universität wien

MASTERARBEIT / MASTER'S THESIS

Titel der Masterarbeit / Title of the Master's Thesis

„Fair Trade: a New Power to the Economy? Evaluating the Impact of Fair Trade on GDP per capita"

verfasst von / submitted by

Oleksandra Cheipesh

angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of

Master of Science (MSc)

Wien, 2019 / Vienna 2019

Studienkennzahl lt. Studienblatt / degree programme code as it appears on the student record sheet:	UA 066 913
Studienrichtung lt. Studienblatt / degree programme as it appears on the student record sheet:	Masterstudium Volkswirtschaftslehre
Betreut von / Supervisor:	Univ.-Prof. Dipl.-Ing. Dr. Robert Kunst

Acknowledgements

I would like to thank my supervisor Univ.-Prof. Dipl.-Ing. Dr. Robert Kunst for teaching me Econometrics from the first to the last day at the University of Vienna. I am very grateful for his patience and support. I also want to express my gratitude to Univ.-Prof. Dr. Nikolaus Hautsch for his superb lectures and to Dr. Omar Bamieh, Dr. Lennart Ziegler and Dr. Iacopo Morchio for their continuous willingness to help.

I am very grateful to Univ.-Prof. Dipl.-Vw. Monika Gehrig-Merz for motivating me to grow and overcome my barriers. And last but not least I want to thank my parents for their support and Roman Rudenko for proof-reading.

Contents

List of Tables

List of Figures

1 Introduction

Several recent studies have shown that there is a positive link between better working conditions and economic growth (Bonnal, 2010; Grimshaw et al., 2017). However, according to the International Labor Organization, there are still huge gaps in global employment. In 2016, there were about 16 Million forced workers [1], 11% of them worked in agriculture, mostly in Africa and Asia. Incidence of child labor is 1 out of 10 children worldwide and 1 out of 5 children in Africa. Moreover, in low-income countries, 40% of workers were "working poor" in 2016, meaning that they earned less than 1.9$ per day (ILO). Additionally, data on safety at work for developing countries is limited, which does not allow to assess trends in working conditions and cases of fatalities at work.

According to the Fair Trade (FT) Organization, FT aims to improve bad working conditions and lives of the farmers (Fair Trade International). To get a Fair Trade certification, companies should fulfill the following main standards:

- No child or forced labor: it is forbidden to hire children under 15 years and children under 18 cannot be employed in dangerous work
- Pay the workers Fair Trade minimum price: workers get a stable price when the world prices are low and get the same price or higher when the world prices are high
- Health and safety standards approved by ILO
- Reduce green house gas emission and carbon sequestration

Additionally, Fair Trade farmers should acquire Fair Trade Premium: money which is given to farmers for different social projects, such as building schools, improving health care system, etc.

One could argue that the initiative transforms the lives of the farmers to the better, however, as any other intervention, Fair Trade may lead to several externalities, both positive and negative. Ruben et al. (2009) pointed out that although most of the studies estimate the effect of Fair Trade by comparing FT and non-FT farmers, it might be interesting to evaluate spillovers that Fair Trade may lead to.

While Ruben et al. (2009) emphasize that Fair Trade creates the incentives for non-FT companies to create better contracts and pay higher wages, the critique of Fair Trade (LeClair, 2002; Mann, 2008) claims the exact opposite, particularly that due to increased demand for Fair Trade products, the demand for conventional products will fall and this will have a negative effect on wages and working conditions of non-FT farmers.

From empirical evidence we see that one of the positive externalities is the Responsible Sourcing Audit program launched by several international companies in recent years, e.g. by Nestlé in 2010, by Coca Cola in 2012 and by Unilever in 2014. The aim of this program

[1] Forced workers are people who are forced work against their will under threat of punishment

is to check whether suppliers comply with certain standards, which are not as strict as FT standards regarding floor prices but do not allow forced or child labor nor unsafe working conditions. If suppliers do not comply with these standards, they should take measures to improve the situation and then get the certification.

Another important positive externality is the above mentioned Fair Trade Premium, which is mostly invested in roads construction and education.

Yet there is also evidence against Fair Trade. For instance, (Getz and Shreck, 2006) in their qualitative study claimed that Fair Trade resulted in higher inequality in the community and had a negative effect on non-FT farmers.

However, although the effect of Fair Trade on the whole economy is worth attention, the research in this area is quite scarce. Although qualitative and case studies help us to understand the reasons why Fair Trade may or may not have positive effects, until now there is only one paper (Nindl, 2014) which carries out cross-country comparisons of Fair Trade and estimates the effects of Fair Trade on GDP growth econometrically.

In this master thesis we estimate the effect of Fair Trade on GDP per capita. The master thesis is structured as follows: in the second section we review the literature on Fair Trade, in section three we describe the empirical model and data, in section four we justify the appropriate estimation method and describe the results, in section five we address model limitations and potential extensions and section six concludes.

2 Literature Review

To understand the potential impact of Fair Trade on GDP per capita, we analyze Fair Trade on three levels: micro-, community- and macro-level.

The main claim of the Fair Trade Organization is that it ensures that their employees get a "fair" salary and have better access to medical care. Indeed, Krumbiegel et al. (2016) reported that Fair Trade farmers in Ghana have better working conditions, higher salary, job satisfaction and engagement in labor unions which increases workers' bargaining power. Becchetti and Costantino (2008) also found that Fair Trade has a positive effect on earnings, child mortality and dietary habits. Similar findings were reported by Arnould et al. (2009) who interviewed randomly selected FT and non-FT farmers in Nicaragua, Peru, and Guatemala and found that Fair Trade certification has a significant positive impact on educational attainment, health attainment and receiving treatment as well as on coffee prices and volume sold by family.

However, Ruben et al. (2009) concluded that the difference in income of FT and non-FT farmers in Peru and Costa Rica was small or negative. The reasons for that could be insufficient sales of Fair Trade products on the appropriate market, meaning that some share of Fair Trade products were sold at conventional prices. Valkila (2009), who conducted a survey in Nicaragua, also claimed that although Fair Trade increased the salary of organic

low-intensity FT farmers, the increase was so small that it did not help the farmers to escape from poverty. Ruben and Fort (2012) found different effects on wages depending on the matching method used, but FT farmers made significantly more house improvements and land-attached investments. These findings are supported by Henderson (2008), who claimed that farmers do not benefit much from high Fair Trade prices, because of the mechanism of premium distribution to farmers and co-operatives and high fees firms should pay for the certification. Sidwell et al. (2008) argued that only about 10% of premium prices go directly to the farmers.

