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LAND GRABBING IN ETHIOPIA - WELFARE OR FAREWELL

Is it a story painted in black and white?

Supervisor: Måns Söderbom

Karolina Riedel
870530-0088
Klara Sommerstein
860715-2728

ABSTRACT

The phenomenon of large scale land acquisition has increased in recent years. There is a current debate regarding the effects of large international investors buying or leasing land in poor countries. Ethiopia is heavily affected by this and the government is currently implementing a policy encouraging investors to lease land for commercial agricultural purposes. Ethiopia attracts investors with its cheap labor and fertile land.

This study is conducted in order to shed light on and investigate the welfare situation for people affected by these investments. The study is performed in the Oromia Region along the Central Rift Valley in Ethiopia. A quantitative approach is used to investigate three large international companies and their effect on the households' welfare. Questionnaires and complementing qualitative interviews have been made with employees at the companies (*treatment 1*), people living in the area but not employed (*treatment 2*) and a *control village*.

The key findings of the study are that the companies create job opportunities, altogether the companies employ over 12,000 local inhabitants. There is also a great supply of labor meeting the companies, though many of the employees have applied for other jobs while employed. We find that wage has a positive impact on welfare. While the wage is the same for employees at the companies as outside, the household sizes for the employees are smaller and thus the income is distributed on fewer people. The result of the study also shows that water is important for welfare. As the companies use water abundantly and the region suffers from water shortage this could have negative implications on welfare in the future. The public opinion regarding the investments is strongly positive, something not completely reflected among the ones affected by the companies.

Our study finds the companies to have both positive and negative impacts on peoples' welfare. This is due both to the complexity of measuring welfare and to the intricacy of the investments and their varying effects on different components of the society.

Keywords: *Land grabbing, large scale land acquisition, international investments, welfare, labor demand, wage, household, Oromia Region, Ethiopia.*

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LIST OF ABBREVIATIONS

EIA	Ethiopian Investment Agency
FAO	Food and Agriculture Organization
FDI	Foreign direct investment
GDP	Gross domestic product
HDI	Human Development Index
IIED	International Institute for Environment and Development
MOFED	Ministry of Finance and Economic Development
UN	United Nations
WFP	World Food Program

1 INTRODUCTION

In recent years the phenomenon of international large scale land acquisitions has expanded drastically and the media is paying more attention to the current situation (see for example Knaup and von Mittelstads 2010, Rice 2010, Vidal 2010 and Ashine 2009). This, among other things, has fueled the discussion about whether these kind of farmland investments help to develop the welfare or not in the recipient country. Research in the area is limited as the occurrence of these types of investments has come into focus only in recent years.

Within the international community opinions about large scale land acquisitions are divided. Some commentators argue that this is a new type of development opportunity where foreign direct investments can increase the gross domestic product and create a win-win situation for all parties; the foreign company, the domestic government and local societies (see for example Ashine 2009, IIED 2009 and World Bank 2010b). Others claim this to be a type of imperialism where poor countries are exhausted of their natural resources (see for example GRAIN 2008 and Shephard and Anuradha 2009 p. 11 and 16). The World Bank (2010b) reports that there might be risks in the long term perspective that are not yet to be assessable, but correctly handled there could also be benefits for the recipient countries. However there are still many unanswered questions, such as how the local communities and households are affected economically and socially.

Data on large scale land acquisitions are limited and there is often little focus on micro level and welfare benefits, as well as on the long term effects. Ethiopia has been much affected by foreign investments in agriculture (see for example Cotula et al 2009 p. 42 and Ethiopian Investment Agency 2010c). In the light of this, our study focuses on the current welfare situation in Ethiopia for agricultural workers and households located close to the investing companies. To do this, we collected primary data about the current situation to create an objective and transparent picture of the labor conditions for agricultural workers in large scale farms.

The purpose of this study is to document the effects of these large scale land acquisitions on the welfare of households located close to the companies. Information about international investments in agriculture is scarce, and often originates in media reports

rather than primary data. Also secondary data from Ethiopia, aside from the media, are scarce and therefore a quantitative study based on primary data is relevant.

To evaluate whether large scale farming investments affect the welfare situation, this study will focus on answering the following research question:

In the Oromia Region along the Central Rift Valley in Ethiopia, how is the households' welfare affected by large scale land acquisitions?

Our hypothesis is that there will be a significant change in the welfare for households located close to the companies compared to others. We will elaborate the operationalization in our method further down.

The necessity of answering our question lies in the current gap of knowledge, as well as in the fact that the phenomenon of large scale land acquisitions becomes more prominent. Many journalists have paid attention to these investments and some question their positive contribution to development. Most focus is on the macro level, such as resettlements, conflicts over land and capital flows (see for example Knaup and von Mittelstads 2010, Rice 2010 and Rice 2009). Less focus has been on the micro level effects and this study is therefore concentrating on the households. The welfare concept is relevant for analyzing the investments at a micro level, as it contains both the socioeconomic effects and the direct effects of investments on the local households. We will examine individuals' economic resources but also the broader context of welfare where health, education, infrastructure, working conditions, living situation and employment opportunities are included. Welfare as a whole is hard to measure, thus we will examine a set of selected measurable components.

This study gives an understanding of the current situation in Oromia and the influences foreign land investments have on the welfare situation. It also offers a new perspective of the grassroots' consequences of this phenomenon. Foreign farmland investments are prominent in Ethiopia (see for example World Bank 2010b p. 15 and Ethiopian Investment Agency 2010c). In the north of Ethiopia or in the Gambela Region investments are also very extensive and widely discussed (Wells et al. 2011), though the land leases there are relatively new, meaning that the welfare effects can be hard to measure, and there are many conflicts regarding the land tenure which would complicate any kind of study there. Therefore the Oromia region is a more suitable region for our study.

2 CONTEXT

To give an understanding and background to the context of large scale land acquisitions in general and in Ethiopia in particular. The following is a description thereof.

2.1 ETHIOPIA

Ethiopia is with its 82.4 million people (Central Statistical Agency 2010b) the second most populous country in Sub-Saharan Africa. It is one of the world's poorest countries with a real GDP per capita of $420 in 2008/2009 (National Bank of Ethiopia 2010 p. I: base year 2006). In recent years Ethiopia has been one of the fastest growing economies in Africa with a growth rate of 9.9 percent in 2008/2009, much higher than Sub-Saharan Africa with an average growth rate of 1.1% (National Bank of Ethiopia 2010 p. 5). In 2009 Ethiopia faced challenges of high inflation and a difficult balance of payments situation. The high prices of food on the global market and failure of rains in 2008 and 2009 were the major factors behind these macro-challenges (World Bank 2010a). The urbanization in Ethiopia is relatively small, only half of the Sub-Saharan average, and more than three quarters of the population lives in rural areas (Bigsten et al 2005 p. 8). Agriculture contributes to about half of Ethiopia's GDP and provides employment for over 80 percent of the country's population. This makes the economy primarily rural-based (Adenew 2009 p. 1). There is no minimum wage prescribed through statute in the Ethiopian law, although a minimum wage is commonly negotiated between the employer and employee (International Labour Organization 2004).

The investment climate in Ethiopia has contributed to the expansion of export oriented commercial agriculture as civil service reforms have been implemented by the government institutions to improve the climate (Adenew 2009 p. 46). The Ministry of Finance and Economic Development (MOFED) reports that the Ethiopian government will make further efforts to create a climate enabling the private sector to invest in agriculture (Ministry of Finance and Economic Development 2002 p. 108). The government based Ethiopian Investment Agency (EIA) has been established to promote and facilitate private and international investments in Ethiopia (Ethiopian Investment Agency 2010b). EIA is promoting Ethiopia abroad and states that there are no limitations in the amount of land to be leased to international investments. The Agency prefers as large investments as possible in labor and capital intense sectors. To invest in Ethiopia at least $100,000 in cash or initial

investment capital has to be provided (Gemechu Gelashe 2010). To further stimulate foreign investments the National Bank of Ethiopia on September 1st 2010 devalued the birr for the third time in 14 months. Due to recent inflation the birr now becomes undervalued in the government's efforts to reduce imports and boost the foreign exchange reserves (Davison 2010).

