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An analysis of the sector-specific effect of trade on child labour

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List of acronyms

C138	ILO Convention 138
C182	ILO Convention 182
FDI	Foreign direct investment
FAO	Food and Agriculture Organization
FE	Fixed effects
FLA	Fair Labor Association
GDP	Gross domestic product
GDP_{pc}	GDP per capita
IGEME	Export Promotion Center of Turkey
ILO	International Labour Organization
IMD	International Institute for Managerial Development
IV	Instrumental variable
MNC	Multinational corporation
NAALC	North American Agreement on Labour Cooperation
NAFTA	North American Free Trade Agreement
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
RE	Random effects
TBPPF	Time-Bound Policy and Programme Framework (Turkey)
UCW	Understanding Children's Work
WDI	World Development Indicators

1. Introduction

Child labour deprives children of the opportunity of schooling and leisure and in many cases also of their health, if they are engaging in hazardous activities. As children do not have access to education they do not have the chance of a future improvement of their situation (ILO 2011: 13). The general trend in child labour is negative, however; a full eradication of child labour is far into the future (ILO 2013: 4). In 2012 around 168 million children worldwide were involved in child labour, which is about 11% of total children. The incidence of child labour is highest in the agricultural sector, accounting for 59% (in 2012), followed by the service sector (32%) and the manufacturing sector (7%) (ILO 2013: 7).

It is important to ask about the effect of globalization on the incidence of child labour in order to discover how our interconnected world influences the poor. This paper aims to address this issue by focusing on the impact of an increase in trade (measured as exports as a percentage of GDP) on child labour. However, this paper does not look at the effect of trade on child labour at an aggregated level, but instead, it addresses it on a sectoral level. The research question is as follows: What is the association between exports and child labour in three different sectors (manufacturing, agriculture and services) and what are the underlying dynamics? It is important to address this question in order to find out whether trade has a positive or negative impact on child labour in different sectors and, as a consequence, worsens the situation for children in developing countries or, alternatively, whether it helps to reduce child labour. The results of this analysis can be an important guideline for policy makers who are concerned with improving the conditions of

children in developing countries. As most child labour takes place in developing and emerging countries, this paper focuses on this group of countries.

So far, most scholars have only addressed the effect of trade on child labour at an aggregated level[1], however, this paper takes the next step and examines whether the effect differs according to sectors. A new measure of the dependent variable has been used, i.e. child labour in one sector as a percentage of total child labour, which helps to focus more specifically on sectoral effects. The most important independent variable of this paper is sectoral trade, or more precisely sectoral exports, since data on sectoral foreign direct investment (FDI) is not freely available. Moreover, the research that has been done so far on this topic, has either been quantitative or qualitative. This paper approaches the question with a mixed-methods approach and, therefore, involves both a quantitative as well as a qualitative case study analysis and can, thereby, combine the strengths of both approaches (Lieberman 2005: 435). As there is no theory concerning the sectoral effect of trade on child labour so far, this paper addresses this gap in the literature and makes a first contribution to developing such a theory.

The results of the quantitative analysis show that the association between exports and child labour is positive in the agricultural sector, i.e. child labour is increasing with higher exports. In the manufacturing and service sector, in contrast, the association is negative, i.e. child labour is decreasing with an increase in exports. The result for the service sector, however, is not robust to the inclusion of country fixed effects. The findings of the qualitative analysis indicate that the difference in the presence of multina-

[1] Annie Voy (2014) is a notable exception.

tional corporations (MNCs) as well as the difference in the skill- and technology- intensity in the respective sectors can provide a possible explanation for the differing effect of exports on child labour. Mexico and Turkey have been selected to explore the underlying dynamics behind the differing results in the manufacturing and the agricultural sector in the qualitative analysis.

The paper is organized as follows. First, an overview of the literature is given concerning the impact of globalization on child labour in developing countries. Second, theoretical considerations are discussed and assumptions about the effect of an increase in exports on child labour as well as the underlying dynamics are made. After the theory chapter the basic methodological framework of the mixed-methods approach is discussed. Next, the main empirical findings of this paper are presented; first of the quantitative analysis and second, of the case study analysis. Finally, there is a concluding section that also highlights some implications for policy makers and possibly promising areas for further research.

2. Literature review

The question addressed in this paper is anchored in the broader field of International Political Economy concerning the effect of globalization on labour and environmental standards as well as the effect of globalization on the poor. Scholars have analysed whether globalization leads to a "race to the bottom" (Drezner 2001: 53; Mosley, Uno 2007: 923) of labour and environmental standards or rather to a "trading-up effect" (Vogel 1997: 556). There is little systematic evidence for the race to the bottom hypothesis (Hay 2007: 326; Mosley 2005: 359), however, it is clear that globalization creates winners and losers and that special attention has to be paid to protecting the losers (Rodrik 1997: 2). In this respect it is particularly important to consider the effect of globalization on the poor. For example, Agenór (2002: 2) found that the effect of globalization on the poor takes the form of a Laffer-curve, which means that at first globalization aggravates poverty, but after a certain level it decreases poverty.

The research question of this paper links to these issues as it explores the effect of trade on labour standards and whether children in developing and emerging countries can be seen as winners or losers of globalization. More specifically, the emphasis is placed on the effect of trade on child labour, which is also the focus of this literature review. The literature concerning the effect of globalization on labour and environmental standards and concerning the effect of globalization on the poor is very comprehensive and will not be reviewed any further in this paper. The general literature on child labour (see Edmonds (2007) for an overview) is just as broad and will not be reviewed here either.

Only a few quantitative studies exist that focus on the effect of trade on child labour and most of these studies deal with trade at an aggregated level and do not look at sectoral effects. Furthermore, to the best of my knowledge, there is no paper that combines quantitative as well as qualitative case study analysis to examine the effect of trade on child labour. Therefore, the comparability of this paper to existing studies is limited. Those scholars who have statistically tested the aggregated effect of trade on child labour have mostly found a negative relationship between trade and child labour, i.e. an increase in trade is associated with a decrease in child labour.[2]

One of the first important papers in this field which finds a negative association between trade and child labour was written by Shelburne (2001). Cigno, Rosati and Guarcello (2002) find that trade (measured as the share of imports and exports of GDP) is either increasing child labour or that there is no association if they control for skill endowments. However, once they use the Sachs-Warner index of openness to measure trade, they find that an increase in trade lowers child labour in countries that are well-endowed with an educated labour force. Neumayer and de Soysa (2005: 43) focus on both trade and FDI and find that those countries that have greater trade openness or a higher level of FDI have a lower level of child labour. Apart from using the labour force participation rate of children aged 10-14 as the dependent variable, their results are also robust to using the nonattendance rate in secondary school, as well as the number of economic sectors with child labour as the dependent variable.

[2] An exception is early research by Drenovsky (1992) who finds no significant association between trade and child labour.

Edmonds and Pavcnik (2006) are considering endogeneity in the relationship between trade and child labour and also find a negative association between these two variables. However, once they are controlling for per capita income the effect of trade on child labour becomes smaller and statistically insignificant. They conclude that, in contrast to many fears, the results do at least show that trade does not increase child labour in developing countries (Edmonds, Pavcnik 2006: 115). Davies and Voy (2009) look both at the effect of trade and FDI on child labour and they are controlling for endogeneity as well. They also find a negative and statistically significant effect of trade on child labour whose significance vanishes once they add per capita income. They argue that this result is due to an income effect, i.e. a negative effect of trade on child labour due to an increase in household income as a consequence of trade (as explained in more detail in chapter 3.1) (Davies, Voy 2009: 59).

