). Following that theory, Kenyan markets will eventually go through a phase of concentration as value chains develop. If female led enterprises are not able to grow to a sufficient size, female traders will suffer from falling demand for their goods or they will be passed by as companies increasingly source directly from the farms. This process would perpetuate womens weak position in the large-scale part of the market and push out smaller companies. A process of decreasing importance of women is already measurable in the gender employment gap in Sub-Sahara African wholesale and retail trade, according to International Labour Office (2017). I.e. the share of women who are active in the labor force and working in this sector has been reducing over the last decade, compared to the respective share of men. Therefore, policies aimed at closing the gender gap in prices should now be implemented to prevent such a dynamic from taking place or intensifying in Central Kenyan vegetable trade.

The problem is to find policies which can fulfill this goal. Firstly, further research needs to identify the characteristics of women that are correlated with a lower price. As these are only covered by entropy weighting in this essay, I cannot identify them in detail. However, this would be important in order to construct useful policies. Secondly, policies should not promote the gap men are suffering from in rural areas, as this would stir resistance against gender policies. Rather, steps should be taken to close the gap between rural and urban markets, which would improve the price received in rural areas over all. Secondly, finding a reason why female traders face a GPG in large-scale transactions even when controlling for observables requires further research. If it is the case that the pattern is at least partly driven by stereotypes, the problem is that these are hard to change. One access point are interactions in which actors repeatedly do not follow gender roles (Deutsch, 2007). A possible way to support such processes is to balance out the disadvantages women face and thereby increase their participation in the large-scale segment. Collective marketing of goods has been shown to be one way to circumvent GPGs (Banerjee *et al.*, 2014; Handschuch and Wollni, 2016) and female leadership of these groups has not affected this result (Handschuch and Wollni, 2016). Hence, this could be a way for women to enter

the respective part of the market. These groups could also be a vehicle for suppliers to rural markets to enter directly into large-scale trade to urban areas. However, according to Williamson (1991), the viability of the organizational form will depend on the ability of the groups to build functioning incentive structures in their hierarchies in the local background. This implies that the risk of designed marketing schemes to fail is not to be underestimated. An alternative option might be to apply small, focused changes to the organization of the markets. Bolwig (2012) found that even small changes in the details of a transactions organization, e.g. if it takes place in a public or a private location, can have important gendered effects. Hence, even small steps could bring about change in the given context.

References

Agarwal, B., 1997. "Bargaining" and Gender Relations: Within and Beyond the Household, *Feminist Economics*, 3 (1), 1–51.

Banerjee, D., Klasen, S., and Wollni, M., 2014. Market discrimination, market participation, and control over revenue: A gendered analysis of Cameroon's cocoa producers, *GlobalFood Discussion Papers*, No. 43.

Bolwig, S., 2012. Poverty and Gender Effects of Smallholder Organic Contract Farming in Uganda, *USSP Working Paper*, No. 8.

Chege, C.G., Andersson, C.I., and Qaim, M., 2015. Impacts of Supermarkets on Farm Household Nutrition in Kenya, *World Development*, 72, 394–407.

Deaton, A., 2000. *The analysis of household surveys: A microeconometric approach to development policy*, Baltimore, Md.: Johns Hopkins Univ. Press, 3rd ed.

Depenbusch, L., 2017. Paying for gender? The gender price gap in Central Kenyan vegetable markets, *GlobalFood Discussion Papers*, (107).

Deutsch, F.M., 2007. Undoing Gender, *Gender & society*, 21 (1), 106–127.

Dolan, C.S., 2001. The 'Good Wife': Struggles over Resources in the Kenyan Horticultural Sector, *Journal of development studies*, 37 (3), 39–70.

Hainmueller, J., 2012. Entropy Balancing for Causal Effects: A Multivariate Reweighting Method to Produce Balanced Samples in Observational Studies, *Political Analysis*, 20 (01), 25–46.

Hainmueller, J. and Xu, Y., 2013. ebalance: A Stata Package for Entropy Balancing, *Journal of Statistical Software*, 54 (7).

Handschuch, C. and Wollni, M., 2016. Traditional Food Crop Marketing in Sub-Saharan Africa: Does Gender Matter?, *Journal of development studies*, 52 (3), 343–359.

House-Midamba, B., 1995. Kikuyu Market Women Traders and the Struggle for Economic Empowerment in Kenya, *in:* B. House-Midamba and F.K. Ekechi, eds., *African market women and economic power*, Westport, Conneticut: Greenwood Press, 81–97.

Imbens, G.W., 2015. Matching Methods in Practice, *Journal of Human Resources*, 50 (2), 373–419.

International Labour Office, 2017. *World Employment and Social Outlook: Trends for women 2017*, Geneva: ILO.

Kennedy, P.E., 1981. Estimation with Correctly Interpreted Dummy Variables in Semilogarithmic Equations, *The American Economic Review*, 71 (4), 801.

Kricheli-Katz, T. and Regev, T., 2016. How many cents on the dollar? Women and men in product markets, *Science Advances*, 2 (2), e1500599.

Kricheli-Katz, T. and Regev, T., 2017. Competence, Desert and Trust—Why Are Women Penalized in Online Product Market Interactions?, *Theoretical Inquiries in Law*, 18 (1), 83–95.

Minten, B., Reardon, T., and Chen, K., 2017. How Cities Reshape Food Systems, *in:* International Food Policy Research Institute, ed., *2017 global food policy report*, Washington, DC: International Food Policy Research Institute, 42–49.

O'Reilly, J., Smith, M., Deakin, S., and Burchell, B., 2015. Equal Pay as a Moving Target: International perspectives on forty-years of addressing the gender pay gap, *Cambridge Journal of Economics*, 39 (2), 299–317.

Rao, E.J. and Qaim, M., 2011. Supermarkets, Farm Household Income, and Poverty: Insights from Kenya, *World Development*, 39 (5), 784–796.