The results become even more controversial when we consider the community level. Ruben et al. (2009) pointed out that the effect of externalities caused by Fair Trade needs more research. The authors claimed that conventional farmers also benefit from Fair Trade, because FT prices serve as regional floor prices. However, LeClair (2002) admitted that Fair Trade may result in decreasing demand for conventional products and even lower world prices. In their discussion papers, Goodman (2004) and Stoddart (2011) pointed out that Fair Trade does not target those most in need and divides farmers into winners and losers. The same problem was addressed by Mann (2008) who claimed that due to the high entry barriers, Fair Trade cannot fully promote equality and "fairness".

Critical investigation of Fair Trade was also done by Getz and Shreck (2006) who analyzed two case studies in Mexico and Dominican Republic and argued that FT certification led to negative externalities in Mexico, such as increased inequality in the community and cutting off non-FT farmers from the export market. The authors also pointed out that Fair Trade farmers in Dominican Republic were even not aware of the fact that they belonged to certified farmers and took part in something "fair".

Regarding the whole economy, Sidwell et al. (2008) argued that Fair Trade has a negative effect on economic development because it hinders diversification and mechanization, which obviously has a negative impact on efficiency.

The above mentioned studies either employed a qualitative approach or a comparison between FT and non-FT farmers. Although they provide insights on the potential impact Fair Trade may have on the whole economy, a quantitative heterogeneous research is needed to support the discussion and particular case studies' conclusions. The only article on estimating the macro-economic effect of Fair Trade econometrically is a paper by Nindl (2014). The author argued that Fair Trade does not target the poorest countries but found a positive effect of FT on agricultural GDP per capita growth. Because of an even higher lack of data at that time, however, Nindl (2014) used the number of Fair Trade Organizations as a proxy for FT scale. Considering that there are some Fair Trade Organizations with only several farmers while others have a lot of employees, this proxy may be improved.

Similar to Nindl (2014), we study the effect of Fair Trade on GDP per capita but with another measure of FT scales (ratio of Fair Trade farmers over the total number of farmers) and other covariates. We investigate the effect on both total and agricultural GDP per capita.

3 Empirical Model and Data Description

Since the impact of Fair Trade was studied mainly on the micro level, our choice of the controls is built on Burnside and Dollar (2000), Rajan and Subramanian (2008) and Clemens et al. (2012), who study the effect of aid on economic growth. The papers include the Sachs-Warner index for policy and institutional quality as covariates. Our model includes slightly different controls both for the reasons of higher data availability and differences in nature between international aid and Fair Trade. The effectiveness of international aid depends strongly on the public sector, while the effectiveness of Fair Trade on the private sector. The model looks as follows (1):

$$Y_{it} = \alpha + \beta_1 Y_{i,t-1} + \beta_2 FT_{it} + \beta_3 FT_{i,t-1} + \beta_4 RQ_{it} + \beta_5 TO_{it} + \beta_6 PS_{it} + \beta_7 RQ_{it} \times FT_{it} + \epsilon_{it} \quad (1)$$

Subscript i denotes country and subscript t stands for time, $\epsilon_{it} = \mu_i + \lambda_t + \nu_{it}$ where μ_i denotes country effects and λ_t stands for time specific effects, i.e. year dummies. Time dummies can be justified because of the stock market crisis in China in 2015, which could potentially have an effect on most countries in the sample due to trade and other kinds of relationships between China and other countries. Y_{it} and $Y_{i,t-1}$ are the logarithms of GDP per capita in current US dollars in periods t and $t-1$, taken from The World Bank. The variables of interest are FT_{it} and $FT_{i,t-1}$ which denote the share of Fair Trade farmers in period t and $t-1$. It is calculated as a ratio of FT farmers to the total number of farmers in a country and is used as a proxy for Fair Trade scale.

The way of including the lagged variables was extensively discussed in the aid-growth literature. Although Hansen and Tarp (2001) used lagged aid as an instrument, Clemens et al. (2012) questioned that approach because of its possible direct effect on GDP per capita. The authors showed that including lagged aid as a covariate may substantially change the results. In our case, we believe that the lagged share of FT farmers is not only correlated with the current share of FT farmers, but also directly influences GDP per capita. The data on the number of Fair Trade farmers come from Fair Trade International reports, while the total number of farmers from the International Labor Organization.

Controls include trade openness (TO_{it}) i.e., export plus import divided by total GDP, The World Bank indicator, and indexes for political stability (PS_{it}) as well as regulatory quality (RQ_{it}) from The Worldwide Governance indicators. Trade openness and Fair Trade may be correlated in two ways. First, companies with low export rates may want to implement Fair Trade to better appeal to international buyers. Second, companies in more open economies may be more likely to certify their products because of the already established relationships with their partners and the assurance that Fair Trade products will be sold at the appropriate market (not at conventional prices, as was mentioned by Ruben et al. (2009)).

The last two controls are continuous variables from 1 to 100, where 1 is the worst outcome. They were chosen among six Worldwide Governance indicators as those which are related to the private sector the most. Regulatory quality indicates the ability of the government to

create the appropriate environment for private sector development. If regulatory quality is high, it is easier to start a new business and competition practices are fair. That is why we believe that companies are more likely to implement Fair Trade certification in countries with strong regulatory quality. Political stability captures the likelihood of a civil war, terrorism or other kinds of political conflicts. We believe that similar to regulatory quality, companies in countries with higher political stability are more likely to certify their products. The above mentioned controls have very little variation within the countries, (appendix table B) which is why we do not include their lags. To explore heterogeneous effects we include an interaction variable between regulatory quality and FT in period t.