2.2 FOREIGN DIRECT INVESTMENT

Foreign Direct Investment (FDI) in developing countries is often argued to contribute to new and more efficient markets, and to generate technological spill-overs, that help both capital and labor to become more efficient. As FDI often is associated with a demand for labour, cheap labor is one of the main reasons for international firms to enter a developing country (Cotton and Ramachandran 2001 p. 1-2). Increased efficiency enhances international competitiveness, and technical diffusion is often argued to be a very important component for economic growth in poor countries (Sachs 2005 p. 64). On the other hand local firms might have a hard time to compete against international corporations with large capital stocks (Cotton and Ramachandran 2001 p. 1-2), which could put small local firms out of business. FDI is though often argued to influence economic growth positively and to create financial stability and develop the market structure. The causality of whether FDI causes growth or whether a high GDP attracts more FDI is often debated and evidence shows that the causality differs between countries and has to be determined for each country (Chowdhuri and Mavrotas 2006 p. 10 and 18).

Sub-Saharan Africa has traditionally only attracted a small share of global FDI (ibid. p. 10) and FDI in Africa has mainly been assigned to agriculture and the mining sector. Experience from these investments reveals that they did not succeed well in creating the necessary technological spill-overs and links to the domestic markets needed for development. When there are weak institutions and poor governance it is also very hard for the host country to capture the rents from the exploitation of natural resources (Cotton and Ramachandran 2001 p. 15). Despite this there has been little focus on the specific agricultural FDI in land we will investigate in this study. Traditional FDI may not fully apply for this context as we include other dimensions in our study, such as micro level welfare effects and implications of decreased availability of land that could have been used for local food production. According to Business Daily, 2,000 companies have secured farmland in

Ethiopia and India has for example already invested more than $2.5 billion in the country's agriculture (Ashine 2009). FDI theory is therefore still very important as these investments cause large capital inflows and potential technological spill-overs. We chose not to analyze the technical spill-over, what effects the capital inflow has or why the companies do establish in Ethiopia, and leave this for future research.

2.3 LARGE SCALE LAND ACQUISITION

Lack of investments in agriculture has been identified as a factor underlying the recent food crisis in developing countries (FAO 2009). Ethiopia is presently dependent of international food aid (Roehm 2010) and the World Food Program (WFP) has calculated their food aid to Ethiopia for 2007-2011 to more than $115 million (World Food Program 2006 p. 24). According to Shephard and Anuradha (2009), it becomes harder for countries to become food self-sufficient when there are many investments in land by international investors (p. 16). Therefore, the issue of international land investments is very relevant to analyze and is a sensitive issue in Ethiopia.

The two recent global crises, the food and the broader financial crisis, together are shaping a new trend towards investing in commercial farms abroad. According to the critical organization GRAIN, which collects all media reports of large scale land acquisitions, there are two parallel agendas driving investors of farm land; food security and the drive for financial returns. After the 2008 food crisis countries relying on food import became concerned about the effects on their food security. The states with sufficient financial assets are therefore investing in land in countries with more fertile land to control their own food production. By excluding middlemen, food import bills are cut and by controlling the whole production chain the food supply is secured. The second reason for investments is financial returns, where both food and financial industries look for safe havens. The financial and the food crises have turned agricultural land into a new strategic asset that is cheap and relatively risk free, as land prices are low relative to food prices and there will be a continuous demand for food (GRAIN 2008 pp. 2-9). Likewise producers of other agricultural products face the same opportunities of cheap land, labor and control over the production chain. The investors, including hedge fund managers, representatives of the agricultural industry, large pension funds and other chief financial officers are looking for safe investments. US based Black Rock has for example allocated $30million for the acquisition of

farmland and Deutsche Bank and Goldman Sachs are other investors looking for good investments in African farmland (Knaup and von Mittelstads 2010).

The United Nations (UN) states that a country violates the internationally stated human right to food, if the land acquisitions remove the local population's access to resources important for their livelihood. According to the Special Rapporteur on the Right to Food the state needs to ensure that food security is maintained (De Schutter 2009 p. 8) and also has to make sure that a sufficiently high wage is provided for the local population affected by these investments, a key component of the human right to food (ibid. p. 17). The World Bank (2010b) claims that mechanisms ensuring technical and economic viability need to be in order to be able to provide local benefits for large scale land acquisitions (ibid. p. xxi). One direct way to offer benefits is for the investors to provide public goods. Employment is one key factor for conveying the effects of the investments and according to the World Bank report mentioned above, local people often identify jobs as the most important and immediate benefit of the investments. Their appreciation for job-related benefits may however be reduced if the jobs are only seasonal or if they are taken up by migrants (ibid. pp. 48-49). Investors often claim a commitment to bring technology, create jobs and an adequate infrastructure in the recipient country (Rice 2009). Though the actual impact often is portrayed in a negative manner where displacement, forced work, low salaries and involuntary loss of land among small scale farmers is prominent (see for example Vidal 2010). The Ethiopian Prime Minister Meles Zenawi argues that the land leased for foreign investors is unutilized lowland and states that no farmers have lost their land or have become displaced as a result of the investments (Zenawi 2010). At the same time reports indicate that there are currently people displaced in Ethiopia as a consequence of the expansive investment policy by the government (Wells et al 2011). There are also conflicts regarding the use of land where small private farmers claim the land to be cultivated by them while the government states all land to be unutilized before leased to foreign investor. These issues contribute to the controversy of the land leases (Dulane 2010). Aware of these problems many actors still argue that, when handled correctly and with strong institutions at hand, these investments can lead to development (see for example IIED 2009 and World Bank 2010b p. 25).

The large scale land acquisitions are facilitated by big international organizations like the International Finance Corporation, the financial corporation of the World Bank Group, and the Foreign Investment Advisory Service, who advise investing businesses and governments, and facilitate the investment climate of developing countries. The World Bank Group called in 2008 for a *New Deal on Global Food Policy* where the International Finance Corporation intended to increase lending to agribusiness by up to 30 percent during a three year period (Shephard and Anuradha 2009 p. 6). These actions indicate that these organizations support the idea of international investments in foreign farmland and that it increases the prospect for development. However, a recent World Bank report takes a more skeptical position by highlighting the possible long term risks with investments in land and stresses the importance of regulations and control over the investments (World Bank 2010b p.xx). Also Cotula et al (2009) and GRAIN (2008) take a more critical stand and GRAIN argues that these investments are imperialist ways of taking advantage of rural land in countries that are not themselves food self-sufficient. A concern is that many host countries lack the necessary legal mechanisms to protect local rights and take account to local interests and welfare when lease investments occur (FAO 2009).

In many African countries the host governments tend to play a key role in distributing land leases, mostly because they formally own all or much of the land. Land leases, rather than purchases, dominate with a duration ranging from short term to 99 years (IIED 2009). According to the Federal Rural Land Administration Proclamation NO. 89/1997 “the right to ownership of land is exclusively vested in the state and in the people” (2005 p. 1) meaning that the state owns all the land and investors can only lease or rent land in Ethiopia. The proclamation also states that “the rural land use right of peasant farmers, semi-pastoralists and pastoralists shall have no time limit” (ibid. p. 6) indicating that no utilized land can be given to investors.

Although international investments in Ethiopia are increasing, domestic investments still in 2009 exceeded the foreign with a ratio of 362,000 hectares against 240,000 hectares (Cotula et al 2009 p. 49-50). Despite many attracted international investors the World Bank states that many projects are never implemented, often due to lack of infrastructure, price fluctuation and inadequate institutions and technology (2010b p. vi). The investments in Ethiopia concern mainly food production which represents over 90 percent of these

investments while biofuel and floriculture only concern a few percent (Cotula et al 2009 p. 50).

This study is conducted in the Oromia region where rural land, dependent on size and investment type, can be leased up to 45 years. The annual price varies accordingly between $4 and $8 per hectare (Ethiopian Investment Agency 2010a p. 18). To further enhance the investment climate the government has introduced free rent for the first years when the production is established. The free period in the Oromia region depends on the area of production and ranges between two to four years (ibid. p. 28).

3 DATA AND METHOD

To answer the research question we first have to define welfare. Welfare is a term often used in economics, but can include very different meanings. We choose a definition that takes into account both economic and socio-economic aspects, which contributes to the basic physical and material need for security and well-being (Oxford Dictionary: Welfare). As welfare often is measured according to income, working opportunities and socioeconomic factors we design our study based on this. We therefore choose to answer the following questions when trying to measure how the households' welfare is affected by the large scale land acquisitions:

1. *What types of skills are demanded for an employment at one of the companies?*
2. *What determines wage and does it differ with employment at one of the companies compared to other employers?*
3. *How is the perceived welfare affected by the companies?*

In the first two questions we concentrate on the real welfare but in the third question we concentrate on the perceived change in welfare, as this question is measured by normative variables and it is hard to state the real change from this.

To answer the questions the study has been conducted using both primary and secondary data to get a general overview and a deeper understanding of the welfare effects of international large scale agro investments in Ethiopia. The quantitative study, the statistical and the regression analysis, is based on primary data collected by ourselves. The qualitative interviews and the secondary data are used as complements. It is important to

understand the context represented by our sample and we therefore depict both our primary and secondary data.