Rao, E.J. and Qaim, M., 2013. Supermarkets and agricultural labor demand in Kenya: A gendered perspective, *Food Policy*, 38, 165–176.

Reardon, T., 2015. The hidden middle: The quiet revolution in the midstream of agrifood value chains in developing countries, *Oxford Review of Economic Policy*, 31 (1), 45–63.

Smith, M., 2012. Social regulation of the gender pay gap in the EU, *European Journal of Industrial Relations*, 18 (4), 365–380.

Tallontire, A., Dolan, C., Smith, S., and Barrientos, S., 2005. Reaching the marginalised? Gender value chains and ethical trade in African horticulture, *Development in practice*, 15 (3-4), 559.

Vakis, R., Sadoulet, E., and de Janvry, A., 2003. Measuring Transactions Costs from Observed Behavior: Market Choices in Peru, *CUDARE Working Papers*, (962).

Wacker, C., 1994. Sustainable Development Through Women's Groups: A Cultural Approach to Sustainable Development, *in:* W. Harcourt, ed., *Feminist perspectives on sustainable development*, London and Atlantic Highlands, N.J.: Zed Books, in association with Society for International Development, Rome, 128–142.

Williamson, O.E., 1991. Comparative Economic Organization: The Analysis of Discrete Structural Alternatives, *Administrative Science Quarterly*, 36 (2), 269–296.

Wooldridge, J.M., 2010. *Econometric analysis of cross section and panel data*, Cambridge, Mass.: MIT press.

World Bank, 2011. *Gender equality and development: World development report 2012*, Washington. DC: The World Bank.

World Bank, 2012. *Jobs. World Development Report 2013*, vol. 2013, Washington, D.C.: The World Bank.

World Values Survey Association, 2015. World Values Survey: Wave 6 2010-2014 Official Aggregate v.2015041.

Appendices

A Appendix of tables

Table 9: Variables used in balancing

Balanced variable	Supplier is female	Trader is male
Female supplier		x
Male trader	x	
Vegetable	x	
Market	x	x
ln(avg. sales price)	x	
ln(veg. sales/total sales)	x	x
ln(quantity)	x	x
ln(quality)	x	x
ln(monetary TC)	x	x
ln(time TC)	x	x
ln(effort TC)	x	x
ln(frequency of trade)	x	x
ln(max. days price is fixed)	x	x
ln(share of veg. from supplier)	x	x
Trader characteristics		
ln(employees of trader)	x	x
ln(suppliers per month)	x	x
ln(years in veg. trade)	x	x
ln(veg. self produced)	x	x
ln(age respondent)	x	x
ln(school years of trader)	x	x
Business type (dummies)	x	x
Store structure (dummies)	x	x
Tribe of trader (dummies)	x	
Trader's marital status (dummies)	x	
Supplier characteristics		
ln(age supplier)	x	x
Supplier is farming	x	x
Tribe of supplier (dummies)	x	
Home county of supplier (dummies)	x	
Trader's perceptions		
ln(Job for female independence/sd)	x	
ln(Main goal make parents happy/sd)	x	x
ln(Working mother, children suffer/sd)	x	x
ln(Jobs for nationals over immigrants/sd) s	x	x

Variables on which entropy balancing has been performed for each group. Variables marked with an "x" have been balanced on the first three moments.

Table 10: Regression of the price ratio without interactions

	Unweighted ln(p.ratio)	Weighted ln(p.ratio)	Unweighted ln(p.ratio)	Weighted ln(p.ratio)	Unweighted ln(p.ratio)	Weighted ln(p.ratio)
Male trader	0.0284	0.00160	-0.00635	0.00542	-0.00232	0.0104
	(0.0231)	(0.0187)	(0.0160)	(0.0197)	(0.0141)	(0.0254)
Female supplier			-0.0108	-0.0387	-0.0182	-0.0288
			(0.0226)	(0.0330)	(0.0230)	(0.0335)
ln(quantity)			-0.0142	-0.0231	-0.00737	-0.0106
			(0.0146)	(0.0157)	(0.0158)	(0.0207)
ln(quality)			-0.0586	0.0280	-0.0872	0.0402
			(0.0596)	(0.129)	(0.0635)	(0.143)
ln(monetary TC)			-0.00649	-0.0200	-0.00520	-0.0144
			(0.00997)	(0.0147)	(0.00980)	(0.0153)
ln(time TC)			-0.0299***	-0.0332***	-0.0265**	-0.0300*
			(0.00991)	(0.0113)	(0.0107)	(0.0143)
ln(effort TC)			0.0519	0.00796	0.0494	0.0278
			(0.0395)	(0.0386)	(0.0398)	(0.0401)
ln(frequency of trade)			0.0181	0.0129	0.00258	0.00954
			(0.0174)	(0.0218)	(0.0173)	(0.0201)
ln(max. days price is fixed)			-0.00640	-0.00695	-0.00550	-0.000701
			(0.0133)	(0.0159)	(0.0125)	(0.0161)
ln(veg. self produced)			-0.0162	-0.0351**	-0.0121	-0.0320*
			(0.0124)	(0.0159)	(0.0132)	(0.0160)
Supplier is farming			-0.0649**	-0.00440	-0.0359	-0.00413
			(0.0263)	(0.0369)	(0.0252)	(0.0331)
Business type; base group: green grocers						
Trader/broker to supermarket			0.0762	-0.0915	0.0204	-0.0702
			(0.0754)	(0.161)	(0.0726)	(0.182)
Trader at wet market			0.00812	0.0306	-0.0293	0.0642
			(0.0657)	(0.108)	(0.0572)	(0.117)
Other trader			-0.168	-0.365**	-0.136	-0.397**
			(0.174)	(0.151)	(0.185)	(0.162)
Store structure; base group: no fixed structure						
Wood, plastic structure			0.0271	-0.0224	0.0134	-0.0239
			(0.0191)	(0.0482)	(0.0176)	(0.0506)
Fixed, cemented			0.0695	-0.0467	0.0655	-0.0276
			(0.0509)	(0.0664)	(0.0553)	(0.0668)
Tribe of supplier; base group: Kikuyu						
Kamba			0.0420	0.0899	0.0406	0.0781
			(0.0427)	(0.0592)	(0.0439)	(0.0656)
Kisii			0.327***	0.476***	0.339***	0.514***
			(0.0954)	(0.108)	(0.0983)	(0.110)
Other			-0.0184	-0.0138	-0.0125	-0.0421
			(0.0426)	(0.0471)	(0.0399)	(0.0459)
ln(share of veg. from supplier)					0.0156	-0.00613
					(0.0155)	(0.0317)
ln(years buying from supplier)					0.0146	0.00619
					(0.0134)	(0.0142)
ln(suppliers per month)					-0.0233	0.0121
					(0.0194)	(0.0358)
ln(years in veg. trade)					-0.00399	-0.0270
					(0.0133)	(0.0196)
ln(veg. sales/total sales)					0.0179	0.0194
					(0.0299)	(0.0708)
ln(age respondent)					0.0573	0.0359
					(0.0574)	(0.0740)
ln(age supplier)					0.0482	-0.00854
					(0.0342)	(0.0393)
Tribe of trader; base group: Kikuyu						