The most recent paper concerning this topic by Voy (2014) deals with the effect of exports on child labour in different sectors.[3] The author finds a negative and statistically significant relationship between exports and child labour in the manufacturing as well as the service sector. The result for the agricultural sector is positive and statistically insignificant (Voy 2014: 389f.). The results of the paper at hand and Voy's results are not directly comparable, because of a difference in the dependent variable. Voy uses child labour in each sector as a percentage of total children whereas this paper uses child labour in each sector as a percentage of total child labour to focus more specifically on the sectoral effects. Furthermore, this paper has made an improvement in the statistical method insofar as one has to include both variables on their own if the regression

[3] Another recent paper by Voy (2012) looks at the gender-specific effect of trade on child labour.

analysis contains an interaction term (a product of two variables) (Agresti and Finlay 2014: 341).

Another paper that focuses on the sectoral effect of globalization on child labour (through a quantitative analysis and mini case studies) was written by Doytch, Mendoza and Thelen (2013). However, the results are not directly comparable because the authors look at the effect of FDI on child labour and furthermore, they do not use the child labour variable at a sectoral level, but on an aggregated level. The authors find a negative association between FDI and child labour in the service sector and a positive association in the agricultural sector for every region. However, for the manufacturing sector they find differing results for different regions (Doytch et al. 2013: 13-18). The present paper makes an important contribution to the existing literature as it is the first paper that combines quantitative and qualitative analysis in examining the effect of trade on child labour. Furthermore, it extends the focus beyond the aggregated level to the sectoral level and uses a new measure of the dependent variable as compared to Voy (2014).

3. Theoretical considerations and assumptions

3.1 A discussion of the substitution effect and the income effect

The theoretical considerations concerning trade and child labour have mainly focused on the so called "substitution effect" and "income effect" (Neumayer, de Soysa 2005: 45f.). The substitution effect can be derived from the Stolper-Samuelson theorem which predicts that in the long run trade openness increases the returns to the abundant factor of production (Feenstra, Taylor 2008: 115). In developing countries the abundant factor is unskilled labour which also comprises child labour. Consequently, trade openness increases the returns to child labour in developing countries. This also means that the opportunity costs of schooling and leisure go up. Children are substituted away from school towards work and child labour increases (Neumayer, de Soysa 2005: 45; Fan 2011: 33). This is not only true for children who work directly in sectors that export goods, but it also holds for sectors that produce parts that are used in exporting sectors. Child labour is a huge problem in companies in the informal sector that are sub-contracted to companies in exporting sectors (Maskus 1997: 17).

Contrary to the substitution effect, the income effect states that child labour decreases due to trade as a consequence of an increase in household income. The logic behind this argument is that household income increases due to trade because the income of low-skilled labour increases (Dollar, Kraay 2002: 218f.). Therefore, children are no longer required to work in order to support the household income and can instead benefit from schooling and leisure (Davies, Voy 2009: 60). Basu and Van (1998) have modelled this

argument from the perspective of consumer theory and they have argued that households stop consuming child labour once the household income exceeds a subsistence level. Child non-work is seen as a luxury good that the household can only afford once the household income is high enough to secure survival (Basu, Van 1998: 415; Baland, Robinson 2000: 665).

3.2 Assumptions concerning the sector-specific relationship between trade and child labour and the underlying dynamics

Eventually the effect of trade on child labour depends on whether the substitution effect or the income effect prevails. The effect may vary according to the sector, but there does not exist a consistent theory so far. This paper makes a first contribution to the development of such a theory. At this point some assumptions are established about the effect of trade on child labour and the underlying dynamics, which are further developed by the empirical part of this paper. First, the role of multinational corporations (MNCs) in decreasing child labour through their trade activities is discussed. Second, this paper considers structural explanations regarding differences in the skill- and technology-intensity of the different sectors.

To begin with, MNCs are linked to the export activities of emerging and developing countries because they set up their own production facilities through FDI and source products from sub-contractors in these countries. MNCs can promote international labour standards through adopting codes of conduct that they impose on their own subsidiaries abroad as well as their suppliers in developing countries (Winstanley et al. 2002:

212; Spar 1998: 7). These codes of conduct by MNCs can be seen as "self-regulation" (Jaffe and Weiss 2006: 909) or "private global business regulation" (Vogel 2008: 261). The majority of these codes of conduct include regulations concerning child labour (Kolk, van Tulder 2002: 293). MNCs engage in these activities in order to enhance or uphold their reputation and to respond to the pressure of consumers for accountability and corporate social responsibility (Rodriguez-Garavito 2005: 204). However, the demands of consumers concerning labour standards are mainly targeted at large MNCs that can be identified with particular brands as opposed to no-name products of individual, small suppliers (Graham, Woods 2007: 12). In general, the assumption is that in those sectors where the presence of MNCs is high, an increase in exports is associated with a decrease of child labour, i.e. in the manufacturing sector. However, in those sectors where MNCs do not play an important role, the assumption is that an increase in exports is associated with an increase in child labour, i.e. in the agricultural sector and in the service sector.

Another possible explanation concerns the structural differences regarding skill- and technology-intensity in the three sectors. Neumayer and de Soysa (2005: 46) have argued that trade has a negative impact on child labour in the long-run as there might be a shift from sectors using low-skilled labour, i.e. the agricultural sector to sectors using more qualified labour, i.e. the manufacturing and service sectors. Generally speaking, one can argue that the effect of an increase in trade on child labour may differ according to the sector because of a difference in the skill requirements of the labour force. For agricultural activities there is a high demand for low-skilled labour and, therefore, one would expect a positive association between trade and child labour. In contrary, activi-

ties in the manufacturing and the service sector often require skilled labour and, thus, a negative association is expected. In the manufacturing sector the negative association might further be strengthened if there is a shift from the production of labour-intensive goods to technology-intensive goods (Maskus 1997: 14) or if there are technological advances. For example, child labour decreased considerably in the US between 1880 and 1920 because of technological progress (Brown et al. 1992: 723).

In summation, for the purpose of this paper the assumption is that the effect of an increase in exports on child labour differs according to the sector. It is expected that the difference in the presence of MNCs as well as the difference in the skill- and technology-intensity in each respective sector offer explanations for the underlying dynamics. The effect in the manufacturing sector is expected to be negative and in the agricultural sector to be positive. This paper could not make an assumption about the effect for the service sector as it is expected that the role of MNCs and the structure of the sector act in different directions.

4. Methodology

The methodological design of this study is a "nested analysis as a mixed-methods strategy" (Lieberman 2005: 435) which consists of both a statistical analysis as well as a qualitative case study analysis. In this chapter the basic concepts behind the mixed-methods approach are only briefly explained and more detailed explanations about the design of the quantitative analysis as well as the qualitative case study analysis are given in the respective parts of this paper. Following Lieberman the nested analysis starts with a quantitative analysis and proceeds with a qualitative case study analysis. The two parts are linked because regression plots of the quantitative analysis are used to select the cases for the qualitative analysis. The mixed methods-approach is well-suited for the research question of this paper as it allows starting off with an estimation of the association between trade and child labour in different sectors with a large N-study. After having identified the effect in the different sectors the underlying dynamics are further explored through the case study analysis.

A nested analysis has various advantages as compared to doing a quantitative or qualitative analysis alone. On the one hand, through the exploration of cases in the qualitative analysis one makes sure that the quantitative analysis has not produced spurious results (Lieberman 2005: 435). Furthermore, one is able to explore specific cases in more detail, which is not possible with a quantitative analysis only (Odell 2001: 170f.) On the other hand, by preceding the qualitative analysis with a quantitative analysis cases can be selected in a more targeted way from the regression plots and the analysis can be done in a more systematic way than with a qualitative analysis alone. (Lieberman 2005:

435). However, a mixed-methods approach also has methodological limitations, e.g. concerning the representativeness of the cases (Gerring 2007: 43) and, hence, the generalizability of case study findings (Bennett 2004: 42f.). In this particular paper there are also constraints concerning the availability of data as well as the scope of the research, which does not allow for the examination of many cases in detail. Despite the limitations, this paper uses a mixed-methods approach as it permits the obtaining of unique insights into the effect of exports on child labour in different sectors by "drawing on the distinct strengths of two important approaches" (Lieberman 2005: 435).