Before data cleaning, the data set includes 129 countries, which are current or potential Fair Trade countries, namely all countries excluding high income, G8 and EU countries (Fair Trade International) over seven years, from 2010 until 2016. For some years, the data on GDP per capita and/or trade openness was not available. A country was excluded from the analysis if the data on GDP per capita for at least one year was missing. This is because the data was not available for those time frames when political stability of the countries decreased dramatically, which made the interpolation procedure impossible. The same was done if the data on trade openness was not available for more than three years. For these reasons, six countries were excluded from the sample, however, the change of the main statistics of GDP per capita after data cleaning was quite small, see table 1.

Table 1: Descriptive statistics of GDP per capita before and after data cleaning

	Mean	Median	Std. Dev.	Min	Max
GDP_raw	3834.22	3047.95	3296.80	231.80	21557.65
GDP_cleaned	3806.77	3117.33	3234.67	231.80	21557.65

Table 2 shows main descriptive statistics by FT status. The average GDP per capita in the sample before excluding FT countries with no data is about 3806 current US dollars, which equals to the GDP per capita of a middle income country, following the World Bank classification on GNI per capita. Countries which have at least one Fair Trade certified company have lower average, median, minimum and maximum GDP per capita, which can be explained by the fact that Fair Trade International first aimed to help farmers in the poorest countries to have better working conditions (Fair Trade International). Fair Trade countries also have lower political stability and trade openness, which is why companies in those countries may want to implement Fair Trade in the first place to look more attractive in the international arena and to increase their trade. However, regulatory quality is slightly higher in FT countries. The distribution of the logarithm of per capita GDP by FT status is depicted in figure 1.

As the information of FT farmers is available only on 19 out of 74 FT countries, we compare FT countries with and without data. As can be seen from table 2, those with

Table 2: Descriptive statistics of the variables by FT status

	Mean	Median	Std.Dev.	Min	Max
Total					
GDP per capita	3806.77	3117.33	3234.67	231.80	21557.65
Regulatory quality	35.56	35.89	19.94	0.48	83.65
Political stability	36.36	33.81	23.35	0.47	98.58
Trade openness	81.27	76.69	32.52	0.18	184.69
Not FT					
GDP per capita	4441.77	3740.43	3533.33	337.48	21557.65
Regulatory quality	32.77	29.86	21.22	0.48	81.73
Political stability	40.73	36.26	25.80	0.48	98.58
Trade openness	92.83	95.48	32.32	0.18	170.77
FT total					
GDP per capita	3294.97	2170.65	2875.57	231.80	13167.47
Regulatory quality	37.81	38.94	18.56	1.90	83.65
Political stability	32.84	30.48	20.53	0.47	92.86
Trade openness	72.14	65.70	29.67	22.52	184.69
FT with data					
GDP per capita	3771.72	1987.98	3527.21	300.31	13167.47
Regulatory quality	46.94	47.12	14.43	11.54	70.62
Political stability	30.08	25.59	16.55	5.69	70.14
Trade openness	56.48	52.78	18.44	22.52	115.18
FT with no data					
GDP per capita	3106.25	2290.70	2554.14	231.80	10153.94
Regulatory quality	34.19	33.89	18.78	1.90	83.65
Political stability	33.93	32.54	21.84	0.47	92.86
Trade openness	78.29	74.47	30.98	22.85	184.69

Table 3: Within and between variation of FT scale

	Mean	Median	Std. Dev.	Min	Max
Overall	1.755908	.9352352	2.363635	.0411877	11.43369
Between			2.371368	.0607145	9.906184
Within			.4679661	-1.611342	3.283411

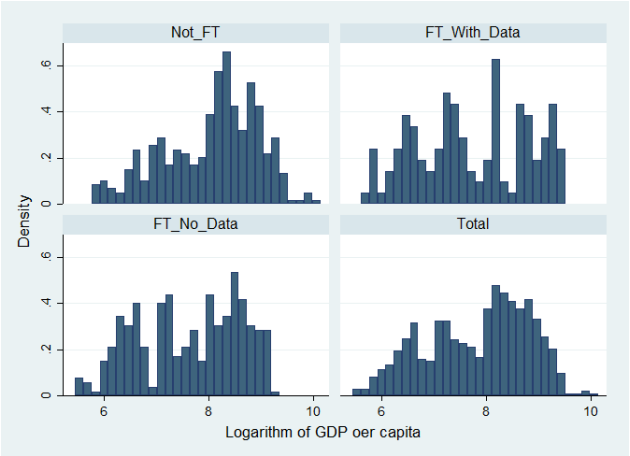

Figure 1: Log of GDP per capita by FT status

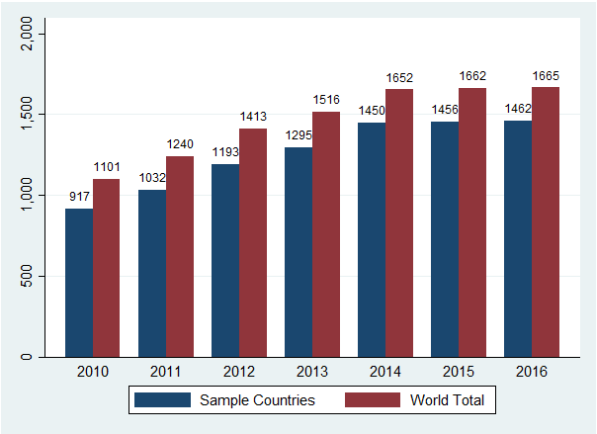

Figure 2: Total FT farmers by year

available information have slightly lower indicators for trade openness and political stability, but are on average richer and have higher regulatory quality. The median GDP per capita of FT countries without data is slightly higher, which shows that the variation in mean comes mostly because of several countries being in the right tail of the distribution.

The number of FT farmers in the sample countries represents about 90% of all FT farmers (figure 2). Moreover, since the data was available on those countries which have the highest number of farmers, and even their share is quite small (see table 3), the share of FT farmers in those countries with no data would be close to zero, which justifies the usage of the cleaned data. After final data cleaning, the sample is reduced to 73 countries, 19 of which are FT countries.

Data on FT farmers for 2015 was not available on country level and on some countries data for 2016 was missing. That is why missing values were interpolated and extrapolated, but according to the Fair Trade International reports, the change in Fair Trade countries in 2015 and 2016 was very small, which makes the interpolation procedure possible. Overall, the number of FT farmers experienced a gradual increase from 2010 to 2014, and then stayed almost the same, see figure 2.