The focus of the study is on the Oromia Region along the Central Rift Valley in Ethiopia and as we are aware that the conditions are specific for every region the ambition is not to generalize the result in general on either Ethiopia or other affected areas in Africa. At the same time we hope that the results can be used to deepen the understanding of the current large scale land acquisitions and facilitate further research in this and other areas.

3.1 PRIMARY DATA

As focus is on the micro level, we have surveyed households, and by households we refer to all the people living in the same house. Households can be affected both directly and indirectly by the companies. Both the ones employed by the companies, but also the ones living in the area where the farms operate can be affected in different ways.

The primary data was collected through questionnaires and interviews. An empirical micro level survey was performed on a sample of 183 workers employed by three different companies, from here on these individuals will be referred to as *treatment 1*. This was complemented by a survey of 154 individuals living close to the farms, but not working on the farms, to assess the spill-over effects of the companies. These respondents will from now on be referred to as *treatment 2*. For an increased understanding of the overall welfare development in the Oromia region 53 questionnaires have been collected in a farming village not affected by international agro investors, from now on called the *control village*. This enables us to contrast and compare the small scale private farming business with the international commercial business. To further ensure validity, qualitative interviews both with managers and individuals representing the different samples were undertaken. Qualitative interviews were also performed with relevant representatives from the local governments and federal agencies.

To make sure that the interviewees were confident in answering our questions the respondents remained anonymous. The exceptions being interviews with managers in the companies and representatives of the governments as the credibility is strengthened by naming them and the reader can then better evaluate the reliability of the information.

There are different definitions of welfare and thereby different ways of measuring it. The method used depends on the definition as well as the aim of the study. With regard to

our broad definition of welfare and the aim to find a general and applicable conclusion about the welfare effects of the large international farms on the local households a quantitative approach was chosen. A quantitative study gives the opportunity to collect a sample representing different qualities, such as age, gender, education level and profession, and thereby obtain a broad perspective. This simplifies the procedure of generalizing, drawing conclusions and ensuring statistical cogency. The diverse sample creates credibility and is therefore more relevant for our purpose than a purely qualitative study. The qualitative part of the study is relevant and enhances the understanding of the answers in the questionnaires.

3.1.1 THE CONTEXT OF THE SAMPLE; THE COMPANIES AND THE *CONTROL VILLAGE*

Castel Winery PLC, Elfora Agro-Industries PLC and Sher Ethiopia PLC (from now on referred to as the companies) were selected according to the nationality of the investor, the size, the time since establishment and the location. The criteria determining the choice of companies was that they have to be internationally owned with premises of over 500 hectares, but also that they have started their activities more than 3 years ago and be located along the Central Rift Valley in the Oromia Region in Ethiopia. We consider a minimum of three years since establishment to be sufficient for measuring the effects in this study as the social structure has had time to adjust to the change. There were other companies fulfilling these criteria but they were excluded due to their small labor force. The *control village* in Wondo Genet was chosen due to its extensive farming activity and as it is broadly representative for small scale farmers in Ethiopia.

3.1.1.1 CASTEL WINERY PLC

Castel Winery PLC (Castel) is French owned and is already producing wine in Tunisia and Morocco. In Ethiopia the company group was already established with its three beer brands, Castel, St George and Bati, produced under BGI Ethiopia PLC. Prime minister Meles Zenawi initiated Castel to invest in wine production in Ethiopia and they established their vineyard outside Ziway early in 2008 on a contract reaching for 30 years. The first harvest is expected in July 2011 and the first bottles to be sold in 2012. Half of the production will be exported and half will be sold on the Ethiopian market. The premises stretch over 500 hectares but they have plans to expand with another 360 hectares. The farm is neighboring Sher Ethiopia

PLC (Sher) and the land used to be cultivated by the same state farm, HDE, as Sher. Today Castel employs approximately 700 workers on the compound, of which 150 have permanent contracts, and the company expects to employ up to 2000 altogether in the near future. Castel has a health clinic on the compound offering free health care for permanent employees. The Castel group sponsors its NGO Africa Service, which among other places operates in the nearby town Ziway (Aynalem 2010).

3.1.1.2 ELFORA AGRO-INDUSTRIES PLC

Elfora Agro-Industries PLC (Elfora) belongs to the MIDROC group owned by the Saudi investor Sheik Mohammad Al Amoudi. The premises were previously farmed by the state but the land was given to MIDROC to privatize in 1999. In contrast to the other companies Elfora has no time limitation on its contract, although the land is still owned by the state and the company pays land tax for its usage. The Elfora farm ranges over 2902 hectares and employs 1500 workers, out of which 105 are permanent. Since 1999 Elfora has had livestock production and has in the last six years started to produce crop, mainly maize and selected seeds. The products from the farm are mainly sold on the domestic market but goat and sheep carcasses are exported to the Middle East. The company plans to expand the production with another farm in the near future and also strives for upgrading all parts of the farm. The company currently does not have any socioeconomic strategy but plans to develop this in the future (Nugose 2010).

Sheikh Mohammad Al Amoudi has through his two investment companies, MIDROC Ethiopia PLC and Saudi Star Agricultural Development PLC obtained 10,000 hectare of land in the Gambela region and further plans to procure at least 250,000 hectares for maize, teff, oilseeds and sugarcane production (Alemu 2010).

3.1.1.3 SHER ETHIOPIA PLC

The Dutch company Sher Ethiopia PLC started its production in Ethiopia in 2005. Sher also has production in Holland and used to own a similar flower farm in Kenya before it was transferred to Ethiopia. The company currently leases 750 hectares in Ziway from the Ethiopian government on a contract running for 30 years. The land previously belonged to the state owned agricultural farm HDE. Sher produces roses in Ethiopia and harvests around 1.5 million stems every day, all of which goes for export to the flower market in Holland or to

direct buyers in other European countries. Sher leases greenhouses to seven other companies, three Ethiopian and four international. These companies are supported by Sher and have access to all of Sher's facilities. Sher Ethiopia also sells and distributes flowers for those companies under the brand Afri Flora. Sher employs 7,500 workers and 11,000 altogether work on Sher's premises in Ziway (Siminta 2010).

The company's stated vision is to be profitable, competitive on the market and to take great socio-economic responsibility. They have established a Sher-school and a Sher-hospital in Ziway which is completely financed by the company. The school is free of charge and 50 percent of the seats are offered to children of employees and 50 percent to the community. All treatment and medication in the hospital are for free for the employees and their families, and subsidized for the community (Siminta 2010). The company has received criticism regarding their chemical consumption and pollution of the nearby lake (Obsaa Korbuu 2010).

3.1.1.4 SUMMARY OF THE CHARACTERISTICS OF THE COMPANIES

The three companies; Sher Ethiopia PLC, Castel Winery PLC and Elfora Agro-Industries PLC, were chosen due to their location along the Central Rift Valley in the Oromia Region in Ethiopia as the region has experienced extensive international land investments (Ethiopian Investment Agency 2010c). More than one third of the area used for farming in Ethiopia is located in the Oromia region (Central Statistical Agency 2010a p.18-20).

They all have international investors with different nationalities and they all have a vast majority of Ethiopian employees. This reflects the diversity of the current land acquisitions, as the investors are a heterogeneous group representing many different nationalities. The farms also represent different areas of production; wine (Castel), livestock and crop (Elfora) and horticulture (Sher), which further reveals the diversity of the land deals. Castel, Elfora and Sher have all been established for over three years, which is important when evaluating their impact. After three years it is feasible to measure the actual welfare effects as the companies are more established and have had time to employ, implement their socio-economic strategies and the opinions about the companies have been stabilized. All companies in the study have premises of over 500 hectares, as this is our definition of large scale land acquisitions.

The land used by the companies was in all cases state owned farms before. These companies are still relevant for our study as the land, which the government has privatized could have been used by small scale private farmers instead of these companies. Also all three companies are commercial large scale farms and therefore conform to our objectives. All three companies have a history of investments in Africa which indicates their intentions and a vision to invest in the continent and they all share the idea of expanding their activities in Ethiopia (Aynalem 2010, Nugose 2010 and Siminta 2010).

In the Oromia Region there are other companies with international investors which were considered, although they are either less than 500 hectares or their productions has not yet been completely implemented. Therefore these companies were not considered as relevant for this study.