Kamba					-0.0305	-0.0613
					(0.0273)	(0.0363)
Kisii					-0.0325	0.113
					(0.0474)	(0.0817)
Other					0.00871	0.0384
					(0.0282)	(0.0719)
Other relationship; base group: None						
Close family					0.00119	-0.00854
					(0.105)	(0.140)
Extended family (other HH)					0.00701	-0.0567
					(0.174)	(0.109)
Friend					-0.0529	-0.0900***
					(0.0518)	(0.0262)
Partner in other business					-0.0645	0.124
					(0.150)	(0.141)
Same village					-0.206*	0.205**
					(0.108)	(0.0793)
Marital status of trader; base group: Never married						
Married					-0.00526	0.0267
					(0.0235)	(0.0274)
Widow/Widower					-0.0513	0.0454
					(0.0833)	(0.0875)
Divorced					-0.0274	0.00542
					(0.0415)	(0.106)
Seperated/Deserted					-0.0268	-0.201**
					(0.0574)	(0.0750)
Home county of supplier; base group: Other counties						
Kajiado					0.0163	0.107
					(0.0645)	(0.112)
Kiambu					0.0591	-0.0642
					(0.0867)	(0.0892)
Nairobi					0.112	-0.0505
					(0.0725)	(0.0749)
Nyandarua					0.00578	-0.106
					(0.0918)	(0.0951)
Constant	-0.680***	-0.607***	-0.625***	-0.757***	-1.068***	-1.103**
	(0.0610)	(0.0880)	(0.135)	(0.232)	(0.355)	(0.496)
Vegetable	x	x	x	x	x	x
Market			x	x	x	x
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the ratio of the price vegetables are sold at over their selling price on the gender of the trader and controls. Unweighted columns use the unweighted data, weighted columns use the entropy weights. Standard errors are clustered at the market level.

Table 11: Regression of the price ratio considering non-linear heterogeneity over traded quantities

	Unweighted Veg. only ln(p.ratio)	Weighted Veg. only ln(p.ratio)	Unweighted Few contr. ln(p.ratio)	Weighted Few contr. ln(p.ratio)	Unweighted Full contr. ln(p.ratio)	Weighted Full contr. ln(p.ratio)
Male trader	0.0997	-0.0715	-0.0173	0.0312	-0.0495	0.167
	(0.115)	(0.137)	(0.132)	(0.190)	(0.138)	(0.155)
ln(quantity)	0.0436**	-0.00905	-0.0117	-0.0571*	-0.00576	-0.0249
	(0.0163)	(0.0238)	(0.0249)	(0.0316)	(0.0280)	(0.0415)
Male trader*ln(quantity)	0.0187	0.0714*	0.0212	0.0381	0.0101	0.0199
	(0.0341)	(0.0367)	(0.0372)	(0.0430)	(0.0351)	(0.0425)
$\ln(\text{quantity})^2$	-0.000598	0.00400	0.00115	0.00637**	0.00123	0.00495
	(0.00253)	(0.00279)	(0.00279)	(0.00293)	(0.00311)	(0.00377)
Male trader*$\ln(\text{quantity})^2$	-0.00684*	-0.0114***	-0.00607	-0.00886**	-0.00493	-0.00676
	(0.00362)	(0.00361)	(0.00372)	(0.00389)	(0.00327)	(0.00414)
Female supplier			-0.0121	-0.0518	-0.0201	-0.0408
			(0.0238)	(0.0326)	(0.0251)	(0.0347)
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the ratio of the buying price of vegetables over their selling price on the gender of the trader, considering heterogeneity over traded quantities. The interaction is done in form of interactions with the continuous variable and its quadratic term. All regressions contain an interaction between the gender of the supplier and the vegetable dummies. Standard errors are clustered at the market level.

Table 12: Regression of the price ratio including interactions with quantity quartiles.