Table 3 reports the share of Fair Trade farmers in FT countries. The maximum share of FT farmers is nearly 11%, while the minimum is about 0.04%. The variation between countries is quite high and there is also variation within countries. The median FT scale is about 0.94%, meaning that in most of the FT countries, the share of FT farmers is quite low.

4 Estimation Strategy and Results

Clemens et al. (2012) suggest two procedures to improve the results in the case of aid-growth models. First of all, they used lagged aid as a regressor and then first differenced the equation. Once-lagged difference in GDP per capita served as an instrument for the

contemporaneous difference in GDP per capita, known as Anderson-Hsiao estimate. Clemens et al. (2012) claim that the reason for not using more efficient GMM estimators is the absence of a possibility to test for weak instruments. Although there is still no formal test for the weak instruments in GMM estimators, relying on the previous studies by Arellano and Bond (1991), Blundell and Bond (1998) and Hayakawa (2007) we have chosen GMM and system GMM as estimators of interest.

System GMM (SYS GMM) is known as an estimator with the smallest finite sample bias compared to other estimators in persistent series. However, the results were established by Blundell and Bond (1998) under a specific data generating process, where $\sigma_\mu^2 = \sigma_v^2$. As shown by Bun and Windmeijer (2010) and Hayakawa (2007), the bias of SYS GMM increases if $\frac{\sigma_\mu^2}{\sigma_v^2}$ goes up. Therefore, both the results of DIF GMM and SYS GMM as well as $p-value$ of the Anderson and Rubin test for GMM estimators, which is robust to weak instruments (Stock and Wright, 2000), are reported. We also check whether the results change after reducing the number of instruments to two lags and whether low regulatory quality may hinder the effect of Fair Trade. Moreover, although Clemens et al. (2012) did not use any instruments for aid in the previous settings, we also compare the results of the FT share coefficient before and after using GMM type instruments for Fair Trade share.

Table 4 reports the coefficients for the regressions, where only the logarithm of per capita GDP is instrumented. Half of the results are obtained with system GMM and another half with difference GMM. Table 5 shows the system GMM estimates when the number of lags as instruments is reduced to two (columns 1 and 2) and when FT share is also instrumented in the GMM framework (columns 3-8). Columns 5 and 6 in table 5 are obtained by re-estimating columns 3 and 4 through reducing the number of lags in the instrument set to two. Columns 7 and 8 are same as columns 5 and 6 but with less controls.

As can be seen from table 4, the Sargan/Hansen tests reject the null of valid instruments, however, the tests may be weakened by a large number of instruments. When we decreased the number of lags in the instrument set to two, the tests failed to reject the null. Furthermore, the Arellano-Bond AR(2) test fails to reject the hypothesis of no first-order serial correlation in levels at the 5% significance level, which is a good sign, because otherwise the instrument set would be invalid.

As discussed before, we also ran the Anderson and Rubin test for GMM estimators. The null hypothesis of the test is $\beta_1 = \beta_0$ and $E(Z'u) = 0$, where β_0 is the true coefficient of the endogenous regressor, and Z is the instrument set. In half of the cases where only the logarithm of per-capita GDP is instrumented, the AR test rejects the null hypothesis at the 5% significance level (columns 3, 4, 7 and 8). This means either that the instruments are endogenous or β_1, the coefficient of the lagged logarithm of GDP per capita, is not correctly identified. However, the AR test fails to reject the null in all cases where both the FT share and the lagged dependent variable are instrumented.

Having established potential problems in the estimates, we can start analyzing the coefficients. First of all, we can see that we are dealing with highly persistent series, since the

coefficient of the lagged logarithm of per capita GDP is in the range of (0.7,0.88), which is in line with macroeconomic theory. As shown by previous studies of Blundell and Bond (1998) and Hayakawa (2007), the coefficients of the lagged dependent variable estimated with difference GMM are lower than those estimated with system GMM.

As can be seen in tables 4 and 5, when the model is estimated with System GMM, the coefficient of Fair Trade and lagged Fair Trade changes by about 50% if we exclude political stability and trade openness, which shows that variables add additional information to the model. Furthermore, since after excluding the above mentioned controls the standard errors of the coefficients of interest did not decrease significantly, the models with full sets of covariates are preferred.

The coefficients of FT share are mostly small and insignificant, even after instrumenting the variable of interest in the GMM framework. The exceptions are the estimates of FT share estimated with system GMM after adding the interaction term between FT share and regulatory quality (columns 5 and 6, table 4). In these cases the coefficient is negative and significant at the 5% significance level. And although the coefficient of the interaction term is positive and significant at the 5% significance level, it is so small that it would be very unlikely for high regulatory quality to outweigh the negative effect of Fair Trade. In particular, regulatory quality would need to increase by about 60-70 points to outweigh the negative effect, which could potentially only happen in a few countries in the sample within a very long time period. In this model specification, the AR test failed to reject the null of the correct identification of β_1 and validity of the instruments.

However, after instrumenting FT share (table 5, columns 3-8), the AR test failed to reject the joint hypothesis of the exogeneity of the instruments and correct identification of the coefficients of FT share and lagged dependent variable, and this shows that even if the impact of Fair Trade is negative, it is very likely to be smaller than 15%. Indeed, the negative effect of 20% and 12% are the lower bounds of the estimates at the 95% confidence interval in table 5 in columns 5 and 6 respectively, with a positive effect of 6% being an upper bound (it can be seen that the coefficients in columns 3 and 5 as well as 4 and 6 are similar, so due to a small number of groups i.e., 73 countries, we analyze the model with fewer instruments).

Although it may seem as a big effect on GDP per capita, considering the average Fair Trade share (1.8) as well as median value (0.94.), we can see that 1 point increase in FT scales would more than double the median and would increase the average value by 50%. This means that such an increase in Fair Trade scales would be very unlikely, especially taking into account that the rise of Fair Trade scales has flattened in the last four years. For those reasons we can say that the coefficient is close to zero. The same applies for the coefficients of the lagged share of FT, they lie in the range from -3% to 15%.