3.1.1.5 CONTROL VILLAGE

The Wondo Genet area was chosen as a control due to its density of private farming households, to get a general picture of the living situation for small scale farmers in Ethiopia in general to compare and contrast with the villages located nearby the commercial international farms. Wondo Genet consists of many small farming villages and the chosen village, Soyama with surroundings, is located in the Oromia region and the Central Rift Valley (Obsaa Korbuu 2010).

3.1.2 THE SAMPLE

Our sample was chosen with a focus on getting a wide spread of age, gender and occupations reflecting the structure within the companies and in the villages. We ensured not to exclude illiterate people, as the literacy level is low in the country, 35.9 percent in 2004 (United Nations in Ethiopia 2011), by offering assistance from our translator to answer the questions. In Ethiopia the life expectancy at birth is very low, 55.6-57.9 years in 2011 (ibid.) which is reflected among the employees and citizens and thus in our sample. In the households the women tend to do most the housework while the men are seen much more outside the home. This was taken into consideration and households were visited as well. In the companies on the other hand there are general policies where different professions are allotted according to gender (Aynalem 2010, Nugose 2010 and Siminta 2010).

Within the companies we collected a representative sample with an ample reach embodying different levels of the companies. Still we are aware that the companies might have wanted to control the respondents and advise them on how to answer. To avoid this we chose the workers randomly in *treatment 1* without influence from the managers. We also made sure that managers and supervisors did not hear or see what the respondents anonymously were answering. We are however aware of that the fact that respondents might not have been able to or willing to answer honestly and therefore we compare and contrast the answers with the qualitative interviews. The respondents in our qualitative interview were also chosen randomly without any influence from the farm leaderships. Some workers were interviewed outside the companies' premises to reduce the likelihood of biased answers.

As the study aims to analyze the households close to the international commercial farms it has to contain both households with workers on the farms, but also the households in the surrounding area indirectly affected by the companies. This was achieved by visiting different villages around the compounds. By collecting responses at different times of the day we ensured to catch even the ones that were away during daytime. The same procedure carried out in the *control village*.

3.1.3 QUESTIONNAIRES

The quantitative part of the study consists of questionnaires prepared by us in English, and translated into Amharic. The language obstacle; that we had the questionnaires translated and that we could not ourselves communicate with most of the respondents in the study without a translator, complicated the study. To minimize deviations from the intended questions and ensure reliability, two translators independent of each other were used to translate the questionnaires. Also the translator in field was well informed about the meaning and purpose of the different questions and our study. For us to get an understanding of how the interviewees perceived the different questions and how they chose to answer to them, the qualitative interviews played an important role.

There were three different questionnaires adjusted to *treatment 1*, 2 and the *control village*'s situations, but also with similar questions to measure and compare common variables. The questionnaires were further developed through a pilot study and the questions were adjusted to address initial errors. The reason why the demographic

questions occur first in the questionnaires is that not many Ethiopians are used to answer questionnaires and therefore those questions work to relax interviewees and make them comfortable in answering the survey.

We have tried to pose the questions as straightforward and simple as possible, as the topic of the study is politically sensitive. The more normative questions were formulated with yes or no answers as other researchers in Ethiopia have faced problems with questions where the interviewees have to value the answers according to numerical scales (Josefsson 2009 p. 31).

The questionnaires for *treatment 1* (appendix 2) consists of three parts; question 1 to 6 defines the sample, question 7 to 15 assesses the working conditions and question 16 to 23 is a normative part where we try to get an understanding of the perceived changes in welfare and whether the company has contributed to a change. The last two questions, 24 and 25, evaluate the issue of the land entitlement.

The questionnaires for *treatment 2* (appendix 3) also consists of three parts; question 1 to 6 defines the sample, question 7 to 9 assesses the current working conditions, question 10 to 14 the relationship to the company in the study, and question 15 to 22 is the normative part where the changes in welfare and whether the company has contributed to a change is assessed. The last question, number 23, evaluates whether they would rather farm the land themselves.

The survey of the *control village* (appendix 4) was formulated with a similar structure to the other two questionnaires, this to be able to compare and contrast the answers. 1 to 6 defines the sample, question 7 to 13 assesses the current working conditions, question 15 to 20 represent the normative part where changes in welfare are assessed and the last two questions, 21 and 22, evaluates the attitudes towards large international farming investments in Ethiopia.

There could be other ways to measure welfare than by the perceived change in living condition but due to limitations in our method we chose to ask for living conditions as it is easier for the respondents to relate to and by that we get a more valid result. As we are examining a sensitive topic the questions were phrased asking for positive changes. We did this to make sure the respondents were not hesitant to answer truthfully and by that get a more relevant result.

The qualitative interviews were based on the questions in the questionnaires and further extended to get an understanding of the questionnaires' answers and a deeper understanding of different samples' situation.

3.2 SECONDARY DATA

Literature regarding large scale commercial farms and international investments is scarce and therefore it is only used as complementary data to the empirical study. Most focus within literature is on macro level and is therefore not as relevant for our study. The data found in literature is from the Ethiopian government and agencies, literature, media and companies´ web pages

There is a major lack of independent statistics in Ethiopia and the information provided is mostly based on the data generated by a single government statistical agency, the Central Statistical Agency of Ethiopia. There is also little information regarding labor conditions such as salaries and employment settings for the employees on the international commercialized farms. Also the broader regulations and commitments within the contracts between the Ethiopian government and the international investors are difficult to get to. The issues have been discussed in media but empirical studies and information about the influence of foreign investments in large scale land acquisition are limited, and therefore this study is important to highlight the actual consequences and impacts on the local community. The secondary information found in media is often contradictory and only provides an indication of the extent of the farmland investments, especially regarding the size and the prizes of the investments. Therefore most information about what is contained in the deals; both commitments from the governments and the investors, and how the deals are implemented, have been collected in Ethiopia.

3.3 EMPIRICAL ANALYSIS

A statistical analysis is used to get an overview of the answer distribution in the different samples. The linear probability method and the multiple linear regression models make it possible to further examine the outcomes of interests.

3.3.1 OUTCOMES OF INTEREST

To assess the impact of the companies on the local inhabitants three types of regressions will be performed to find answers to our three outcomes of interest. Three different

dependent variables will be assessed: one variable indicating who gets a job in the companies; the demand for labor, one wage variable and the perceived change in living conditions of the respondents.

A majority in *treatment 2* would prefer working for the companies and thus the first regression evaluates which characteristics the companies value when employing. The dependent variable is a probability for whether the respondents work for one of the companies, where 1 stands for yes and 0 for no. This regression comprises of *treatment 1* and *treatment 2* samples as the *control village* is located too far away from the companies and we want to measure the direct demand of labor from the nearby surrounding. When dummies are created in this way the linear probability model, rather than the multiple linear regression method, is used to evaluate the results (Angrist and Pischke 2009 p. 47). The problems when using the linear probability model is that when using the outcomes for predicting, the future values can be less than 0 or more than 1 (ibid. p. 103). This should theoretically be impossible as a probability should always take a value between 0 and 1. We are aware of this problem but decide it still to be appropriate to use the linear probability model as we do not intend to use the models for predictions. We want to make the most out of the information and therefore find the outcomes as relevant, and easier to interpret, when using ordinary least squares. If we on the other hand would have wanted to use the data for predictions probit or logit models could have been more appropriate (ibid. 107).

Wage is the second outcome of interest. Analysis of this variable tells us whether the companies contribute to a positive wage development. This regression is estimated to gauge how the salaries are affected by the companies and to be able to compare and contrast that to the people not working for the companies. This makes it possible to evaluate which characteristics are associated with a higher wage and how the salaries at the companies are set compared to the salaries in *treatment 2* and the *control village*.

The third regression concerns changes in the living conditions in the last five years. For this question the respondents could answer improved, same or worse, where we assign the values 3 for improved, 2 for same and 1 for worse. This regression displays which factors are having an impact on the perceived welfare and what change the companies have contributed to. The aim when evaluating this regression is not to assess how much the

welfare has changed; rather the aim is to see whether the changes in welfare have been positive or negative and if the outcome differs between the samples.

4 DESCRIPTIVE STATISTICS

Here follows a presentation of the collected data to give an understanding of the study and a base for the following analysis.

4.1 DEFINITION OF OUR SAMPLE BY COMPANY

We will first display the distribution of respondents between the companies and the *control village*.

Table 1: Statistics by company

	Treatment 1	*Treatment 2*	*Control village*	Total
Total sample	183	154	53	390
Sample				
Sher	33.88%	32.47%	0	28.72%
Castel	32.79%	33.77%	0	28.72%
Elfora	33.33%	33.77%	0	28.97%
Wondo Genet	0	0	100%	13.59%

As displayed in table 1 the study contains in total 390 observations distributed between *treatment 1 and 2* and the *control village*. Both in *treatment 1 and 2* the companies represent virtually equal shares of the sample.