	Unweighted Veg. only ln(p.ratio)	Weighted Veg. only ln(p.ratio)	Unweighted Few contr. ln(p.ratio)	Weighted Few contr. ln(p.ratio)	Unweighted Full contr. ln(p.ratio)	Weighted Full contr. ln(p.ratio)
Male trader	0.0914	0.107	0.0104	0.190	-0.0501	0.301*
	(0.0845)	(0.127)	(0.0934)	(0.153)	(0.104)	(0.156)
Quantity 2nd quartile	0.0391	0.0273	-0.0186	-0.0210	-0.0114	-0.0153
	(0.0390)	(0.0788)	(0.0522)	(0.0732)	(0.0413)	(0.0867)
Quantity 3rd quartile	0.0937**	0.0494	-0.0108	0.0219	0.00148	0.0580
	(0.0430)	(0.0896)	(0.0563)	(0.0837)	(0.0501)	(0.0864)
Quantity 4th quartile	0.164***	0.209**	0.0279	0.169**	0.0474	0.222**
	(0.0529)	(0.0749)	(0.0726)	(0.0783)	(0.0645)	(0.0915)
Male trader*Quant. 2nd quart.	-0.0699	-0.0581	-0.0908*	-0.115	-0.0987**	-0.133
	(0.0512)	(0.0843)	(0.0456)	(0.0939)	(0.0385)	(0.111)
Male trader*Quant. 3rd quart.	-0.0980	-0.0536	-0.0919	-0.133	-0.108	-0.168
	(0.0684)	(0.110)	(0.0826)	(0.118)	(0.0850)	(0.115)
Male trader*Quant. 4th quart.	-0.182***	-0.227**	-0.159*	-0.292***	-0.163**	-0.304**
	(0.0621)	(0.0920)	(0.0805)	(0.0979)	(0.0766)	(0.108)
Female supplier			-0.0135	-0.0566*	-0.0213	-0.0475
			(0.0247)	(0.0320)	(0.0255)	(0.0326)
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the ratio of buying price of vegetables over their selling price on the gender of the trader, considering heterogeneity over traded quantities. This is modeled in form of interactions with the quantity quartiles. All regressions contain an interaction between the gender of the supplier and the vegetable dummies. Standard errors are clustered at the market level.

Table 13: Regression of the price ratio considering rural-urban heterogenity

	Unweighted Veg. only ln(p.ratio)	Weighted Veg. only ln(p.ratio)	Unweighted Few contr. ln(p.ratio)	Weighted Few contr. ln(p.ratio)	Unweighted Full contr. ln(p.ratio)	Weighted Full contr. ln(p.ratio)
Male trader	-0.00628	0.00726	-0.0232	0.0136	-0.0153	0.0206
	(0.0187)	(0.0286)	(0.0157)	(0.0272)	(0.0158)	(0.0356)
Rural market	-0.0923***	-0.0316	-0.161***	-0.0227	-0.112***	-0.0131
	(0.0264)	(0.0432)	(0.0260)	(0.0491)	(0.0321)	(0.0595)
Male trader*Rural market	0.0420	-0.0261	0.0594**	-0.0301	0.0454	-0.0351
	(0.0320)	(0.0519)	(0.0253)	(0.0547)	(0.0297)	(0.0552)
Female supplier			-0.0110	-0.0386	-0.0183	-0.0287
			(0.0228)	(0.0333)	(0.0231)	(0.0338)
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.Regression of the ratio of the buying price of vegetables over their selling price on the gender of the trader, considering location of the trader in rural markets. Standard errors are clustered at the market level.

Table 14: Regression of the price ratio considering heterogeneity over gender of the supplier

	Unweighted Veg. only ln(p.ratio)	Weighted Veg. only ln(p.ratio)	Unweighted Few contr. ln(p.ratio)	Weighted Few contr. ln(p.ratio)	Unweighted Full contr. ln(p.ratio)	Weighted Full contr. ln(p.ratio)
Male trader	0.0419	0.0333	0.00598	0.0140	0.00821	0.0198
	(0.0270)	(0.0271)	(0.0222)	(0.0324)	(0.0198)	(0.0356)
Female supplier	-0.0252	0.0230	-0.00163	-0.0212	-0.0100	-0.00994
	(0.0271)	(0.0477)	(0.0268)	(0.0552)	(0.0263)	(0.0567)
Male trader*Female supplier	-0.0523	-0.0971*	-0.0369	-0.0297	-0.0318	-0.0310
	(0.0345)	(0.0512)	(0.0368)	(0.0653)	(0.0334)	(0.0674)
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the ratio of the buying price of vegetables over their selling price on the gender of the trader, considering heterogeneity over gender of the supplier. Standard errors are clustered at the market level.

Table 15: Regression of the average selling price received by the trader without interactions