This means that Fair Trade does not have any significant effect on GDP per capita. However, it is an open question why no effects of Fair Trade are observed. One potential explanation which would be the most obvious is that the Fair Trade share is so low that

Table 4: Results: Panel A

	(1) SYS	(2) SYS	(3) DIF	(4) DIF	(5) SYS	(6) SYS	(7) DIF	(8) DIF
L.log_GDP	0.825***	0.804***	0.720***	0.663**	0.814***	0.788***	0.714***	0.657**
	(0.0495)	(0.0629)	(0.194)	(0.205)	(0.0529)	(0.0658)	(0.192)	(0.205)
FT share	-0.0102	-0.0171	0.0483	0.0470	-0.113*	-0.162*	0.0914	0.0933
	(0.0148)	(0.0212)	(0.0352)	(0.0350)	(0.0520)	(0.0682)	(0.0894)	(0.0890)
L.FT share	0.0165	0.0219	0.00440	0.00629	0.0178	0.0236	0.0101	0.0125
	(0.0134)	(0.0158)	(0.00816)	(0.00890)	(0.0128)	(0.0187)	(0.0107)	(0.0116)
Regulatory quality	0.00276**	0.00361*	-0.00110	-0.00115	0.00285**	0.00372**	-0.000879	-0.000904
	(0.00102)	(0.00137)	(0.00143)	(0.00129)	(0.00106)	(0.00139)	(0.00153)	(0.00138)
Political stability	0.00183*		0.000527		0.00177*		0.000548	
	(0.000729)		(0.000983)		(0.000753)		(0.000981)	
Trade Openness	0.000429		-0.00207*		0.000460		-0.00206*	
	(0.000596)		(0.000929)		(0.000628)		(0.000933)	
FT#Regulatory quality					0.00166*	0.00234*	-0.000911	-0.000981
					(0.000781)	(0.00102)	(0.00150)	(0.00151)
_cons	1.211***	1.451**			1.301***	1.581**		
	(0.346)	(0.472)			(0.375)	(0.500)		
N	438	438	365	365	438	438	365	365
# of instruments	31	29	25	23	32	30	26	24
Arellano and Bond AR(1) p-value	0.028	0.025	0.003	0.001	0.031	0.030	0.003	0.001
Arellano and Bond AR(2) p-value	0.231	0.207	0.214	0.164	0.232	0.232	0.215	0.164
Sargan test p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Hansen test p-value	0.012	0.012	0.015	0.010	0.013	0.012	0.014	0.009
Anderson and Rubin test p-value	0.0535	0.0991	0.0422	0.0474	0.0939	0.0862	0.0406	0.0013

1) Standard errors in parentheses; 2) * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; 3) Time dummies are included

Table 5: Results: Panel B

	(1) SYS	(2) SYS	(3) SYS	(4) SYS	(5) SYS	(6) SYS	(7) SYS	(8) SYS
L.log_GDP	0.884***	0.876***	0.834***	0.838***	0.895***	0.889***	0.902***	0.893***
	(0.0514)	(0.0549)	(0.0481)	(0.0482)	(0.0475)	(0.0496)	(0.0451)	(0.0515)
FT share	-0.00990	-0.0691	-0.0476	-0.0301	-0.0686	-0.0270	-0.106	-0.0714
	(0.00973)	(0.0443)	(0.0579)	(0.0642)	(0.0648)	(0.0483)	(0.0687)	(0.0596)
L.FT share	0.0161	0.0169	0.0572	0.0620	0.0681	0.0351	0.107	0.0468
	(0.00888)	(0.00883)	(0.0516)	(0.0516)	(0.0628)	(0.0426)	(0.0667)	(0.0420)
Regulatory quality	0.00185*	0.00192*	0.00257**	0.00248*	0.00182*	0.00174*	0.00207*	0.00200*
	(0.000871)	(0.000899)	(0.000924)	(0.000957)	(0.000813)	(0.000837)	(0.000908)	(0.000967)
Political stability	0.00138*	0.00136*	0.00176*	0.00173*	0.00137*	0.00133*		
	(0.000572)	(0.000574)	(0.000717)	(0.000697)	(0.000542)	(0.000560)		
Trade Openness	0.000181	0.000204	0.000393	0.000408	0.0000288	0.000173		
	(0.000442)	(0.000464)	(0.000602)	(0.000566)	(0.000420)	(0.000435)		
FT#Regulatory quality		0.000954		-0.000316		0.0000132		0.000533
		(0.000683)		(0.000743)		(0.000622)		(0.000761)
_cons	0.808*	0.869*	1.149***	1.116**	0.737*	0.773*	0.725*	0.796*
	(0.355)	(0.385)	(0.334)	(0.339)	(0.327)	(0.343)	(0.334)	(0.385)
N	438	438	438	438	438	438	438	438
# of instruments	19	20	49	50	25	26	23	24
Arellano and Bond AR(1) p-value	0.024	0.024	0.025	0.027	0.026	0.024	0.027	0.024
Arellano and Bond AR(2) p-value	0.220	0.220	0.264	0.253	0.239	0.228	0.237	0.211
Sargan test p-value	0.645	0.672	0.000	0.000	0.717	0.623	0.507	0.397
Hansen test p-value	0.061	0.070	0.069	0.083	0.155	0.153	0.158	0.132
Anderson and Rubin test p-value	0.1014	0.1749	0.2142	0.2517	0.2430	0.2704	0.2541	0.2774

1) Standard errors in parentheses; 2) * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; 3) Time dummies are included

it cannot create huge spillovers. Another explanation could be that positive and negative externalities mentioned in the analyzed papers cancel each other out on average. This would either mean that there are winners and losers from Fair Trade in every country as argued by LeClair (2002), Goodman (2004) and Stoddart (2011) or there are both countries in which Fair Trade has a positive impact on GDP per capita through higher labor standards and thus higher GDP per capita (Ruben et al., 2009; Bonnal, 2010) and countries where Fair Trade had a negative effect on GDP per capita through decreased efficiency and quality in the agricultural sector (Sidwell et al. (2008)).