4.2 DEMOGRAPHICS

To further define our sample we now project the demographics of our sample. Table 2 displays the demography of the different groups.

Age is important when analyzing the welfare impact as a lot of other factors differ with age. The age distribution also conveys a lot about the sample. We find the average age of the sample to be around 30 years. The samples capture individuals in working age to ensure similarity between the different treatment groups and the *control village*, as the workers on the companies all are between 18 and 65. The companies have a minimum age for employment of 18, though due to lack of birth certificates among many citizens the age is hard to control when employing (Aynalem 2010, Nugose 2010 and Siminta 2010), meaning that even younger people might be employed on the farms. The age distribution also

represents the low life expectancy in the country (United Nations in Ethiopia 2011) and is thus an indication of that our sample is random and representative.

Table 2: Statistics on demographic variables

	Treatment 1	*Treatment 2*	*Control village*	Total
Age				
Mean	30.06	30.85	34.02$^{\#}$	30.91
Median	26.5	26	30	27
Standard deviation	10.88	13.62	14.32	12.55
Minimum	18	17	16	16
Maximum	65	72	78	78
N	367	152	53	572
Gender				
Male	59.34%	65.79%	62.26%	62.27%
Female	40.66%	34.21%	37.74%	37.73%
N	182	152	53	387
Number of people in household				
Mean	4.83***	5.97	5.74	5,4
Median	4	5	5	4.53
Standard deviation	3,1	4.58	3,3	5
Minimum	1	1	1	1
Maximum	17	27	13	27
N	183	153	53	389
Mean of age distribution in household				
<12	1.24**	1.64	1.7	1.46
12-20	1.15***	1.66	1.34	1.38
21-65	2.26	2.55	2.62	2.43
>65	0.17	0,1	0.08	0.13
Highest completed education level				
None	7.34%***	16.45%	13.46%	11.81%
Primary	28.25%*	38.16%	53.85%$^{\#\#\#}$	35.70%
Secondary	34.46%	27.63%	17.31%$^{\#\#}$	29.40%
More	29.94%**	17.76%	15.38%	23.10%
N	177	152	52	381

T-test for difference in mean, where: H_0=mean in different samples is the same, H_1= H_0 is not true

*** Variable significantly different at 1%, *treatment 1* vs *treatment 2*

** Variable significantly different at 5%, *treatment 1* vs *treatment 2*

* Variable significantly different at 10%, *treatment 1* vs *treatment 2*

$^{\#\#\#}$ Variable significantly different at 1%, treatments vs *control village*

$^{\#\#}$ Variable significantly different at 5%, treatments vs *control village*

$^{\#}$ Variable significantly different at 10%, treatments vs *control village*

Women in Ethiopia are to a greater extent in charge of the household and are thus less included in the labor market (Central Statistical Agency and ORC Macro 2006 p.xxviii), which

could lead to difficulties in collecting female respondents. The companies in the study have all stated that they preferably employ women for many of the tasks and state that men and women are employed for different professions (Aynalem 2010, Nugose 2010 and Siminta 2010). Our data contradicts this statement as we have a clear majority of men in the whole sample, including *treatment 1*, though it may explain why we have fewer women in the other samples.

The size of the household affects the welfare situation as the size determines how many to provide for. In rural Ethiopia family sizes tend to be bigger than in urban settings (Central Statistical Agency 2006 p. 14), which is an indication of that the household sizes are big in our sample. Looking at the relationship between welfare and household size, it is stated that poverty and thereby low welfare is related to bigger households as they are not able to provide necessary healthcare, education and other welfare features (Sachs 2005 p. 65). The welfare is thus predicted to be negatively correlated to the household size, though big households might identify socioeconomic changes more rapidly as the number of members that can be affected is higher and may value positive changes higher than others. Higher education is associated with low fertility (Sachs 2005 p.65). High education is assumed to lead to more skilled professions which leads to a higher wage and a higher welfare. Our data shows a smaller family size for the people working on the companies, on average one less than *treatment 2* and the *control village*. The household structure shows an average with at least one member under the age of 12 and one between 12 and 20 years old, indicating that there is at least one member in the average household dependent of provision from others. In the sample there is a low rate of households with members over the age of 65 which can be explained by the low life expectancy in Ethiopia currently (United Nations in Ethiopia 2011). Because of this, retirement provision and geriatric care are not variables included in our welfare analysis, though it with other circumstances could have been relevant to include.

Education in Ethiopia is divided into primary, secondary and tertiary education, represented by College or University. Primary school ranges between grade one and eight and secondary school between grade nine and twelve (Ministry of Education 2005). We presume that a higher education level contributes to a better welfare for the household. Education brings advantages both for employment and for the qualification level of the

work. We believe that there is a positive correlation between education and the real welfare and expect to find a positive correlation between a higher education level and being employed at one of the companies. In the *control village* a majority of the sample has no higher than primary education. One could expect the education level among *treatment 1 and 2* to be the same due to the same access to education, though we find that the employees on the companies in general tend to have higher education than those outside. A reason for this could be that the companies prefer hiring higher educated workers, although they all state that for most of the tasks at the companies no education is needed (Aynalem 2010, Nugose 2010 and Siminta 2010). Another reason could be that the ones with higher education more frequently apply for jobs at the companies. The literacy rate in the country is at the moment at around 36 percent (United Nations in Ethiopia 2011) which reflect that the overall education level in Ethiopia is very low, an average of 1,5 years (UNDP 2010). This is also reflected in our data.

4.3 WORK RELATED ISSUES

We will now analyze the working conditions common to all samples that is shown in table 3. The distance between home and work does not differ significantly between *treatment 1 and 2*, although the standard deviation in *treatment 2* is much higher. The large standard deviation in *treatment 2* can probably be explained by the maximum observation of 180 kilometers which is much bigger than in the other samples. This still indicates that in those areas it is common to travel more than three kilometers to work. It either indicates that the companies employ labor from the surrounding area, or that the people getting a job move to come closer. According to our interviews with the workers not many have moved for the work (Worker Castel 2010, Worker Elfora 2010 and Worker Sher 2010), indicating that the companies employ people from the surrounding area. In the *control village* people in general travel half the distance, 1.5 rather than over 3 kilometers, to get to work.

The ones employed at the companies work more hours per day than the workers in the *control village*, but less than the ones working outside the companies. The responses from *treatment 1* might though be misleading because, as shown in interviews, eight hours of work are agreed upon at all companies, however overtime is expected and not negotiable at neither Sher nor Elfora and might not be included in the answers (Worker Castel 2010, Worker Elfora 2010 and Worker Sher 2010).

Table 3: Statistics on working conditions

	Treatment 1	*Treatment 2*	*Control village*	Total
Distance between home and work				
Mean	3.76	3.23	1.55	3.24
Median	3	0	0.75	1
Standard deviation	4.01	16.11	3.87	10.36
Minimum	0	0	0	0
Maximum	30	180	27	180
N	179	139	52	370
Working hours per day for workers				
Mean	8.84***	10.15	8.39##	9.2
Median	8	10	8	8
Standard deviation	1.65	2.57	3.16	2.31
Minimum	7	3	3	3
Maximum	15	17	14	17
N	175	100	43	318
Monthly wage for workers				
Mean	933.19	867.26	873.14	896.06
Median	510	500	400	500
Standard deviation	1149.9	1168.42	1049.11	1140.28
Minimum	140	100	100	100
Maximum	7420	10000	5000	10000
N	180	97	43	320
Profession				
Unskilled	75.82%***	94.06%	75.56%	81.65%
Skilled	24.18%	5.94%	24.44%	18.35%
N	182	101	45	327

T-test for difference in mean, where: H_0=mean in different samples is the same, H_1= H_0 is not true

*** Variable significantly different at 1%, *treatment 1* vs *treatment 2*

Variable significantly different at 5%, treatments vs *control village*

The result shows that workers on the companies earn more than both workers in the *control village* and workers outside the companies. This could indicate that there are possibilities to earn a relatively better salary within the companies; however the difference is not statistically significant. The standard deviation is rather large though all samples have a similar spread. That we have been interviewing both unskilled and skilled workers might be an explanation for this. When collecting the data it turned out that workers not working for the companies have a hard time estimating their monthly salary as it varies from month to month. This shows that working for the company might provide a more secure fixed income every month compared to other workers. A higher salary is hypothesized to contribute positively to the welfare. Wage is also expected to be positively correlated to both education

level and profession. The distribution between skilled and unskilled workers is almost the same in *treatment 1* and the *control village* with a big majority having unskilled professions. In *treatment 2* this dispersal is even stronger with 94.1 percent performing an unskilled work.