	Unweighted ln(s. price)	Weighted ln(s. price)	Unweighted ln(s. price)	Weighted ln(s. price)	Unweighted ln(s. price)	Weighted ln(s. price)
Male trader	0.0426	0.00769	0.0624	0.0000580	0.0302	-0.00881
	(0.0624)	(0.0644)	(0.0415)	(0.0605)	(0.0435)	(0.0651)
Female supplier			0.0113	0.0676	0.0135	0.0378
			(0.0480)	(0.0530)	(0.0433)	(0.0545)
ln(quantity)			-0.0726**	-0.0603**	-0.0881**	-0.0881***
			(0.0256)	(0.0222)	(0.0325)	(0.0274)
ln(quality)			0.0827	0.0303	0.0758	-0.0237
			(0.0939)	(0.201)	(0.0925)	(0.167)
ln(monetary TC)			0.0238	0.0367	0.0180	0.0167
			(0.0149)	(0.0238)	(0.0143)	(0.0196)
ln(time TC)			0.0243**	0.0222	0.0203	0.0258
			(0.0115)	(0.0265)	(0.0128)	(0.0263)
ln(effort TC)			-0.157***	-0.172***	-0.186***	-0.214***
			(0.0546)	(0.0502)	(0.0581)	(0.0731)
ln(frequency of trade)			0.0742	0.0937	0.0631	0.0489
			(0.0461)	(0.0561)	(0.0471)	(0.0579)
ln(max. days price is fixed)			0.00345	0.0262	0.00464	0.00678
			(0.0179)	(0.0294)	(0.0180)	(0.0324)
ln(veg. self produced)			-0.0156	0.00675	-0.00923	-0.00851
			(0.0190)	(0.0231)	(0.0180)	(0.0262)
Supplier is farming			-0.100	-0.122	-0.0775	-0.102
			(0.0695)	(0.0924)	(0.0607)	(0.0764)
Business type; base group: green grocers						
Trader/broker to supermarket			0.249*	0.346	0.285*	0.292
			(0.131)	(0.342)	(0.149)	(0.361)
Trader at wet market			0.179**	0.468	0.188**	0.401
			(0.0695)	(0.346)	(0.0881)	(0.330)
Other trader			-0.0512	0.509	0.0859	0.696
			(0.292)	(0.506)	(0.306)	(0.482)
Store structure; base group: no fixed structure						
Wood, plastic structure			0.0608	-0.0557	0.0302	-0.0376
			(0.0554)	(0.0775)	(0.0490)	(0.0783)
Fixed, cemented			-0.0185	0.0852	-0.0208	0.0532
			(0.104)	(0.112)	(0.113)	(0.107)
Tribe of supplier; base group: Kikuyu						
Kamba			-0.0651	-0.177*	-0.0931	-0.132
			(0.0648)	(0.101)	(0.0571)	(0.0776)
Kisii			-0.352	-0.881***	-0.547*	-1.063***
			(0.327)	(0.138)	(0.313)	(0.349)
Other			0.0228	-0.0676	0.0187	0.00165
			(0.0660)	(0.0782)	(0.0637)	(0.0851)
ln(share of veg. from supplier)					-0.0155	0.0297
					(0.0270)	(0.0521)
ln(years buying from supplier)					0.0403	0.0287
					(0.0267)	(0.0313)
ln(suppliers per month)					-0.00415	-0.0567
					(0.0251)	(0.0411)
ln(years in veg. trade)					0.0206	0.0184
					(0.0195)	(0.0405)
ln(veg. sales/total sales)					-0.0620	-0.0257
					(0.0627)	(0.0860)
ln(age respondent)					-0.201**	-0.112
					(0.0760)	(0.152)
ln(age supplier)					-0.0142	0.254*
					(0.0880)	(0.139)
Tribe of trader; base group: Kikuyu						

Kamba					0.0286	0.00429
					(0.0697)	(0.0919)
Kisii					0.129	-0.132
					(0.0985)	(0.150)
Other					0.0222	-0.0118
					(0.0697)	(0.0973)
Other relationship; base group: None						
Close family					-0.151	0.307*
					(0.219)	(0.158)
Extended family (other HH)					-0.467	-1.256***
					(0.324)	(0.309)
Friend					0.0837	0.166
					(0.0686)	(0.110)
Partner in other business					-0.138	0.139
					(0.226)	(0.160)
Same village					-0.228**	0.266
					(0.0828)	(0.240)
Marital status of trader; base group: Never married						
Married					0.00882	-0.0610
					(0.0463)	(0.0765)
Widow/Widower					-0.0426	0.0621
					(0.0901)	(0.107)
Divorced					0.0485	0.0363
					(0.0821)	(0.105)
Seperated/Deserted					-0.0468	-0.486
					(0.118)	(0.288)
Home county of supplier; base group: Other counties						
Kajiado					-0.0479	-0.0361
					(0.233)	(0.320)
Kiambu					0.0660	0.0318
					(0.0789)	(0.124)
Nairobi					0.102	0.112
					(0.100)	(0.115)
Nyandarua					0.180	0.218
					(0.190)	(0.161)
Constant	2.133***	1.527***	2.077***	1.493**	3.056***	1.638*
	(0.0662)	(0.162)	(0.226)	(0.528)	(0.672)	(0.897)
Vegetable	x	x	x	x	x	x
Market			x	x	x	x
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the average selling price received by the trader on the gender of the trader and controls. Unweighted columns use the unweighted data, weighted columns use the entropy weights. Standard errors are clustered at the market level.

Table 16: Regression of the average selling price received by the trader considering non-linear heterogeneity over traded quantities

	Unweighted Veg. only ln(s. price)	Weighted Veg. only ln(s. price)	Unweighted Few contr. ln(s. price)	Weighted Few contr. ln(s. price)	Unweighted Full contr. ln(s. price)	Weighted Full contr. ln(s. price)
Male trader	0.306	0.658*	0.215	0.294	0.303	0.0136
	(0.346)	(0.328)	(0.287)	(0.311)	(0.275)	(0.394)
ln(quantity)	0.00165	-0.00953	-0.0453	0.00145	-0.0580	-0.0382
	(0.0730)	(0.0544)	(0.0555)	(0.0718)	(0.0412)	(0.0783)
Male trader*ln(quantity)	-0.198*	-0.186*	-0.169*	-0.218*	-0.171*	-0.199
	(0.109)	(0.100)	(0.0915)	(0.120)	(0.0880)	(0.123)
$\ln(\text{quantity})^2$	-0.0145*	-0.0147**	-0.00816	-0.0144*	-0.00764	-0.0144*
	(0.00800)	(0.00639)	(0.00684)	(0.00831)	(0.00561)	(0.00723)
Male trader*$\ln(\text{quantity})^2$	0.0274**	0.0276**	0.0283***	0.0352**	0.0278***	0.0325**
	(0.00986)	(0.0122)	(0.00919)	(0.0147)	(0.00914)	(0.0131)
Female supplier			0.0212	0.103**	0.0215	0.0728
			(0.0445)	(0.0427)	(0.0427)	(0.0444)
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the average selling price received by the trader on the gender of the trader, considering heterogeneity over traded quantities. The interaction is done in form of interactions with the continuous variable and its quadratic term. All regressions contain an interaction between the gender of the supplier and the vegetable dummies. Standard errors are clustered at the market level.

Table 17: Regression of the average selling price received by the trader including interactions with quantity quartiles.