The qualitative analysis in this paper can be referred to as a theory-building analysis. This is because the initial state of theory is weak, i.e. there does not exist a sectoral theory about the effect of trade on child labour. Therefore, the qualitative analysis takes a comprehensive and inductive approach (Lieberman 2005: 443). It is used to further explore the underlying dynamics behind the effect of trade on child labour in the different sectors as identified by the quantitative analysis. The case studies are designed as a comparative case study analysis (Lieberman 2005: 446). The content of the analysis is mainly based on the theoretical assumptions established in chapter 3.2 (Yin 2014: 37), i.e. the role of MNCs as well as the skill- and technology-intensity in the different sectors. Throughout the discussion the empirical findings of the case studies are linked back to the theoretical propositions. George and Bennett (2005: 111) refer to this type of case study as a theory-developing case study.

5. Quantitative analysis

5.1 Empirical framework and data

5.1.1 Estimation technique

The regressions are conducted as a cross-country analysis as there is not enough sector-specific child labour data available for an analysis over time. However, panel data methods can still be applied to data structures that do not involve time (Wooldridge 2013: 481); in this case the different sectors figure as the second dimension of the data instead of time. This type of analysis has the advantage that the sample size is bigger and estimates will be more accurate (Wooldridge 2013: 433). There are three broadly defined sectors used for the analysis: manufacturing (man; which includes fishing, hunting and forestry), agriculture (agr) and services (ser). For estimating the model, both random effects (RE) regressions as well as fixed effects (FE) regressions are used. However, the FE regression technique is preferred over RE because one condition that must be fulfilled for RE is that "the unobserved effect is uncorrelated with all the explanatory variables" (Wooldridge 2013: 466). As, in general, one cannot be completely sure if this is the case, FE regressions are perceived as more trustworthy and more convincing for estimations (Wooldridge 2013: 477).

When thinking about the estimation technique the endogeneity between trade and child labour has to be considered as well. Endogeneity means that the relationship between two variables, in this case trade and child labour, runs in two ways (Neumayer, de Soysa 2005: 51). The relationship between trade and child labour that has been dis-

cussed so far concerns the effect of trade on child labour. An increase in trade is either associated with a decrease or an increase in child labour depending on whether the income or the substitution effect prevails. However, the relationship between trade and child labour can also run in the other direction. The resource endowments and labour standards of a country and, more specifically, the existence of child labour can have an impact on trade flows (Edmonds, Pavcnik 2006: 116). For example, Busse (2002: 1921) showed that the existence of child labour led to an increase in trade of goods that are intensive in the use of low-skilled labour. This reverse causality would result in a positive association between trade and child labour and, therefore, the regression results could be biased upwards (Edmonds, Pavcnik 2006: 116).

Edmonds and Pavcnik (2006) as well as Davies and Voy (2009) are addressing the reverse causality problem by using an instrumental variables (IV) approach. They are instrumenting trade, as in Frankel and Romer (1999), with a measure of trade that is based on geography and that has no effect on child labour. Ideally, one would use an IV approach in this paper as well. However, following the argumentation of Voy (2014), endogeneity cannot be addressed in this study because the data for exports are used at a sectoral level. As geography does not vary by sector it would not be possible to create the instrument described above.

5.1.2 Model

The models for the quantitative analysis are specified as follows:

Random effects:

Manufacturing sector (1):

$$chlab_{ij} = \alpha + \beta_1 * \frac{exportsij}{GDPi} + \beta_2 * man_i + \beta 3 * man_i * \frac{exportsij}{GDPi} + \beta_4 * employ_{ij} + \beta_5 * agr_i + \beta_6 * log(GDP_{pc,i}) + \varepsilon_{ij}$$

Agricultural sector (2):

$$chlab_{ij} = \alpha + \beta_1 * \frac{exportsij}{GDPi} + \beta_2 * agr_i + \beta_3 * agr_i * \frac{exports\ ij}{GDP\ i} + \beta_4 * employ_{ij} + \beta_5 * man_i + \beta_6 * log(GDP_{pc,i}) + \varepsilon_{ij}$$

Service sector (3):

$$chlab_{ij} = \alpha + \beta_1 * \frac{exportsij}{GDPi} + \beta_2 * ser_i + \beta 3 * ser_i * \frac{exportsij}{GDPi} + \beta_4 * employ_{ij} + \beta_5 * agr_i + \beta_6 * log(GDP_{pc,i}) + \varepsilon_{ij}$$

The three equations above constitute models for the RE regressions, one for each of the three sectors. The equations are very similar except for measuring sector-specific effects and, therefore, explanations of the variables refer to all three equations unless stated otherwise. In order to make explanations of the variables better understandable, *j* is used to denote the sectoral level and *i* is used to refer to the country-level. In all three equations the dependent variable ($chlab_{ij}$) is defined as the amount of child labour in sector *j* as a percentage of total child labour in a country *i*. α is the intercept and the first independent variable $\frac{exportsij}{GDPi}$ is a measure of exports. It is defined as the amount of exports in sector *j* of country *i* as a percentage of GDP in country *i*.

The variables for β_2 are dummy variables for the sector for which the association between exports and child labour is estimated and, therefore, they differ in the three equa-

tions. The variables for β_3 are interaction terms, i.e. products between each sector and the exports variable. This model specification was chosen because both variables have to be included in the regression on their own when using an interaction term (Agresti, Finlay 2014: 341). In order to estimate the effect for all three sectors in one regression one would have to include a dummy variable for each sector, however, this is not possible because of multi-collinearity. Therefore, the regressions are conducted individually for each of the three sectors. The results of most interest for the research question of this paper are the respective coefficients of the interaction terms because they show how exports are associated with child labour in each sector.

The variable $employ_{ij}$ is used to control for the size of each sector *j*; it is composed of the amount of people employed in sector *j* as a percentage of total employment in country *i*. Following Neumayer and de Soysa (2005) the logarithm of per capita GDP, $\log(GDP_{pc,i})$, is added to control for the income level and, consequently, the level of economic development of a country *i*. Furthermore, the coefficient of $\log(GDP_{pc,i})$ should also show the income effect, i.e. a decrease in child labour due to higher income levels in a country *i*. The logarithm is used to narrow the scope of the data of GDP_{pc} which makes estimates less sensitive to extreme values (Wooldridge 2013: 185). The last variable for parameter β_6 is a dummy variable to control for one of the other two sectors whose association between trade and child labour is not the focus of the particular regression. It also varies according to the model.

Fixed effects:

Manufacturing sector (4):

$$chlab_{ij} = \alpha + \beta_1 * \frac{exportsij}{GDPi} + \beta_2 * man_i + \beta_3 * man_i * \frac{exportsij}{GDPi} + \beta_4 * employ_{ij} + \beta_5 * agr_i + \eta_i + \varepsilon_{ij}$$

Agricultural sector (5):

$$chlab_{ij} = \alpha + \beta_1 * \frac{exports\ ij}{GDP\ i} + \beta_2 * agr_i + \beta_3 * agr_i * \frac{exportsij}{GDPi} + \beta_4 * employ_{ij} + \beta_5 * man_i + \eta_i + \varepsilon_{ij}$$

Service sector (6):

$$chlab_{ij} = \alpha + \beta_1 * \frac{exports\ ij}{GDP\ i} + \beta_2 * ser_i + \beta_3 * ser_i * \frac{exportsij}{GDPi} + \beta_4 * employ_{ij} + \beta_5 * agr_i + \eta_i + \varepsilon_{ij}$$

For the FE regressions the only difference is that η_i is included in the model and log$(GDP_{pc,i})$ is exluded. η_i is a denotation for country FE that account for all country-specific characteristics. Log$(GDP_{pc,i})$ is excluded because any variation in GDP_{pc} is already considered with the country FE (Wooldridge 2013: 478).