We can also see from the results that better regulatory quality does not increase the effect of Fair Trade. The coefficient of the interaction term is much smaller than the coefficient of Fair Trade even if we take into account that regulatory quality takes values from 1 to 100.

Next we change the dependent variable by agricultural GDP per capita, as analyzed by Nindl (2014), since if it is clear that international aid has an impact on total GDP per capita, it would be useful to check the effect of Fair Trade on agricultural GDP per capita. This is especially because we are looking at the short-term effect of Fair Trade, which means that benefits generated by Fair Trade premium are captured by the results.

To explore the effects, three countries, namely Libya, Nauru and Solomon Islands, had to be excluded from the sample because of no available data. Moreover, the data on three other countries was interpolated for three years out of seven.

Table 6 shows the results for the above mentioned model specification. In the first four columns, only the lagged logarithm of agricultural per capita GDP is instrumented, while in the last four columns both the lagged dependent variable and FT share are instrumented. The p-values of the Sargan/Hansen tests are much higher than before, even when the number of instruments is large, which of course does not guarantee that instruments are exogenous.

The current FT share has mostly a negative sign, but the coefficient is quite small and significant at the 5% significance level only in the first column. The lagged share of Fair Trade always has a positive sign, but it is significant at the 5% significance level only when it is not instrumented. When the FT share is instrumented and the interaction term is added, (table 6, column 6) the current and lagged FT share lie in the range [-.1313025 .1106497] and [-.0405635 .2173145] respectively which is similar to the previous model. However, since instrumenting a variable decreases the efficiency, we can say that it is possible that FT in period $t-1$ has a small positive effect on agricultural GDP per capita, because when the FT share was not instrumented, the coefficient was small but significant at the 5% significance level and increased after instrumenting FT. But again, similar to the previous model, considering the median or average Fair Trade share, the effect would be very small.

In general, the results are in line with the findings of Nindl (2014), who also found only very small effects of the number of Fair Trade producing organizations on agricultural GDP growth.

Table 6: Results for agricultural GDP per capita

	(1) SYS	(2) DIF	(3) SYS	(4) DIF	(5) SYS	(6) SYS	(7) SYS	(8) SYS
L.log_agricultural GDP	0.828***	0.867***	0.837***	0.865***	0.821***	0.843***	0.826***	0.845***
	(0.110)	(0.232)	(0.107)	(0.232)	(0.100)	(0.101)	(0.102)	(0.104)
FT share	-0.0192*	0.0220	-0.0225	0.0199	-0.0702	-0.0103	-0.0681	-0.0117
	(0.00946)	(0.0388)	(0.0362)	(0.0619)	(0.0496)	(0.0606)	(0.0492)	(0.0571)
L.FT share	0.0217*	0.0165*	0.0220*	0.0161	0.0693	0.0884	0.0729	0.0937
	(0.00918)	(0.00727)	(0.00909)	(0.0115)	(0.0473)	(0.0646)	(0.0478)	(0.0666)
Regulatory quality	0.000564	-0.00264	0.000511	-0.00266	0.000668	0.000478	0.001000	0.000831
	(0.000879)	(0.00221)	(0.000843)	(0.00235)	(0.000839)	(0.000810)	(0.000984)	(0.000981)
Political stability	0.00159	0.000470	0.00151	0.000471	0.00170	0.00154		
	(0.00112)	(0.00113)	(0.00107)	(0.00113)	(0.00106)	(0.00106)		
Trade openness	-0.000725	-0.00319*	-0.000690	-0.00319*	-0.000821	-0.000635		
	(0.000582)	(0.00128)	(0.000559)	(0.00128)	(0.000563)	(0.000559)		
FT#Regulatory quality			0.0000532	0.0000435		-0.00113		-0.00114*
			(0.000497)	(0.000981)		(0.000617)		(0.000525)
_cons	1.003		0.950		1.044	0.904	0.996	0.882
	(0.617)		(0.600)		(0.564)	(0.570)	(0.565)	(0.576)
N	420	350	420	350	420	420	420	420
# of instruments	31	26	32	26	49	50	47	48
Arellano and Bond AR(1) p-value	0.000	0.004	0.000	0.004	0.000	0.000	0.000	0.000
Arellano and Bond AR(2) p-value	0.810	0.759	0.804	0.759	0.847	0.856	0.703	0.734
Sargan test p-value	0.451	0.183	0.454	0.182	0.607	0.729	0.649	0.774
Hansen test p-value	0.408	0.250	0.436	0.249	0.251	0.416	0.301	0.219
Anderson and Rubin test p-value	0.2885	0.4673	0.2443	0.4653	0.4509	0.4522	0.1373	0.2747

1) Standard errors in parentheses; 2) * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; 3) Time dummies are included

5 Limitations and Possible Extensions

As discussed earlier, system and difference GMM estimators may both suffer from weak instruments, when σ_μ^2, the variance of country effects is higher than σ_v^2. As pointed out by Windmeijer (2010), this would not be surprising when we are dealing with country data. That is why an alternative instrumentation strategy would be helpful as a robustness check.

However, if Rajan and Subramanian (2008) could justify donor-recipient relationships as a valid (no direct impact on GDP) and strong instrument (highly correlated with the amount of aid), it is still an open question what makes the share of FT farmers in specific countries high comparing to other countries.

Nindl (2014) found that countries with high population density and rural area have a higher probability to impose Fair Trade. Being a former Spanish colony and catholic also increases the probability for a country to have more Fair Trade organizations. However, despite potentially strong instruments the above mentioned characteristics may likely have a direct impact on GDP per capita, especially population density and rural area.

It is also important to notice that the result applies only for 19 out of 74 FT countries with the largest number of FT farmers. Although, as mentioned earlier, the number of FT farmers in the sample represents about 90% of all FT farmers, increased sample size could change the results.

Changing the proxy for FT scales to ratio FT cultivated area over total cultivated area could also be a possible extension, however, the current data represented in the FT reports would not allow to use this proxy because such data is available only for three years.