In table 4 we compare working conditions between *treatmen1* and *the control village.*

Table 4: Statistics on working conditions for treatment 1 and the control village

	Treatment 1	***Control village***	**Total**
Years working for current employer?			
Mean	3.77**	6.06	4.09
Median	3	2	3
Standard deviation	3.39	7	4.37
Minimum	0	1	0
Maximum	11	24	24
N	181	18	199
Do you have a written contract?			
Yes	69.61%***	29.55%	61.78%
No	30.39%	70.45%	38.22%
N	181	44	
What type of contract do you have?			
No contract	35.48%***	73.81%	43.65%
Limited contract	43.23%***	21.43%	38.58%
Permanent contract	21.29%**	4.76%	17.77%
N	155	42	197
Are you self-employed?			
Yes		56.25%	
No		43.75%	
N		48	

T-test for difference in mean, where: H_0=mean in different samples is the same, H_1= H_0 is not true
*** Variable significantly different at 1%, *treatment 1* vs *control village*
** Variable significantly different at 5%, *treatment 1* vs *control village*

People in the *control village* tend to stay in the same profession for a long time, while many at the companies have recently changed profession to get employed at the company. This indicates that workers tend to be employed over a long period of time, and is an indication of employment security and the willingness to stay at the same company for a long time. It is though also important to keep in mind that the companies have not been in production for a very long time and thus many of the workers have recently been employed and may therefore not have been working for the same employer so long.

As the *control village* consists of many small scale farmers it is not surprising that a majority of the respondents are self-employed. This variable categorizes whether people are self-employed or not and specifies the regularity of being self-employed in Ethiopia.

A clear majority of the respondents in *treatment 1* have written contracts, while a majority of the workers in the *control village* do not have written agreements. This is probably due to the fact that many in the *control village* are self-employed when compared to the workers at the companies. It is interesting to analyze what type of contract the respondents have. In the *control village* less than five percent have permanent contracts, while almost twenty percent of the workers on the companies have permanent contracts. Overall it seems as if the employees at the companies face a higher employment security than employees in the *control village*. The type of contract indicates whether employers see their labor as long term investments or only seasonal. A lengthy contract could be assumed to have a positive effect on the welfare as it contributes to income security and a positive attitude towards the employer.

Table 5 displays the member of the households working at one of the companies and excludes the respondent.

Table 5: Statistics on household members working at the companies

	Treatment 1	***Treatment 2***	**Total**
Members of household working at the companies			
Mean	0.84***	0.27	0.59
Median	0	0	0
Standard deviation	1.32	0.68	1.12
Minimum	0	0	0
Maximum	10	3	10
N	173	136	309

T-test for difference in mean, where: H_0=mean in different samples is the same, H_1= H_0 is not true

*** Variable significantly different at 1%, *treatment 1* vs *treatment 2*

Comparing *treatment 1 and 2*'s households there is a difference in members working at the companies, as only one in four households of *treatment 2* has a member working at the companies. The households of *treatment 1* on the other hand have almost one member in general working for the companies which indicates a tendency of the companies to employ people from the same households. One has to be aware that the difference is not statistically significant. By seeing how many members of the families that work on the farms an even stronger understanding of how the households are affected by the companies can be reached and the direct impact by the companies therefore differs. It is also important as it gives a better understanding of the demand for labor and who gets employed.

Table 6: Statistics on company specific data for treatment 1

	Treatment 1
What did you do for a living before?	
Farmer	17.61%
Non-farmer	65.91%
State farm	16.48%
N	176
If you did not work for the company, what would you do instead?	
Farmer	18.58%
Non-farmer	61.75%
Undefined	19.67%
N	183
Did you apply for a job outside the company while employed there?	
Yes	39.05%
No	60.95%
N	169

By asking workers on the companies about their previous profession it becomes possible to see how many changed their profession in order to get the employment. A clear majority of the workers were not farmers before employment at the companies which could indicate that the companies do not demand farmer skills. There might also be few farmers that apply for jobs at the companies due to different reasons. All companies argue that they offered employments to the workers at the previous state farms (Aynalem 2010, Nugose 2010 and Siminta 2010). This is reflected by the fact that almost 17 percent of the workers on the companies were transferred from the state farms to the companies. When asked what the workers would do if not employed at one of the companies, a majority would not be farmers, numbers which in a fair way reflect what the workers did for a living before.

A majority of the workers have not applied for other jobs while working for the companies, though a total of 39 percent have applied for other jobs. This result might mirror a hope of finding better working conditions somewhere else or insecurity in the present employment.

By asking the interviewees in *treatment 2* whether they would prefer working for the companies the potential labor supply to the farms can be evaluated. That a majority of the respondents in *treatment 2* would prefer working for the companies reveals a great supply of labor and a demand of work at the companies.

Table 7: Statistics on the supply and demand for labor from treatment 2

	Treatment 2
Would you prefer working for the company?	
Yes	59.46%
No	40.54%
No answer	148
Have you applied for a job there?	
Yes	39.87%
No	60.13%
No answer	153
Why/Why not?	
To improve my life	28.93%
To get job	8.26%
Have better job	30.58%
Too old	4.96%
Do not have right qualification	19.83%
There is no job vacancy	7.44%
N	121
If you have applied for a job, why do you believe you did not get a job?	
They have enough workers	40.00%
Did not have right qualifications	26.67%
Because of corruption	33.33%
N	45

On the other hand asking how many actually applied for a job reveals the real labor supply that was rejected. Less people than would prefer working for one of the companies actually applied, though still almost 40 percent of the respondents have applied for job there. The reasons for not applying include motivations like that the respondents find themselves too old or not in possession of the right qualifications, or that there is a low demand for labor at the companies. Almost a quarter of the respondents claim that they already have a better job. About 29 percent of the interviewees who applied for a job did it to improve their lives, and some have simply answered that the reason was to find a job. By combining this with the previous question it becomes possible to assess whether people are confident in getting an employment at the companies or if it is not worth applying for it.

40 percent of the respondents think they did not get it due to lack of demand for labor. That one third of accuse the companies for corruption indicates a negative attitude towards the companies and a disbelief in them. Another stated reason for not getting a job is absence of right qualifications.

4.5 DATA ON PERCEIVED WELFARE CHANGES

In table 8 the answers to the normative questions of changes in welfare are presented. By assessing the changes in access to education in the last five years it is possible to see if there has been a positive change while the companies have been established. Access to education could be seen as one of the determinants of welfare and is an important component in the welfare measure Human Development Index (HDI) and is thus relevant to analyze (UNDP 2010). All questions regarding the welfare changes and that can only be answered with yes or no are constructed as dummies.

It is surprising to see that the access to education for *treatment 1 and 2* differ as they live in the same village and should have access to the same facilities. A majority of *treatment 2* answer that access to education has increased while among *treatment 1* one quarter of the respondents say the same thing. This despite them having similar household structures which otherwise could have been an explanatory factor. The respondents in the *control village* also state that access to education has not increased. As with the answers among *treatment 1 and 2* differ, it is hard to see whether the companies have contributed to a positive change or not. We know that Sher is the only company that actively works to increase the supply of education in its nearby surrounding, both for their employees and other members of the society (Siminta 2010), though it is still in its starting phase. A conclusion, from this can be that overall the companies do not seem to have contributed to a positive change in education.

Access to healthcare is another reasonable way of assessing the socioeconomic effects on welfare. All the companies provide their own healthcare or have agreements with public hospitals for treatments of work related injuries. Sher has also built a hospital which is offering free healthcare for workers and their families (Aynalem 2010, Nugose 2010 and Siminta 2010). This might be reflected in the answers as a majority in *treatment 1* answer that access to healthcare for their households has increased while a majority in *treatment 2* does not see an increase.