5.1.3 Data

Table 1 shows some descriptive statistics for the data used in the regressions. The data on child labour ($chlab_{ij}$) have been collected from the World Development Indicators (WDI), a statistical database of the World Bank. This data is based on household surveys which have been conducted over the years from 1998 to 2010. Child labour is defined as the work of those children between 7 and 14 years of age who are economically active. The dataset is an unbalanced panel which consists of 50 developing and emerging countries for which sufficient data on child labour is available.[4] For most countries the child labour survey data is only available for one year. Therefore, the econometric analysis has been conducted as a cross-country analysis. For those countries where there

[4] Sample countries (and the year of observation) can be found in the Annex.

is survey data for more than one year available, data for the most recent year has been used. The data for the explanatory/control variables have been lagged by one year because it takes time until an impact on child labour is realized. The sectoral export data was also deduced from the WDI. Furthermore, also GDP (in constant 2005 US$) has been taken from the WDI and from these two values the variable $\frac{exportsij}{GDPi}$ has been calculated. The data for the control variables $employ_{ij}$ and $GDP_{pc,i}$ (in constant 2005 US$) have also been taken from the WDI. The data set has been constructed in a way in which, besides the country, the sectoral level is the unit of analysis and, therefore, the dummies *man, agr* and *ser* can be used for the three sectors.

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Child labour	32.400	31.130	.000	98.110
Man	5.340	4.730	.000	17.910
Agr	69.620	19.900	24.140	98.110
Ser	22.410	16.350	1.000	66.900
$\frac{Exports}{GDP}$	.119	.121	.000	.553
Man	.094	.106	.000	.549
Agr	.163	.145	.012	.553
Ser	.090	.076	.008	.273
Employ	32.888	21.151	2.500	84.800
Man	15.400	7.68	2.500	34.400
Agr	42.790	23.000	3.100	84.800
Ser	40.480	17.360	12.200	76.900
Log(GDP_{pc})	7.140	1.120	4.990	9.800

5.2 Results: What is the association between trade and child labour?

The results of both the RE (1-3) as well as the FE (4-6) regressions can be seen in *Table 2* and will be explained below for the different sectors. Assessing the effect of interaction terms is difficult because both the variables that form the interaction term are included in the regression on their own as well (Agresti and Finlay 2014: 341). Therefore, plots have been created that help to assess the relationship between exports and child labour in each particular sector. The plots include 95% confidence intervals and they have been combined with histograms, which show the amount of exports as a percentage of GDP for each sector. The plots show that for higher levels of exports the amount of observations is decreasing and, therefore, also confidence intervals in the plots are becoming larger. The plots have been made from the FE regressions, but (unreported) plots from RE regressions are very similar.

Table 2: Results

	(1)	(2)	(3)	(4)	(5)	(6)
$\frac{Exports}{GDP}$	24.565 (8.673)***	-8.888 (8.695)	22.261 (8.525)***	32.709 (13.382)**	-20.388 (17.263)	25.436 (10.224)**
Man	-0.377 (2.439)	-2.272 (2.164)		-0.282 (3.193)	-2.648 (2.505)	
Agr	41.036 (3.601)***	36.182 (3.806)***	43.995 (3.173)***	39.883 (3.679)***	32.071 (4.898)***	43.588 (3.179)***
Ser			7.737 (3.585)**			9.393 (4.504)**
Man* $\frac{exports}{GDP}$	-25.521 (8.822)***			-32.090 (16.364)*		
Agr* $\frac{exports}{GDP}$		43.691 (17.304)**			68.912 (30.599)**	
Ser* $\frac{exports}{GDP}$			-52.965 (32.058)*			-67.271 (42.269)

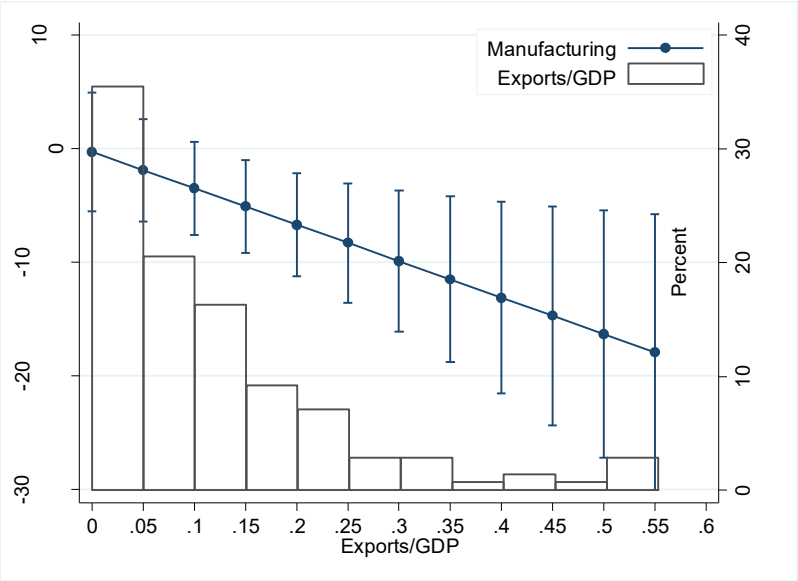
Employ	0.623 (0.076)***	0.639 (0.072)***	0.627 (0.072)***	0.624 (0.076)***	0.650 (0.073)***	0.634 (0.071)***
Log(GDP_{pc})	-0.789 (0.410)*	-0.719 (0.418)*	-0.853 (0.406)**			
Country FE	No	No	No	Yes	Yes	Yes
Observa-tions	133	133	133	133	133	133
Number of countries				50	50	50
R^2	0.9121	0.9177	0.9149	0.9126	0.9189	0.9151

Robust standard errors in parentheses.
* significant at 0.1 level, ** significant at 0.05 level, *** significant at 0.01 level

5.2.1 Manufacturing sector

The results for the manufacturing sector show that an increase in exports is negatively associated with child labour, i.e. the percentage of children working in the manufacturing sector decreases. This can be seen both from the interaction term man*$\frac{exports}{GDP}$ in column (1) in *Table 1* as well as from the plot in *Graph 1*. An interpretation of the two variables *man* as well as $\frac{exports}{GDP}$ alone is not of great use if there is an interaction term. The dummy variable for the agricultural sector (*agr*), which has been included as a control, shows that child labour in the agricultural sector is much higher than in the services sector, the omitted category in this regression. The control variable *employ* also has the positive sign that has been expected. It shows that the larger the size of the manufacturing sector, the more child labour there is in this sector. In the RE regression also the variable log*(GDP_{pc})* is included. It has a negative sign, i.e. as the income level of a country goes up, child labour decreases. With the inclusion of country FE (column (4)) results do not change in essence and the relationship between exports and child labour remains negative and significant (which can be seen from the interaction term).