	Unweighted Veg. only ln(s. price)	Weighted Veg. only ln(s. price)	Unweighted Few contr. ln(s. price)	Weighted Few contr. ln(s. price)	Unweighted Full contr. ln(s. price)	Weighted Full contr. ln(s. price)
Male trader	0.316*	0.376	0.275	-0.145	0.389**	-0.379
	(0.179)	(0.320)	(0.214)	(0.316)	(0.180)	(0.339)
Quantity 2nd quartile	-0.159**	-0.303	-0.178**	-0.314	-0.180**	-0.381
	(0.0696)	(0.276)	(0.0727)	(0.264)	(0.0639)	(0.264)
Quantity 3rd quartile	-0.469***	-0.861***	-0.477***	-0.710***	-0.483***	-0.758***
	(0.109)	(0.253)	(0.105)	(0.234)	(0.0959)	(0.235)
Quantity 4th quartile	-0.557***	-0.996***	-0.539***	-0.994***	-0.553***	-1.097***
	(0.116)	(0.245)	(0.112)	(0.281)	(0.108)	(0.265)
Male trader*Quant. 2nd quart.	-0.199	-0.0543	-0.233	0.0616	-0.238	0.133
	(0.139)	(0.345)	(0.195)	(0.265)	(0.195)	(0.268)
Male trader*Quant. 3rd quart.	-0.184	0.208	-0.0578	0.346	-0.0747	0.371
	(0.222)	(0.353)	(0.197)	(0.256)	(0.179)	(0.248)
Male trader*Quant. 4th quart.	-0.170	0.270	-0.0313	0.531*	-0.0713	0.540*
	(0.199)	(0.320)	(0.187)	(0.293)	(0.174)	(0.262)
Female supplier			0.0198	0.0764	0.0222	0.0622
			(0.0433)	(0.0454)	(0.0423)	(0.0495)
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the average selling price received by the trader on the gender of the trader, considering heterogeneity over traded quantities. For this interactions with the quartiles according to the distribution of quantities are formed. All regressions contain an interaction between the gender of the supplier and the vegetable dummies. Standard errors are clustered at the market level.

Table 18: Regression of the average selling price received by the trader considering rural-urban heterogenity

	Unweighted Veg. only ln(s. price)	Weighted Veg. only ln(s. price)	Unweighted Few contr. ln(s. price)	Weighted Few contr. ln(s. price)	Unweighted Full contr. ln(s. price)	Weighted Full contr. ln(s. price)
Male trader	0.0681	0.0594	0.0892*	0.0544	0.0585	0.0660
	(0.0488)	(0.0794)	(0.0472)	(0.0729)	(0.0480)	(0.0664)
Rural market	-0.0172	0.0755	0.340***	0.414***	0.456***	0.555***
	(0.0827)	(0.139)	(0.0578)	(0.0907)	(0.0839)	(0.115)
Male trader*Rural market	-0.118	-0.191	-0.0943	-0.201*	-0.0986	-0.258**
	(0.106)	(0.125)	(0.0850)	(0.115)	(0.0891)	(0.106)
Female supplier			0.0117	0.0683	0.0138	0.0386
			(0.0485)	(0.0538)	(0.0437)	(0.0542)
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the average selling price received by the trader on the gender of the trader, considering differences between rural and urban markets. Standard errors are clustered at the market level.

Table 19: Regression of the unit price spend by the trader on purchasing supply

	Unweighted Veg. only ln(u. price)	Weighted Veg. only ln(u. price)	Unweighted Few contr. ln(u. price)	Weighted Few contr. ln(u. price)	Unweighted Full contr. ln(u. price)	Weighted Full contr. ln(u. price)
Male trader	0.327*	0.551*	0.290	0.0794	0.347*	-0.000292
	(0.162)	(0.299)	(0.208)	(0.269)	(0.183)	(0.302)
Quantity 2nd quartile	-0.165**	-0.266	-0.195**	-0.273	-0.189***	-0.335
	(0.0774)	(0.244)	(0.0890)	(0.204)	(0.0606)	(0.217)
Quantity 3rd quartile	-0.448***	-0.810***	-0.487***	-0.643***	-0.478***	-0.651***
	(0.0962)	(0.238)	(0.110)	(0.192)	(0.0818)	(0.191)
Quantity 4th quartile	-0.479***	-0.765***	-0.509***	-0.779***	-0.501***	-0.828***
	(0.117)	(0.265)	(0.131)	(0.265)	(0.111)	(0.237)
Male trader*Quant. 2nd quart.	-0.269**	-0.177	-0.327*	-0.142	-0.343*	-0.0861
	(0.113)	(0.317)	(0.187)	(0.225)	(0.187)	(0.229)
Male trader*Quant. 3rd quart.	-0.217	0.134	-0.151	0.166	-0.185	0.155
	(0.180)	(0.325)	(0.181)	(0.241)	(0.177)	(0.234)
Male trader*Quant. 4th quart.	-0.293*	-0.0148	-0.194	0.179	-0.241	0.165
	(0.169)	(0.310)	(0.199)	(0.276)	(0.195)	(0.245)
Rural market	-0.154*	0.0561	0.196***	0.431***	0.357***	0.514***
	(0.0759)	(0.0986)	(0.0522)	(0.101)	(0.0835)	(0.137)
Male trader*Rural market	-0.0137	-0.220**	-0.0170	-0.198*	-0.0297	-0.213*
	(0.111)	(0.103)	(0.0851)	(0.102)	(0.101)	(0.118)
Female supplier	-0.0412	-0.0677	0.00630	0.0206	0.000807	0.0156
	(0.0433)	(0.0493)	(0.0409)	(0.0461)	(0.0427)	(0.0505)
Observations	799	799	799	799	799	799

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the unit price spend purchasing supply on the gender of the trader, including interactions with rural location of the market, traded quantity, and gender of the supplier. All regressions contain an interaction between the gender of the trader and the vegetable dummies. Standard errors are clustered on the market level.