Table 8: Statistics on the perceived welfare changes

	Treatment 1	*Treatment 2*	*Control village*	Total
Has access to education increased for your household in the last five years?				
Yes	24.44%***	52.29%	32.00%	36.45%
No	75.56%	47.71%	68.00%	63.55%
N	180	153	50	383
Has access to healthcare increased for your household in the last five years?				
Yes	63.74%***	43.79%	59.62%	55.30%
No	36.26%	56.21%	40.38%	44.70%
N	182	153	52	387
Has access to water increased for your household in the last five years?				
Yes	49.72%	42.11%	83.02%###	51.30%
No	50.28%	57.89%	16.98%	48.70%
N	181	152	53	386
Has access to food increased for your household in the last five years?				
Yes	11.11%*	17.53%	13.46%	13.99%
No	88.89%	82.47%	86.54%	86.01%
N	180	154	52	386
Have the roads been improved in your Kebele the last five years?				
Yes	14.84%	16.23%	75.47%###	23.65%
No	85.16%	83.77%	24.53%	76.35%
N	182	154	53	389
Has access to electricity increased for your household in the last five years?				
Yes	14.04%***	77.48%	88.68%###	49.48%
No	85.96%	22.52%	11.32%	50.52%
N	178	151	53	382
Overall weighted perceived increase in the welfare variables: education, healthcare, water, food, roads and electricity				
Increase	29.73%***	41.57%	57.86%###	38.38%
No increase	70.27%	58.43%	40.25%	61.74%
How has your household's living condition changed in the last five years?				
Improved	48.90%	41.56%	51.92%	46.39%
Same	32.97%**	45.45%	32.69%	37.89%
Worse	18.13%	12.99%	15.38%	15.72%
N	182	154	52	388

T-test for difference in mean, where: H_0=mean in different samples is the same, H_1= H_0 is not true

*** Variable significantly different at 1%, *treatment 1* vs *treatment 2*

** Variable significantly different at 5%, *treatment 1* vs *treatment 2*

Variable significantly different at 1%, treatments vs *control village*

There might be spill-over effects from the companies, though there are fewer respondents in *treatment 2* seeing a positive change compared to the employees at the companies. The spill-over effect is captured in the different answers of *treatment 1 and 2*, as there is a difference in their answers we assume an incomplete spill-over. Between *treatment 1* and

the *control village* there is only a slight difference in the responses, which indicates that there is an overall increase of access to healthcare in the country and thus it is hard to say what depends on the companies and what spill-over effect they actually have. Increased access to healthcare is also expected to have a positive impact on welfare.

Over 80 percent in the *control village* answered that there has been an increase of access to water in the last five years. During the last year a water pipe has been built increasing the supply of water in the area (Interviewee *control village* 2010) which makes it impossible to compare these results with the treatments. Among *treatment 1 and 2* the answers are fairly similar. None of the companies have an active plan on how to provide water for the community. At the same time all of them are heavy users of water and both Castel and Sher have built their own water supply system from the nearby lake (Aynalem 2010, Nugose 2010 and Siminta 2010). Therefore the change should be due to other factors than the companies. Due to draught and heavy usage of existing water resources there is currently water shortage in the Central Rift Valley area (Hengsdijk and Jansen 2006 p. 21) and access to water is therefore highly relevant for the welfare development.

Since food is a basic need it is assumed to have a strongly positive relationship to welfare. According to the World Food Program Ethiopia is one of Africa's most food insecure countries (Roehm 2010), which boosts the importance of measuring this variable. Both Sher and Castel used to be state farms producing food, which was distributed at a reduced price to the community. Elfora is the only company in this study that still has food production, though interviews reveal that there is no food supply from the company to the surrounding village (Worker Elfora 2010 and Non-worker Elfora 2010). According to Aynalem (2010), Nugose (2010) and Siminta (2010) none of the companies have an active strategy for food aid. More than 82 percent of the respondents in every sample claim that there has not been an increase in food supply in the last five years. The answers in the *control village* confirm the general perception in the region that there has not been an increase in food supply. The land could also hypothetically have been cultivated by small scale private farmers to generate food for the households and thus the treatments could have had similar lives as the people in the *control village*.

There have been big investments in the road structure in the *control village* during the last years (Interviewee *control village* 2010). This is reflected in the answers where more

than 75 percent of the interviewees answer that roads have been improved in the last five years. Because of this change it is not feasible to use the answers as a control and it is therefore hard to assess whether the changes around the companies can be associated with a general improvement in the society or with the companies. In the debate about the international agro-investments infrastructure is often said to be more demanded by the companies and therefore developed (World Bank 2010b. p. xxii). The infrastructure that is developed by the companies in this study is though only associated with what is necessary for the production and the companies in the study do not have any agenda for this (Aynalem 2010, Nugose 2010 and Siminta 2010). All companies are located along the asphalted main road between Awassa and Addis Ababa. Infrastructure for necessary transportation was therefore already in place, and the answers reveal that only a minority see a positive change in the roads while more than 80 percent do not.

The provision of electricity is currently badly developed in Ethiopia with only 16% of the population having access to electricity in 2005 (United Nations in Ethiopia 2011) and thus development of the power system is expected to be strongly affecting the welfare positively. As there is such a large and unrealistic difference between the responses of *treatment 1 and 2* this variable is unfortunately very hard to analyze.

When analyzing the overall perception of the welfare variables, it is interesting to note that the workers on the companies are least inclined to see an overall positive change, while the respondents in *treatment 2* are somewhat more positive. A majority of the respondents in the *control village* perceive an increased welfare in the last five years, which can be assumed to represent the general trend in Ethiopia. We are though aware of the problem as there have been significant and local changes on water and roads in the *control village* not representing the country overall.

Looking at the variable of perceived living conditions in the last five years almost half of the respondents in *treatment 1* see a positive change, which differs from the weighted welfare where *treatment 2* had a more positive approach. This variable is important as it captures all variables perceived to affect the household's welfare, also the ones not examined above, such as an increase in income and other individually higher valued factors. We therefore find changes in living condition to be a more relevant variable to measure and analyze the change in welfare than the weighted welfare change. Comparing *treatment 1*

and 2 there is a higher rate of respondents in *treatment 1* recognizing an improvement in living conditions. This could indicate that there is not a comprehensive spill-over effect from the companies. In the *control village* a slight majority see a positive change in both the weighted welfare and the change in living conditions in the last five years.

4.6 DATA ON PUBLIC OPINION ABOUT LARGE SCALE LAND AQCUISITIONS

To develop the understanding of the companies' effects we want to contrast the public opinion of the people not affected by the companies with the effects found above. This is presented in table 9.

Table 9: Statistics on public opinion about the companies

	Control village
What is the public opinion about the large scale farming contracts?	
Positive	92.31%
Negative	7.69%
N	52
Why?	
Create job opportunites	23.08%
Improve peoples' living situation	19.23%
Create benefits for the country	28.85%
Contribute to technological development	21.15%
Prefer farming the land themselves	3.85%
Create conflict	3.85%
No answer	52

We find that more than 90 percent of the respondents in the *control village* claim that the public opinion about the contracts is positive. Reasons for the positive opinion are that they create job opportunities and benefits for the country; they improve peoples' living situation and contribute to the technological development. The negative arguments for the companies are that they create conflicts and that the investors cultivate land the respondents would rather cultivate it themselves. The positive arguments are the same arguments that the government uses to promote the international investments (Gemechu Gelashe 2010). The responses therefore indicate both the public opinion and what message the government and companies send out regarding the investments. Contrasting this with the observed results from the treatment groups we find the belief that the companies create

job opportunities to be justified as they have created jobs for the people living in the surrounding area.

A concern for these kinds of investments has been that many companies bring workers from abroad and thereby job opportunities get lost (World Bank 2010b p. 49), though we do not find that to be the case here. The belief that the companies will contribute to technological development is recognized in the general discussion about FDI above and is a commonly discussed positive effect FDI. This, however, is an effect that is hard to capture in the short run and is not included in this study as we do not include this in our welfare definition. Notable is that there are not many respondents giving negative opinions about the investments. The two mentioned are that the respondents would prefer to cultivate the land themselves and that the companies create conflicts.

Almost 20 percent of the respondents in the *control village* state that the public opinion regarding large scale land investments is that they improve peoples' lives. We will now contrast those answers with the result from the affected respondents.

The statistics in table 10 is based the variables measuring the change in living condition and whether the companies have contributed to this change.

Table 10: Statistics on perceived welfare change due to company

	Treatment 1	***Treatment 2***	**Total**
Weighted change in living condition due to the companies			
Positive change in living condition	29.45%***	9.74%	20.36%
No change in living condition	2.22%***	2.60%	2.40%
Negative change in living condition	5%**	0.65%	2.99%
Company contributed to no change	63.33%***	87.01%	74.25%
N	180	154	334

T-test for difference in mean, where: H_0=mean in different samples is the same, H_1= H_0 is not true

*** Variable significantly different at 1%, *treatment 1* vs *treatment 2*

** Variable significantly different at 5%, *treatment 1* vs *treatment 2*

No change in living condition refers to the respondents who stated that the companies have contributed to the change but have on the other hand stated that they have no change in their living condition. These are incompatible answers and we do not want to speculate in

the reasons behind. The category stating that the company contributed to no change aim at the ones saying that their living conditions is not associated with the company.