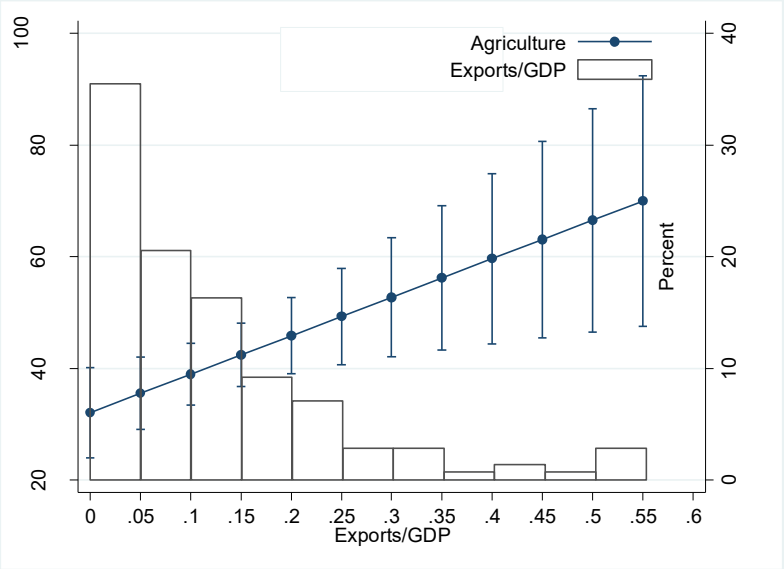
Graph 1 – Manufacturing sector



5.2.2 Agricultural sector

In the agricultural sector, the association between exports and child labour goes in the opposite direction than in the manufacturing sector, namely, higher exports are associated with an increase in child labour. This can be seen from the interaction term agr*$\frac{exports}{GDP}$ in column (2) in *Table 1* as well as from the plot in *Graph 2*. The dummy variable for the manufacturing sector shows that child labour is lower in the manufacturing sector than in the services sector, the omitted category. The variable e*mploy* has the same positive sign as for the regressions for the manufacturing sector and in the RE regression log*(*GDP_{pc}*)* also has the same negative sign as before. Furthermore, the results are robust to the inclusion of country FE (column (5)), i.e. the result of the interaction term remains positive and significant.

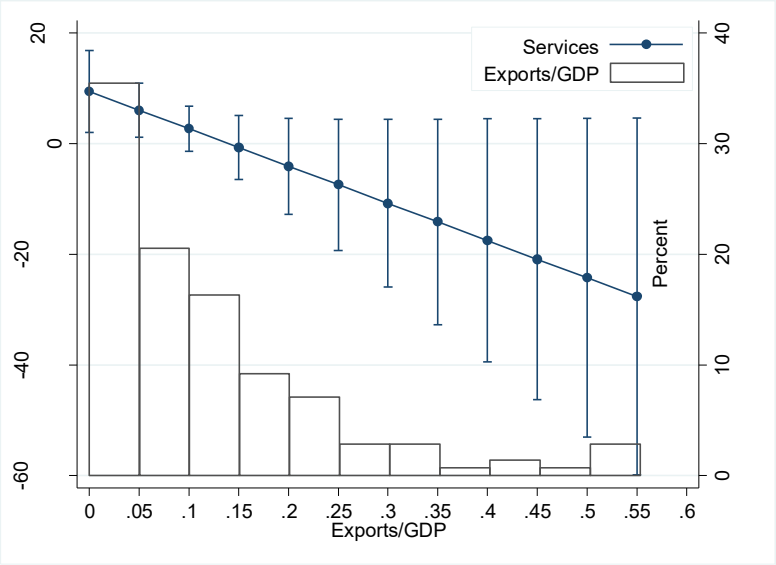
Graph 2 – Agricultural sector



5.2.3 Service sector

In the service sector the relationship between exports and child labour is negative, which can be seen both from the sign of the interaction term ser*$\frac{exports}{GDP}$ in *Table 1* (column (3)) as well as from *Graph 3*. The dummy variable for the agricultural sector is positive and has the same interpretation as in column 1. Also, *employ* and log*(*GDP_{pc}*)*, which shows the income effect, have the same signs as before. However, in contrast to the other two sectors the inclusion of country FE (column (6)) renders the interaction term between *ser* and $\frac{exports}{GDP}$ insignificant.

Graph 3 – Service sector



5.3 Discussion of findings

The FE results of this paper show a significant negative association between exports and child labour in the manufacturing sector, a significant positive association for the agricultural sector and an insignificant negative association for the service sector. These results corroborate the hypotheses that have been made for the manufacturing and the agricultural sector. For the service sector the insignificant result of the FE regression goes hand in hand with the fact that an assumption about the exact effect could not be made. It is important to note that the findings cannot be interpreted as a causal (positive or negative) effect of an increase of exports on child labour as the cross-country research design (which does not involve a time dimension) as well as a possible endogeneity bias cause concerns (Neumayer, de Soysa 2005: 59). Interestingly, the findings for the agricultural sector are contrary to other studies (as discussed in the literature review), which generally find a negative impact of an increase of trade on child labour,

e.g. Neumayer and de Soysa (2005), Edmonds and Pavcnik (2006), Davies and Voy (2009). However, all these studies have their focus on an aggregated level and only Voy (2014) looks at the sectoral level. The results for the agricultural sector of this paper are, however, also different from Voy's findings which show an insignificant positive association between exports and child labour. She concludes that, contrary to fears, she could not find a positive impact of an increase of exports on child labour for any sector which runs counter to the results for the agricultural sector of this paper.

It is also important to discuss the interpretation of $\log(GDP_{pc})$ in the RE regressions in order to better understand the relationship between trade and child labour. The negative sign of $\log(GDP_{pc})$ is as expected in all the regressions and shows the negative effect of an increase in income on child labour, i.e. the income effect. The income effect has also been demonstrated in other quantitative analyses and it has often been argued that the impact of trade on child labour runs through income. This is because the coefficient measuring the effect of trade on child labour turned insignificant after the inclusion of GDP_{pc} (Edmonds, Pavcnik 2006; Davies, Voy 2009). However, the results of the present analysis show that an increase in exports in the three sectors has a significant impact on child labour although GDP_{pc} has been included. These results indicate that there are other factors (apart from income) that influence the relationship between trade and child labour (Neumayer, de Soysa 2005: 59). These additional factors will be explored further in the qualitative analysis and special attention will be paid to developing an argument about the effect of exports on child labour in the different sectors.