Table 20: Regression of the price received by the supplier without interactions

	Unweighted ln(u. price)	Weighted ln(u. price)	Unweighted ln(u. price)	Weighted ln(u. price)	Unweighted ln(u. price)	Weighted ln(u. price)
Female supplier	-0.0537	0.0365	-0.00989	0.0338	-0.0157	0.0414
	(0.0543)	(0.0606)	(0.0205)	(0.0351)	(0.0217)	(0.0334)
Male trader			0.000348	0.0300	0.000931	0.0183
			(0.0164)	(0.0210)	(0.0160)	(0.0233)
ln(quantity)			-0.0190	-0.0162	-0.0147	-0.0149
			(0.0127)	(0.0217)	(0.0137)	(0.0237)
ln(quality)			-0.0402	-0.00675	-0.0667	-0.00582
			(0.0611)	(0.0819)	(0.0653)	(0.0800)
ln(monetary TC)			-0.00241	0.000832	-0.00142	0.00356
			(0.00841)	(0.0123)	(0.00856)	(0.0121)
ln(time TC)			-0.0262**	-0.0191	-0.0230**	-0.0151
			(0.0101)	(0.0219)	(0.0108)	(0.0198)
ln(effort TC)			0.0336	0.0530	0.0273	0.0526
			(0.0389)	(0.0721)	(0.0393)	(0.0727)
ln(frequency of trade)			0.0247*	0.0427**	0.00858	0.0492**
			(0.0129)	(0.0182)	(0.0143)	(0.0199)
ln(max. days price is fixed)			-0.00586	-0.00735	-0.00474	-0.00781
			(0.0129)	(0.0127)	(0.0119)	(0.0113)
ln(sell. price)			0.894***	0.922***	0.884***	0.903***
			(0.0223)	(0.0174)	(0.0201)	(0.0202)
ln(veg. self produced)			-0.0156	-0.0167	-0.0102	-0.0165
			(0.0119)	(0.0129)	(0.0115)	(0.0128)
Supplier is farming			-0.0760***	-0.0652	-0.0459*	-0.0596
			(0.0249)	(0.0413)	(0.0230)	(0.0415)
Business type; base group: green grocers						
Trader/broker to supermarket			0.0924	-0.00317	0.0466	0.0197
			(0.0687)	(0.104)	(0.0721)	(0.130)
Trader at wet market			0.0185	-0.0337	-0.0129	-0.0347
			(0.0648)	(0.0922)	(0.0588)	(0.0878)
Other trader			-0.146	-0.191	-0.110	-0.162
			(0.155)	(0.151)	(0.164)	(0.157)
Store structure; base group: no fixed structure						
Wood, plastic structure			0.0323	0.0382	0.0158	0.0152
			(0.0202)	(0.0361)	(0.0185)	(0.0318)
Fixed, cemented			0.0705	0.0627	0.0710	0.0368
			(0.0462)	(0.0884)	(0.0519)	(0.0849)
Tribe of supplier; base group: Kikuyu						
Kamba			0.0434	0.175**	0.0375	0.140*
			(0.0388)	(0.0643)	(0.0400)	(0.0724)
Kisii			0.298***	0.315***	0.280***	0.342***
			(0.0699)	(0.0714)	(0.0714)	(0.0701)
Other			-0.0107	0.0592	-0.00528	0.0509
			(0.0415)	(0.0710)	(0.0394)	(0.0867)
ln(share of veg. from supplier)					0.0133	0.000603
					(0.0151)	(0.0213)
ln(years buying from supplier)					0.0200	0.0152
					(0.0129)	(0.0232)
ln(suppliers per month)					-0.0236	0.0200
					(0.0188)	(0.0249)
ln(years in veg. trade)					-0.00231	-0.0121
					(0.0141)	(0.0189)
ln(veg. sales/total sales)					0.00545	0.0158
					(0.0316)	(0.0348)
ln(age respondent)					0.0332	0.0656
					(0.0566)	(0.0618)
ln(age supplier)					0.0471	0.0645

					(0.0375)	(0.0590)
Tribe of trader; base group: Kikuyu						
Kamba					-0.0261	0.0283
					(0.0298)	(0.0518)
Kisii					-0.0153	0.0222
					(0.0425)	(0.0625)
Other					0.0115	0.0409
					(0.0287)	(0.0416)
Close family					-0.0165	-0.121
					(0.121)	(0.231)
Extended family (other HH)					-0.0398	-0.286**
					(0.185)	(0.130)
Friend					-0.0434	-0.0363
					(0.0503)	(0.0742)
Partner in other business					-0.0813	-0.273
					(0.170)	(0.181)
Same village					-0.237**	-0.180
					(0.101)	(0.113)
Other relationship; base group: None						
Married					-0.000374	-0.0576
					(0.0244)	(0.0333)
Widow/Widower					-0.0533	-0.113
					(0.0850)	(0.0895)
Divorced					-0.0175	-0.0862**
					(0.0415)	(0.0406)
Seperated/Deserted					-0.0287	-0.218**
					(0.0621)	(0.100)
Home county of supplier; base group: Other counties						
Kajiado					0.00806	0.0330
					(0.0696)	(0.142)
Kiambu					0.0527	0.0254
					(0.0846)	(0.121)
Nairobi					0.111	0.0421
					(0.0711)	(0.131)
Nyandarua					0.0171	0.0329
					(0.0835)	(0.140)
Constant	1.493***	1.519***	-0.416**	-0.549*	-0.699*	-1.067**
	(0.0838)	(0.0965)	(0.156)	(0.266)	(0.359)	(0.470)
Vegetable	x	x	x	x	x	x
Market			x	x	x	x
Observations	808	808	808	808	808	808

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the received price on the gender of the supplier and controls. Unweighted columns use the unweighted data, weighted columns use the entropy weights. Standard errors are clustered on the market level.