Another caveat in the model is that the data on the institutional quality and political stability is quite noisy and the mentioned indicators are often criticized. Thomas (2010) claims that the indicators are suffering from a lack of evidence and Andrews (2010) argue that the indicators are aggregated too much. As an alternative to WGI indicators, Andrews (2010) suggest to use under-5 mortality rate adjusted by countries' income. But since we are mostly interested in the quality of private sector functioning and stability in the country, we believe that under-5 mortality rate would be a very rough proxy for the above mentioned characteristics. Instead, former colonial relationships or dummies for Spanish/French speaking countries could be added to the model.

Another limitation of the model is that it captures only short-term effects of Fair Trade, which means that benefits from building schools are not captured. It is also worth emphasizing that GDP per capita is only a proxy for countries' development. Other potential measures could be child mortality, secondary school completion rate or poverty/inequality measures. However, looking at these measures would decrease the sample size, as the data is not available for several countries.

6 Conclusion

Fair Trade is a complex process and there is still a debate on how it influences the whole economy. Ruben et al. (2009) claim that every farmer will be able to benefit from Fair Trade because it sets higher standards. Others argue that there is little fairness in Fair Trade (LeClair, 2002; Goodman, 2004; Stoddart, 2011; Mann, 2008; Sidwell et al., 2008). The critical papers point out that Fair Trade does not help the poorest, while conventional farmers as well as the whole economy in a country will only suffer from the initiative because of the decreased efficiency in agriculture and lower demand for conventional products.

Following aid-growth literature, we estimated the effect of Fair Trade on GDP per capita, which was previously done only by Nindl (2014), who found a small positive effect of Fair Trade on GDP growth. We used logarithm of (agricultural) GDP per capita as dependent varibales, while the variables of interest were Fair Trade share and lagged Fair Trade share. Trade openness, regulatory quality and political stability served as controls in our model. The final data set consisted of 73 countries, 19 of which were FT countries.

Relying on the methodological discussion papers by Blundell and Bond (1998),Hayakawa (2007) and Bun and Windmeijer (2010), we used system and difference GMM estimators to estimate the results.

We did not find any significant effects of Fair Trade on the logarithm of GDP per capita, even after considering lower and upper bounds of the 95% confidence interval of the estimates. When both Fair Trade share and lagged logarithm of GDP per capita were instrumented and interaction between Fair Trade share and regulatory quality was added to the model, lower and upper bounds of the 95% confidence interval of one-point increase in Fair Trade share corresponded to -12% and 6% impact on GDP per capita. However, since a one-point increase in Fair Trade share would double the median, we concluded that Fair Trade does not have any significant effect on GDP per capita. The same results were obtained for the lagged Fair Trade share.

Similar to Nindl (2014) we then changed the dependent variable into the logarithm of agricultural GDP per capita. And even after the change, no significant effect of Fair Trade share and lagged Fair Trade share were found. The finding is in line with the paper by Nindl (2014), because the author also found only a very small positive effect which is close to zero.

There could be several explanations why we did not observe any effects. The first explanation could be that, since in most of the countries the Fair Trade share is less than 1%, Fair Trade could not create any significant externalities. Second, positive and negative effects discussed in the analyzed papers could outweigh each other. And, finally, there could be countries that benefit and those in which Fair Trade has a negative effect on GDP per capita, which on average corresponds to an insignificant effect. Yet, as shown in the results, the effect of Fair Trade does not depend on regulatory quality in the country.

We should, however, admit that there could be several caveats in our model. As discussed by Hayakawa (2007) and Bun and Windmeijer (2010), instruments in both difference and

system GMM estimators could be weak when country data is used, and there is still no formal test for this issue. Another caveat could be in using political stability and regulatory quality as controls, since these characteristics are quite subjective and were criticized in recent papers (Thomas, 2010; Andrews, 2010). For this reason, a model with alternative covariates of being a former Spanish/French colony and the share of rural area could serve as an additional robustness check.

One could also consider additional dependent variables, such as child mortality, secondary school completion rate, etc.

References

Andrews, Matt, "Good Government Means Different Things in Different Countries," *Governance*, 2010, *23* (1), 7–35.

Arellano, Manuel and Stephen Bond, "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations," *Review of Economic Studies*, 1991, *58* (2), 277–297.

Arnould, Eric J., Alejandro Plastina, and Dwayne Ball, "Does Fair Trade Deliver on Its Core Value Proposition? Effects on Income, Educational Attainment, and Health in Three Countries," *Journal of Public Policy & Marketing*, 2009, *28* (2), 186-201.

Becchetti, Leonardo and Marco Costantino, "The Effects of Fair Trade on Affiliated Producers: An Impact Analysis on Kenyan Farmers," *World Development*, 2008, *36* (5), 823-842.

Blundell, Richard and Stephen Bond, "Initial conditions and moment restrictions in dynamic panel data models," *Journal of Econometrics*, 1998, *87* (1), 115–143.

Bonnal, Michael, "Economic Growth and Labor Standards: Evidence from a Dynamic Panel Data Model," *Review of Development Economics*, 2010, *14* (1), 20-33.

Bun, Maurice and Frank Windmeijer, "The weak instrument problem of the system GMM estimator in dynamic panel data models," *Econometrics Journal*, 2010, *13* (1), 95–126.

Burnside, Craig and David Dollar, "Aid, Policies, and Growth," *The American Economic Review*, 2000, *90* (4), 847–868.

Clemens, Michael A., Steven Radelet, Rikhil R. Bhavnani, and Samuel Bazzi, "Counting Chickens when they Hatch: Timing and the Effects of Aid on Growth*," *The Economic Journal*, 2012, *122* (561), 590–617.

Getz, Christy and Aimee Shreck, "What organic and Fair Trade labels do not tell us: towards a place-based understanding of certification," *International Journal of Consumer Studies*, 2006, *30* (5), 490-501.

Goodman, Michael K., "Reading fair trade: political ecological imaginary and the moral economy of fair trade foods," *Political Geography*, 2004, *23* (7), 891 – 915. Ethics in Political Ecology.

Grimshaw, Damian, Aristea Koukiadaki, and Isabel Tavora, *Social Dialogue and Economic Performance: What matters for business - A review* number 89. In 'Conditions of Work and Employment.', Switzerland: International Labour Organization, 2017.

Hansen, Henrik and Finn Tarp, "Aid and growth regressions," *Journal of Development Economics*, 2001, *64* (2), 547–570.