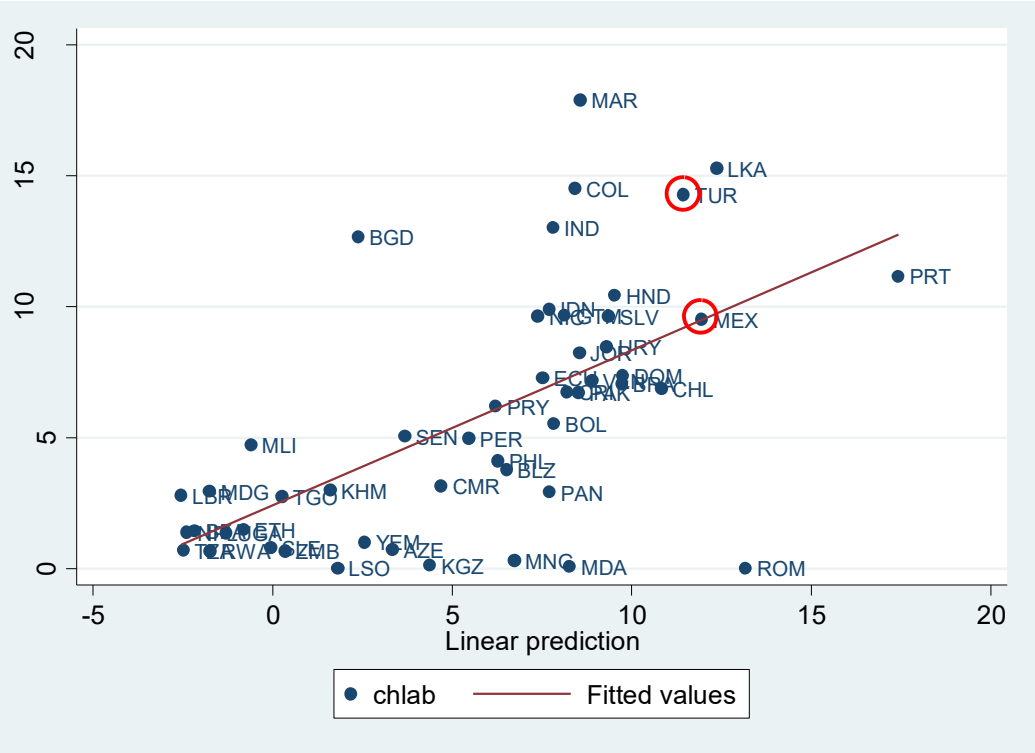
6. Qualitative analysis

6.1 Case selection

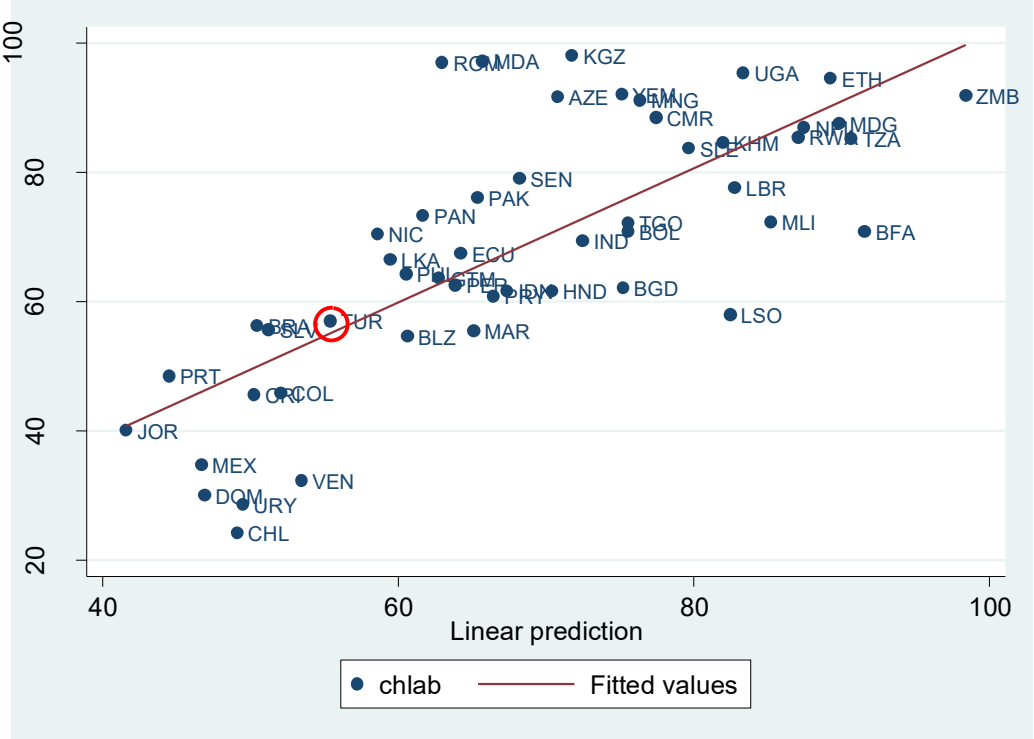
The cases for the qualitative analysis have been selected by means of the value of the dependent variable of the quantitative analysis, i.e. *chlab,* with the help of regression plots (Lieberman 2005: 444). These graphs have been created by "plotting actual dependent variable scores against regression-predicted scores" (Lieberman 2005: 444) as can be seen in G*raph 4* and G*raph 5* below.[5] The graphs have been made with the FE regression results and only cases from the manufacturing sector and the agricultural sector are discussed because the service sector is not robust to the inclusion of country FE. The graphs show that the model is well-specified for the cases on the 45° regression line, i.e. the regression-predicted (x-axis) and the actual value (y-axis) of child labour are the same. However, for the cases off-the-line (below- or above-the-line) the model is not a good specification. For countries below-the-line, child labour in a particular sector (manufacturing or agriculture) is lower than predicted by the regression analysis and for the countries above-the-line, child labour is higher than predicted.

[5] A list of the full country names can be found in the Annex.

Graph 4 – Manufacturing sector



Graph 5 – Agricultural sector



As the analysis can be qualified as a theory-building analysis, both cases on-the-line (or close-to-the-line) and off-the line are discussed (Lieberman 2005: 445). For the manufacturing sector the two cases on- and off-the-line are selected along a 'vertical line', i.e. they are cases that were predicted to have the same outcome, but in reality they have different outcomes (Lieberman 2005: 446). Furthermore, this paper also analyses a case-on-the-line for the agricultural sector, however, due to space constraints it does not discuss a case off-the-line for the agricultural sector. The focus of the case studies on-the-line is on explaining the different effects of exports on child labour in the manufacturing and the agricultural sector. This is done by discussing the assumptions concerning the role of MNCs as well as the technology- and skill- intensity in the different sectors (as explained in chapter 3.2). However, the basic mechanisms of an income and substitution effect are not tested in this paper as they cannot explain the differing results in the three sectors.

For the case off-the-line this paper also refers to the role of MNCs and the skill- and technology-intensity. Furthermore, it looks at additional factors that have an influence on the fact that the case is located off-the-line. Unfortunately it is not possible to show causality for the underlying dynamics between trade and child labour as sectoral child labour data is too scarce for tracing processes. As the dependent variable of the regression analysis is child labour in different sectors as a percentage of total child labour, the explanations of the case study analysis also refer to child labour at the sectoral level and do not deal with the total amount of child labour in a country.

For the case studies for the manufacturing sector Mexico (on-the-line) and Turkey (above-the-line) have been selected as they fulfil the prerequisite of lying vertically under each other in *Graph 4*, i.e. they have the same predicted level of child labour, but different amounts of child labour in reality. Furthermore, these two countries are both large emerging countries and are comparable in terms of GDPpc and size of the manufacturing sector, which can be seen from *Table 3*. Moreover, both countries have a large population and, therefore, the analysis of these cases is important as a large number of children are affected. To enhance comparability this paper also refers to the agricultural sector in Turkey, which lies on the regression line in G*raph 5*. Thus, Turkey's agricultural sector is a good case to discuss the main dynamics by which trade affects child labour in the agricultural sector, and to compare them to the dynamics in the manufacturing sector to be discussed with the on-the-line-case of Mexico. The years for the data used in the case studies are based on the quantitative analysis. As in the quantitative analysis they differ between and within the two countries because child labour data is only available for some years for each country and furthermore, the independent variables have been lagged by one year.

Table 3 – Mexico, Turkey comparison

	Mexico (2010)	**Turkey (2005)**
GDP_{pc} (in constant 2005 US$)	8117 US$	7129 US$
Size of manufacturing sector (percentage of labour force employed in this sector)	25.5%	24.8%
Population	117.9 million	67 million

Source: WDI 2014

6.2 Analysis of cases: What is driving the association between trade and child labour?

6.2.1 Mexico's manufacturing sector

Mexico is a country which lies on-the-line in the regression analysis for the manufacturing sector, i.e. the regression predicted and the actual value of child labour are the same in *Graph 4*. The percentage of children who work in the manufacturing sector was 9.5% of total child labour in 2011 (World Bank 2014). The year before exports in the manufacturing sector amounted to 23.7% of GDP. Mexico has ratified ILO Convention 182 (C182) concerning the worst forms of child labour, however, it has not ratified ILO C138 concerning a minimum age for employment (ILO 2014a; UCW 2012: 46). Nevertheless, Mexico has national legislation in place that sets the general minimum age for employment to 14 years and the age for hazardous work to 16 years (Government of Mexico 1917).