Table 21: Regression of the price received by the supplier considering non-linear heterogeneity over traded quantities

	Unweighted Veg. only ln(u. price)	Weighted Veg. only ln(u. price)	Unweighted Few contr. ln(u. price)	Weighted Few contr. ln(u. price)	Unweighted Full contr. ln(u. price)	Weighted Full contr. ln(u. price)
Female supplier	-0.345	-0.270	-0.113	0.0438	-0.118	0.0486
	(0.277)	(0.262)	(0.101)	(0.144)	(0.0960)	(0.126)
ln(quantity)	-0.0853*	-0.0399	-0.0313*	-0.0254	-0.0296*	-0.0456
	(0.0412)	(0.0960)	(0.0157)	(0.0378)	(0.0171)	(0.0406)
Female supplier*ln(quantity)	0.127*	0.0814	0.0364	0.0102	0.0362	0.0153
	(0.0620)	(0.0718)	(0.0290)	(0.0514)	(0.0235)	(0.0426)
$\ln(\text{quantity})^2$	0.00268	0.00163	0.000733	0.00222	0.000958	0.00393
	(0.00520)	(0.0120)	(0.00150)	(0.00398)	(0.00157)	(0.00363)
Female supplier*$\ln(\text{quantity})^2$	-0.0146**	-0.0135	-0.00242	-0.00238	-0.00237	-0.00301
	(0.00632)	(0.0103)	(0.00338)	(0.00521)	(0.00285)	(0.00430)
Male trader			-0.00454	0.0177	-0.00433	-0.00104
			(0.0152)	(0.0218)	(0.0149)	(0.0254)
Observations	808	808	808	808	808	808

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the received price on the gender of the supplier, including an interaction taking into account differences over traded quantities. All regressions contain an interaction between the gender of the supplier and the vegetable dummies. Standard errors are clustered on the market level.

Table 22: Regression of the price received by the supplier considering rural-urban heterogenity

	Unweighted Veg. only ln(u. price)	Weighted Veg. only ln(u. price)	Unweighted Few contr. ln(u. price)	Weighted Few contr. ln(u. price)	Unweighted Full contr. ln(u. price)	Weighted Full contr. ln(u. price)
Female supplier	-0.0492	-0.0125	-0.0135	-0.0307	-0.0226	-0.0140
	(0.0598)	(0.0726)	(0.0226)	(0.0307)	(0.0224)	(0.0277)
Rural market	-0.148*	-0.197**	-0.119***	-0.228***	-0.0549	-0.200***
	(0.0748)	(0.0900)	(0.0356)	(0.0499)	(0.0365)	(0.0409)
Female supplier*Rural market	0.0443	0.0951	0.00783	0.125*	0.0150	0.108*
	(0.0890)	(0.112)	(0.0367)	(0.0703)	(0.0338)	(0.0582)
Male trader			0.000244	0.0340	0.00100	0.0260
			(0.0164)	(0.0228)	(0.0160)	(0.0244)
Observations	808	808	808	808	808	808

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the received price on the gender of the supplier, including an interaction with the rural location of the market. Standard errors are clustered on the market level.

Table 23: Regression of the price received by the supplier considering heterogeneity over gender of the supplier

	Unweighted Veg. only ln(u. price)	Weighted Veg. only ln(u. price)	Unweighted Few contr. ln(u. price)	Weighted Few contr. ln(u. price)	Unweighted Full contr. ln(u. price)	Weighted Full contr. ln(u. price)
Female supplier	-0.0572	0.0261	-0.00345	0.0487	-0.0105	0.0550
	(0.0665)	(0.0759)	(0.0251)	(0.0409)	(0.0260)	(0.0370)
Male trader	0.0497	0.0548	0.00872	0.0657*	0.00744	0.0513
	(0.0797)	(0.109)	(0.0222)	(0.0362)	(0.0214)	(0.0340)
Female supplier*Male trader	0.0364	0.0483	-0.0253	-0.0690	-0.0198	-0.0615
	(0.102)	(0.0997)	(0.0342)	(0.0559)	(0.0323)	(0.0449)
Observations	808	808	808	808	808	808

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Regression of the received price on the gender of the supplier, including an interaction with the trader's gender. Standard errors are clustered on the market level.

B Appendix of survey tools

B.1 Questions taken from the World Values Survey

The following questions have been taken from World Values Survey Association (2015) and the scale has been expanded:

Do you agree, disagree or neither agree nor disagree with the following statements? (Where 1 is strongly disagree and 7 strongly agree)

- When jobs are scarce, men should have more right to a job than women
- When jobs are scarce, employers should give priority to people of this country over immigrants
- If a woman earns more money than her husband, it's almost certain to cause problems
- Having a job is the best way for a woman to be an independent person

For each of the following statements I read out, can you tell me how strongly you agree or disagree with each? (Where 1 is strongly disagree and 7 strongly agree)

- One of my main goals in life has been to make my parents proud
- When a mother works for pay, the children suffer
- On the whole, men make better political leaders than women do
- A university education is more important for a boy than for a girl
- On the whole, men make better business executives than women do
- Being a housewife is just as fulfilling as working for pay

B.2 Self developed value questions

The following questions have been developed only for the given survey:

Some people say that certain groups are better farmers, who provide better quality vegetables. Would you agree that this is the case for one of the following groups? (Where 1 is strongly disagree, 4 is no influence, and 7 is strongly agree)

- Farmers who have one acre are better than those with 10 acres
- Men are better than women
- Kikuyu are better vegetable farmers

In the same way some people say that certain groups are better business partners in vegetable trade. Would you say that this is the case for one of the following groups? (Where 1 is strongly disagree, 4 is no influence, and 7 is strongly agree)

- Farmers who have one acre are better than those with 10 acres
- Men are better than women
- Kikuyu are better vegetable farmers