Hayakawa, Kazuhiko, "Small sample bias properties of the system GMM estimator in dynamic panel data models," *Economics Letters*, 2007, *95* (1), 32–38.

Henderson, David R., "Fair Trade is Counterproductive and Unfair," *Economic Affairs*, 2008, *28* (3), 62–64.

Krumbiegel, Katharina, Miet Maertens, and Meike Wollni, "The role of Fairtrade certification for wages and job satisfaction of plantation workers," GlobalFood Discussion Papers 89, Göttingen 2016.

LeClair, Mark S., "Fighting the Tide: Alternative Trade Organizations in the Era of Global Free Trade," *World Development*, 2002, *30* (6), 949-958.

Mann, Stefan, "Analysing fair trade in economic terms," *The Journal of Socio-Economics*, 2008, *37* (5), 2034 - 2042.

Nindl, Elisabeth, "An empirical assessment of Fairtrade: A perspective for low-and middle-income countries?," Department of Economics Working Paper Series 160, WU Vienna University of Economics and Business, Vienna January 2014.

Rajan, Raghuram G. and Arvind Subramanian, "Aid and Growth: What Does the Cross-Country Evidence Really Show?," *The Review of Economics and Statistics*, 2008, *90* (4), 643–665.

Ruben, Ruerd and Ricardo Fort, "The Impact of Fair Trade Certification for Coffee Farmers in Peru," *World Development*, 2012, *40* (3), 570-582.

_ , _ , and Guillermo Zuniga-Arias, "Measuring the Impact of Fair Trade on Development," *Development in Practice*, 2009, *19* (6), 777-788.

Sidwell, M., Adam Smith Institute, and Adam Smith Institute Staff, *Unfair Trade*, Adam Smith Institute, 2008.

Stock, James H. and Jonathan H. Wright, "GMM with Weak Identification," *Econometrica*, 2000, *68* (5), 1055–1096.

Stoddart, Paul, "Development Through Fair Trade: Candour or Deception?," *Economic Affairs*, 2011, *31* (1), 131–134.

Thomas, Michael A., "What Do the Worldwide Governance Indicators Measure?," *The European Journal of Development Research*, 2010, *22*, 31–54.

Valkila, Joni, "Fair Trade organic coffee production in Nicaragua – Sustainable development or a poverty trap?," *Ecological Economics*, 2009, *68* (12), 3018-3025.

A Appendix

Table A: List of the Countries

Country	Fair Trade	Country	Fair Trade
Albania		Kenya	Yes
Algeria		Kiribati	
Angola		Kosovo	
Armenia		Lesotho	
Azerbaijan		Liberia	
Bangladesh		Libya	
Belarus		Macedonia, FYR	
Bhutan		Malawi	Yes
Bosnia and Herzegovina		Malaysia	
Botswana		Maldives	
Brazil	Yes	Marshall Islands	
Cambodia		Mauritania	
Cape Verde		Mexico	Yes
Central African Republic		Moldova	
Chad		Mongolia	
Colombia	Yes	Montenegro	
Congo, Rep.		Myanmar	
Costa Rica	Yes	Namibia	
Cte dIvoire	Yes	Nauru	
Djibouti		Nicaragua	Yes
Dominica		Niger	
Dominican Republic	Yes	Nigeria	
Equatorial Guinea		Peru	Yes
Eswatini		Rwanda	Yes
Ethiopia	Yes	Serbia	
Gabon		Solomon Islands	
Georgia		Sri Lanka	Yes
Ghana	Yes	Sudan	
Grenada		Tajikistan	
Guatemala	Yes	Tanzania	Yes
Guinea		Tonga	
Guinea-Bissau		Turkey	
India	Yes	Turkmenistan	
Indonesia	Yes	Uganda	Yes
Iraq		Ukraine	
Jordan		Vanuatu	
Kazakhstan			

B Appendix

Table B: Within and between variation of controls

	Mean	Std. Dev.	Min	Max
Trade Openness				
Overall	83.25796	33.16306	.1750032	170.7655
Between		31.80987	24.67993	155.245
Within		9.991233	12.81756	122.3726
Regulatory quality				
Overall	36.45518	20.62991	.4807692	81.73077
Between		20.46343	1.842987	76.27714
Within		3.430438	26.98369	60.50221
Political Stability				
Overall	37.95949	24.18689	.4761905	98.5782
Between		23.30007	2.444466	86.16307
Within		6.964151	11.18739	73.63218

C Appendix

Abstract

Sales of Fair Trade products increased eightfold over the last ten years. Consumers are willing to pay more to foster the development in low- and middle-income countries. But can we consider Fair Trade a development strategy? This paper explores the effect of Fair Trade on GDP per capita and agricultural GDP per capita by using panel data on low- and middle-income countries over seven years. The ratio of Fair Trade farmers over the total number of farmers in a country is taken as a proxy for Fair Trade scales. We do not find any significant impact of Fair Trade on GDP per capita indicators. Our results also show that the effect of Fair Trade does not depend on regulatory quality.

Keywords: Fair Trade, GDP, economic development

D Appendix

Zusammenfassung

In Anlehnung an die Literatur zu Wachstum und Entwicklungshilfe haben wir die Auswirkungen von Fair Trade auf das BIP pro Kopf und das landwirtschaftliche BIP pro Kopf anhand von Differenz- und System-GMM-Schätzern geschätzt. Die relative Anzahl der Fair-Trade-Landwirte zu der Gesamtzahl der Landwirte in einem Land diente als Proxy-Variable für den Fair-Trade-Anteil. Unsere Ergebnisse deuten darauf hin, dass Fair Trade keine wesentlichen Auswirkungen auf die BIP-Indikatoren hat. Darüber hinaus hängt die Wirkung von Fair Trade nicht von der Regulierungsqualität in einem Land ab. Dieses Ergebnis steht im Einklang mit den Diskussionspapieren von Goodman (2004), Stoddart (2011), Getz und Shreck (2006), die behaupteten, dass Fair-Trade-Landwirte zwar vom fairen Handel profitieren, aber andere darunter leiden.

Keywords: Fair Trade, BIP, Ökonomische Entwicklung