As the regression analysis has shown, the association between an increase in exports and child labour is negative. In order to discuss the underlying dynamics this paper first refers to MNCs. MNCs play an important role in Mexico both through FDI as well as through sub-contracting to Mexican companies. In Mexico there is a strong presence of US MNCs which is due to the proximity of the two countries as well as the creation of the free-trade area NAFTA (North American Free Trade Agreement) between the US, Canada and Mexico in 1994 (Jensen, Rosas 2007: 474). The conclusion of NAFTA accounted for a rise of FDI inflows to Mexico by 60% (Goldstein 2010: 673). In Mexico FDI is particularly important in the manufacturing sector, e.g. in 2010 FDI flows in manufacturing amounted to 12588 million US$ which is 55% percent of total FDI flows (23027 million US$). In contrast, FDI flows in agriculture added up to only 91.5 million

US$ (0.4% of total FDI flows). As a percentage of GDP, FDI flows to the Mexican manufacturing sector constituted 1.3% (OECD 2014a, World Bank 2014).

MNCs have been widely accused of not adequately pursuing labour standards including the use of child labour in their operations (Spar 1999: 69; McClintock 1999: 507f.) in global production networks (Phillips et al. 2011: 6). This paper refers to the example of Nike and the sporting goods industry as Mexico is one of the most important exporters of sporting goods worldwide (Andreff 2009: 23). In the 1990s Nike was widely in the attention of the media and critical consumers because of violations of labour standards in its factories, which also involved the use of child labour. At first, Nike opposed the accusations, because the labour standard violations were not taking place in its own factories but in the factories of its sub-contractors (Locke and Romis 2006: 8). However, in 1992 Nike feared to lose market share and developed a Code of Conduct for its supplier companies (van Tulder and Kolk 2001: 269). It involves regulations that set the minimum age for its workforce to 16 years for textiles and even 18 years for footwear (Nike 2010). Furthermore, Nike also employed staff to enforce its Code of Conduct and to monitor its suppliers, e.g. garment factories in South-Central Mexico. Nike also set up a regional office in Mexico City which is, among other things, responsible for compliance visits to its suppliers (Locke and Romis 2006: 9-11).

There are also many MNCs that set up their own production plants or assembly plants in Mexico through FDI, many of them near the US-Mexican border, so-called ‘maquiladoras’. Similarly, they have also been accused of violating child labour laws (La Botz 1999) and established codes of conduct in which they declare themselves against child

labour in their operations , e.g. General Electric (General Electric 2005: 39). Summing up, the high presence of MNCs in the manufacturing sector and, consequently, the reduction of child labour due to codes of conduct by MNCs can be an explanation for the negative association between exports and child labour in the manufacturing sector.

Second, another possible underlying mechanism that could be identified – the high-skill and technology-intensity of the different sectors – is discussed at this point on the basis of Mexico's manufacturing sector. Already before the conclusion of NAFTA manufacturing plants of US multinationals engaging in high-tech production have been located in Mexico (Shaiken 1994: 39). Mexico's early success in high-skilled manufacturing was due to the good basic education of its labour force as well as the proper infrastructure (Shaiken 1994: 68). After the conclusion of NAFTA, high-skilled manufacturing activities in Mexico increased even further. For example, in the IT industry MNCs such as Hewlett Packard, Intel and IBM as well as contract manufacturing companies like Flextronics and Circuit established production plants in Guadalajara, Mexico (Gallagher, Zarsky 2007: 7).

Furthermore, also many car manufacturers such as Volkswagen, which are engaging in high-skilled manufacturing activities, set up their production plants in the central states of Mexico (Hughes 2013). Moreover, in general, in Mexico the exports of high-tech manufactures as a percentage of total manufactured exports are high and in 2010 Mexico was on place 18 out of 59 developed and emerging countries in this respect (IMD 2012: 443). These examples show that the manufacturing sector in Mexico is characterized by technology-intensity as well as high-skilled labour intensity. As children consti-

tute the most low-skilled labour force, an increase in exports is associated with a decrease in the demand for child labour.

6.2.2 Turkey's manufacturing sector

In Turkey the actual amount of child labour in the manufacturing sector is higher than the predicted value. This can be seen from *Graph 4* as Turkey is located above-the-line. The actual amount of child labour in the manufacturing sector amounted to 14.29 % of total child labour in 2006 and exports made up 12.4 % of GDP in 2005. Turkey has ratified both ILO child labour conventions (C138 as well as C182) concerning minimum age for employment and worst forms of child labour (ILO 2014b). Furthermore, Art. 71 of the Turkish Labour Act (Law No. 4857) determines the general minimum age for work at 15 years and the age for light work at 14 years (Government of Turkey 2003).

Regarding the underlying dynamics of the association between trade and child labour there are differences between Mexico's and Turkey's manufacturing sector. MNCs in Turkey's manufacturing sector do not play as an important role as in Mexico. FDI flows to the manufacturing sector in Turkey in 2005 amounted to 554 million US$ which is 5.5% of total FDI flows (10031 million US$) and 0.1% of GDP. In contrast, in Mexico FDI flows to the manufacturing sector amounted to 55% of total FDI flows and 1.3% of GDP (OECD 2014a, World Bank 2014). Instead of MNCs there is a high presence of small enterprises. This explains why the manufacturing sector in Turkey is not as intensive in the use of technology and high-skilled labour and, consequently, not as productive as in Mexico. The small companies where most child labour is happening, the so-called "micro-enterprises", represent 45% of the workforce in the manufacturing sector.

The productivity level of these companies is very low which can explain why they are referring to child labour, which is cheaper than labour by adults. The "micro-enterprises" are followed by small- and medium-sized companies (35% of the labour force in the manufacturing sector), most of whom are still characterized by low productivity. Large family firms make up 15% of the employment in the manufacturing sector, and, the most productive category, institutionalized corporations (into which also MNCs fall) represent only 3% of the workforce of the manufacturing sector (OECD 2014b: 20).

This particular structure of the manufacturing sector in Turkey is due to obstacles in the Turkish business environment such as lack of human capital, stiff labour market regulations and costly corporate taxes (OECD 2014b: 22). Although there are initiatives to change the structure of the business sector and to promote investment, the government has failed so far to generate a shift from lower-productivity activities to higher-productivity manufacturing (OECD 2014b: 2). Generally speaking, there is a lower presence of MNCs as well as a lower amount of high-skilled labour -and technology-intensive activities in the manufacturing sector in Turkey as compared to Mexico. This suggests that trade cannot make as big a contribution to decreasing child labour in the manufacturing sector in Turkey as in Mexico.

There are also additional factors that can provide an explanation for the fact that the level of child labour in Turkey's manufacturing sector is higher than predicted. Although there is child labour legislation in place, it does not cover all areas. Small workshops that employ up to three people are excluded from the Turkish labour law by the

Tradesmen and Small Handicrafts Act and, thereby, also from the regulations concerning a minimum age for employment (Kuzgun 2011: 155). This lack of regulation is a problem because in Turkey the majority of children who work in the manufacturing sector are employed in small- and medium-sized companies. Most of these companies are only made up of between one and nine workers (US Department of Labor 2012: 716). For the smallest of these companies that consist of up to three persons it is very easy to employ children as there is not even legislation to prevent child labour.

Another possible explanation concerns the distribution of government programmes that aim at decreasing the rate of child labour. In Turkey there is the Time-Bound Policy and Programme Framework (TBPPF) in place which aims at eliminating the worst forms of child labour (ILO 2007: 1; ILO 2012). It involves many programmes that target child labour in the agricultural sector, e.g. by supplying children of agricultural migrant workers with school books and providing transportation facilities to school. However, there are no programmes to lower child labour in the manufacturing sector (US Department of Labor 2012: 716-718). Apart from the TBPPF there are also cash-transfer programmes by the national government. These programmes give priority to the poorest 6% of the population and the majority of them live in rural areas where child labour in the agricultural sector is the biggest problem (US Department of Labor 2012: 718f.). Furthermore, there are private initiatives as well, e.g. an agricultural organisation in the province of Ordu set up a programme that aims at raising awareness of child labour in hazelnut harvesting (US Department of State 2013: 47). All these initiatives help to lower child labour in the agricultural sector but leave out the manufacturing sector and,

consequentially, might be an additional explanation for the disproportionately high rate of child labour in the manufacturing sector in Turkey.

5.2.3 Turkey's agricultural sector

Child labour in the agricultural sector in Turkey has been well predicted by the regression analysis because Turkey lies on-the-line. 57 % of total child labour can be found in the agricultural sector in Turkey. An increase in exports has a positive association with child labour in the agricultural sector as has been demonstrated by the quantitative analysis. An explanation for this effect could be that the role of MNCs is more limited in the agricultural sector as compared to the manufacturing sector. In 2005 FDI flows to the Turkish agricultural sector amounted to only 7 million US$ which is only 0.07% of total FDI flows in that year and only 0.0014 percent of GDP. In contrast, FDI flows to the manufacturing sector in Turkey and Mexico (as a percentage of total FDI flows in these countries) amounted to 5.5% (Turkey) and 55% (Mexico) (OECD 2014a, World Bank 2014). Furthermore, although sub-contracting by MNCs to Turkish companies is important in the manufacturing sector, it does not play a role in the agricultural sector (Egdirici Sonmez 2010: 2). The limited role of FDI as well as sub-contracting in the agricultural sector in Turkey indicates that MNCs cannot play a huge role in decreasing child labour.

Furthermore, the agricultural sector in Turkey is not as productive as the country's manufacturing sector. Although Turkey's manufacturing sector is characterized by lower-productivity activities than Mexico's manufacturing sector, there are some high-productivity activities by large-family firms and institutionalized corporations in Tur-

key. On the contrary, the agricultural sector in Turkey is even predominantly characterized by low-skilled activities (OECD 2014b: 17). Exports of primary agricultural products are important for Turkey's economy; Turkey produces 80 different types of fruits and vegetables of which it exports 50. Important agricultural products for the export market are fresh fruits like oranges, grapefruits, apples and melons and fresh vegetables like tomatoes, potatoes and cucumbers as well as fresh fish (IGEME 2009: 5). Apart from exports of primary agricultural products, exports of processed food, e.g. dried apricots, raisins and edible nuts play an important role for the Turkish economy as well. These activities are more technology-intensive, however, they are not part of the agricultural sector, but belong to the agro-processing industry which is part of the manufacturing sector (FAO 2013: 5).

Low-skilled activities in the Turkish agricultural sector like harvesting fruit and vegetables are particularly prone to attracting child workers as no particular skills are needed for this work. An important example is given by poor Turkish migrant families who take up different employments in the agricultural sector in the whole country and ask their children to work as well to contribute to the family income (FLA 2012: 13). Summing up, the underlying dynamics that help to decrease child labour in the manufacturing sector do not apply to the agricultural sector in a comparable way. Codes of conduct by MNCs do not help to decrease child labour as the presence of MNCs is low. Likewise, there are not a lot of high-skilled and technology-intensive activities in the agricultural sector, but rather a great demand for low-skilled labour which also involves child labour.

7. Conclusion

The aim of this paper was to discuss the effect of trade on child labour and the underlying dynamics in different sectors. A mixed-methods approach was used which consists of both a quantitative as well as a qualitative analysis. In the quantitative analysis this paper found a negative association between exports and child labour for the manufacturing and the service sector, although the result for the service sector turned insignificant when including country FE. In contrast, the association between exports and child labour is positive for the agricultural sector which challenges existing work on this topic. It is important to highlight that these results cannot be interpreted as a causal relationship between exports and child labour.

The qualitative analysis explored the underlying dynamics that explain the difference in the sectoral results. This was done with the help of the on-the-line case studies of Mexico's manufacturing sector and Turkey's agricultural sector. As no consistent theory on sectoral effects has been put forward by now, this study made a first attempt to the development of such a theory. Two main dynamics could be identified to explain why there is either a negative or a positive association in the different sectors. First, MNCs play an important role in reducing child labour through the adoption of codes of conduct in the manufacturing sector. However, this mechanism does not hold for the agricultural sector where the presence of MNCs is negligible as opposed to the high presence of MNCs in the manufacturing sector. Second, the manufacturing sector is intensive in the use of high-skilled labour as well as technology and, therefore, there is not much need for low-skilled child labour. In contrast, in the agricultural sector activities are low-

skilled, which increases the demand for child labour. In the case above-the-line, i.e. Turkey's manufacturing sector, it was shown that MNCs as well as skill- and technology-intensity are less important in decreasing child labour than in Mexico's manufacturing sector. Furthermore, this paper demonstrated that there are additional factors that play a role in explaining why child labour is higher than predicted, e.g. legislation and government programmes.

The results of this paper highlight some implications for policy makers. The negative association between exports and child labour for the manufacturing sector indicates that trade helps to decrease child labour and, therefore, an elimination of trade barriers should be supported from this point of view. However, it would be misleading to argue that the positive association for the agricultural sector shows that policymakers should establish trade barriers in order to avoid a further increase in child labour. The results indicate that the income effect (a decrease in child labour as a consequence of an increase in household income due to trade) also holds for the agricultural sector in the long-run. However, in the meantime it would be important that governments and NGOs put programmes in place, e.g. cash-transfer programmes, which help to prevent an increase in child labour in the agricultural sector. Nevertheless, despite a focus on the agricultural sector the manufacturing sector should not be left out either. This is particularly important for countries where trade does not seem to have the expected effect in decreasing child labour, as could be shown with the example of Turkey.

This paper made a contribution to the study of the effect of globalization on child labour. If there will be a greater availability of sectoral child labour data in the future

scholars should place emphasis on showing causal relationships between trade and child labour, both through quantitative as well as qualitative research. Furthermore, trade in services as well as the presence of MNCs in the service sector increased in recent years. Therefore, future studies could focus on the service sector in greater detail than this paper could do. Moreover, future research could explore further dynamics that underlie the association between trade and child labour to verify the findings of this paper. A better understanding of child labour and the dynamics that lie behind it is the first essential step in creating a world in which children are adequately protected. This will allow them to have access to an education and to create better futures for themselves and their countries.

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Annex

Table 4: Sample countries with the year of observation for the dependent variable

AZE=Azerbaijan	2005	MEX=Mexico	2011
BGD=Bangladesh	2003	MDA=Moldova	2009
BLZ=Belize	2001	MNG=Mongolia	2007
BOL=Bolivia	2009	MAR=Morocco	2004
BRA=Brazil	2011	NPL=Nepal	1999
BFA=Burkina Faso	2006	NIC=Nicaragua	2005
KHM=Cambodia	2009	PAK=Pakistan	2011
CMR=Cameroon	2007	PAN=Panama	2008
CHL=Chile	2003	PRY=Paraguay	2005
COL=Colombia	2009	PER=Peru	2007
CRI=Costa Rica	2011	PHL=Philippines	2001
DOM=Dominican Rep.	2009	PRT=Portugal	2001
ECU=Ecuador	2011	ROM=Romania	2000
SLV=El Salvador	2011	RWA=Rwanda	2008
ETH=Ethiopia	2005	SEN=Senegal	2005
GTM=Guatemala	2006	SLE=Sierra Leone	2007
HND=Honduras	2007	LKA=Sri Lanka	2009
IND=India	2010	TZA=Tanzania	2006
IDN=Indonesia	2010	TGO=Togo	2010
JOR=Jordan	2007	TUR=Turkey	2006
KGZ=Kyrgyz Republic	1998	UGA=Uganda	2006
LSO=Lesotho	2002	URY=Uruguay	2009
LBR=Liberia	2010	VEN=Venezuela	2006
MDG=Madagascar	2007	YEM=Yemen	1999
MLI=Mali	2006	ZMB=Zambia	2008