From this table we find that of the respondents affected by the companies, *treatment 1 and 2*, a vast majority of 74.3 percent state that the companies have not contributed to a change. This captures the respondents who might have had a change in living but do not perceive the change to be due to the companies. The result from *treatment 1* shows that almost 30 percent perceive a positive change in living condition due to the companies. Still 63.3 percent do not see a change due to companies, which is notable as the public opinion and the companies both state that the investments contribute to a positive change in the living condition (Aynalem 2010, Nugose 2010 and Siminta 2010). Also in *treatment 2* almost 30 percent that have applied for a job at the companies did so with the hope of improving their lives, as noted above. Among *treatment 2* only 9.7 percent experience a positive change in living condition due to the companies. This is a much smaller share than in *treatment 1* and reveals that those employed by the companies experience a more positive change of the companies than those not employed by the companies. This could be explained by the fact that the companies provide their salary and other possible welfare facilities. Despite this 5 percent of people employed at the farms state that their living conditions have decreased due to the companies, whereas only 0.7 percent of *treatment 2* see the same negative change. In *treatment 2* more than 85 percent state that the companies have not contributed to a change.

Finally in table 11 we will display whether *treatment 1* and *treatment 2* would prefer to cultivate the land for private use.

Table 11: Statistics on preferences on cultivation of land

	Treatment 1	***Treatment 2***	**Total**
Would you prefer to cultivate the land for private use?			
Yes	77.53%**	87.42%	82.07%
No	22.47%	12.58%	17.93%
N	178	151	329

T-test for difference in mean, where: H_0=mean in different samples is the same, H_1= H_0 is not true

** Variable significantly different at 5%, *treatment 1* vs *treatment 2*

A clear majority of both *treatment 1 and 2* would rather cultivate the land themselves if given the opportunity. This result verifies the fact that Ethiopia is a rural based agricultural society where people, if they get the opportunity, would rather farm the land themselves

than let the companies cultivate the land. The differences between the responses in *treatment 1 and 2* could be explained by different attitudes towards the companies or the professional background in *treatment 1* where there are only few farmers present. The question whether people would prefer to cultivate the land themselves evaluates how land tenure is valued by the interviewees. As conflicts over land cultivated by the international agro investors in Ethiopia are pending (Wells et al 2011) this is important. There are no visible conflicts at this time concerning the land used by the companies in this study (Obsaa Korbuu 2010), though people might still prefer to use the land themselves.

The interviews performed on interviewees, representatives from the companies and the government verify that the answers in the questionnaires are relevant.

5 ECONOMETRIC ANALYSIS

We will now investigate how welfare is affected by the companies using regression analysis. This will be displayed by how the demand for labor, the wage and the perceived welfare are influenced by different factors to answer our above stated research question. All variables that have a relatively high correlation, less than -0.5 and more than 0.5, and used in the regressions are displayed in appendix 1. These represent less than 3 percent of all included variables. With high correlations there is a risk of collinearity, which could cause problems when estimating our models. However, as the linear relationship among the variables in our sample is not exact, equal to |1|, there is no violation of the least squares assumption and we still define the best linear unbiased estimator (Hill et al 2008 p. 154). We are aware that the collinearity could cause high standard errors and estimators that are not significantly different from zero, but find the variables still to be relevant and include them in our models.

5.1 REGRESSION DEMAND FOR LABOR

The variables that in the most comprehensive way present the demand for labor by the companies are: age, age squared, gender, education, household size and household members working on the premises. We include age squared, as we believe there to be a decreasing effect of age and the age square variable can capture this non-linearity. As *treatment 1 and 2* represent the supply of labor available for the companies we use the variable work for company as the dependent variable and apply the model on both

treatment groups. The dependent variable, work for company, is created as a dummy which can take either the values 0 for no or 1 for yes. Table 12 contains information on how the variables used in the model are defined and their expected outcome.

Table 12: Variables, definitions and expected outcomes of demand for labor

Variable	*Definition*	*Expected outcome on demand for labor*
Age	Years	+
Age squared	Years squared	-
Gender	Female or male where male is equal to 1	-
No education	No education	Omitted
Primary education	Grade 1-8	+
Secondary education	Grade 9-12	+
Tertiary education	More than grade 12	+
Household size	Number of people in the household	+/-
Members on premises	Household members working for the companies	+

Regression 1

$$Demand\ for\ labor_i=\beta_1+\beta_2 age_i+\beta_3 age\ squared+\beta_4 gender_i+\beta_5 primary\ education_i+\beta_6 secondary\ education_i+\beta_7 tertiary\ education_i+\beta_8 household\ size_i+\beta_9 members\ on\ premises_i+e_i$$

Table 13 displays the results from the regression modeling labor demand. We find that both age and age squared are significant at the 1% level and there is a diminishing effect of age. We expected gender to be negative in this regression as all companies stated that they demand women to a higher extent than men (Aynalem 2010, Nugose 2010 and Siminta 2010). However we find that gender has no significant impact. We have omitted no education and find that secondary and tertiary educations have a significantly positive impact on the probability of being employed at one of the companies; 17.6 percentage-points for secondary and 26.6 percentage-points for tertiary education. The effect of the variable household size was hard to predict but shows here a negative effect on

employment. As expected having members from the household working on the premises has a positive influence on one's own probability to be employed on the companies.

Table 13: Regression on demand for labor

	Regression 1
	Demand for labor (*Treatment 1 and 2*)
Age	.032348
	(2.70)***
Age squared	-.0003835
	(-2.60)***
Gender	-.0903696
	(-1.57)
Primary education	.0185569
	(0.19)
Secondary education	.1758443
	(1.73)*
Tertiary education	.2655686
	(2.53)**
Household size	-.0145998
	(-2.09)**
Members on premises	.1263407
	(4.70)***
Constant	-.0849181
	(-0.37)
R-squared	0.1427
P-value	0.0000
Observations	296

Note: Standard errors are robust to heteroskedasticity

Note: T-test displayed in parenthesis

Note: The variable no education is omitted due to collinearity

*** Variable is significant at 1%

** Variable is significant at 5%

* Variable is significant at 10%

5.2 REGRESSIONS ON WAGE AND PERCEIVED WELFARE, INCLUDING CORE VARIABLES

There are variables that appear to be important in the following two regressions; age, age squared, gender and education. Household size could have been expected to have an impact on the two variables, however as it turns out the variable has no significant effect and we therefore do not include it. We have thus chosen these four variables as our core variables

and will start by displaying them in a separate table to present our basic data and give an idea of what we base our further analysis on. We run the regressions both with and without a *control village* dummy to reveal whether there are any differences between the ones close to the companies and the *control village*. The two outcomes of interest are for now projected on the entire sample, including *treatment 1 and 2* and the control group, to display our sample. Based on our hypotheses we run the following regressions:

Regression 2.1

$$Log\ wage_i=\beta_1+\beta_2 age_i+\beta_3 age\ squared_i+\beta_4 gender_i+\beta_5 primary\ education_i+\beta_6 secondary\ education_i+\beta_7 tertiary\ education_i+ e_i$$

Regression 2.2

$$Log\ wage_i=\beta_1+\beta_2 age_i+\beta_3 age\ squared_i+\beta_4 gender_i+\beta_5 primary\ education_i+\beta_6 secondary\ education_i+\beta_7 tertiary\ education_i +\beta_8 control\ village_i+ e_i$$

Regression 3.1

$$Perceived\ welfare\ effect_i=\beta_1+\beta_2 age_i+\beta_3 age\ squared_i+\beta_4 gender_i+\beta_5 primary\ education_i+\beta_6 secondary\ education_i+\beta_7 tertiary\ education_i+ e_i$$

Regression 3.2

$$Perceived\ welfare\ effect_i=\beta_1+\beta_2 age_i+\beta_3 age\ squared_i+\beta_4 gender_i+\beta_5 primary\ education_i+\beta_6 secondary\ education_i+\beta_7 tertiary\ education_i +\beta_8 control\ village_i+ e_i$$

Table 14 contains information on how the variables used in the model are defined and their expected outcome. In table 15 the regression on wage and perceived welfare are run on the core variables. Log wage is used as it is then easier to interpret the results. When computing the log wage all core variables are significant at 1 or 5 percent level, indicating that they all affect the wage in some way. The *control village* variable on the other hand shows no significant difference between the wage in the treatments and the *control village* and we have therefore chosen to base our analysis here on regression 2.1. Age has thus a positive impact on wage, as does being a male with a 17.6 percent higher wage, though age has diminishing returns to wage. As expected, education has a strongly positive impact on wage; primary education increases wage by 33.7 percent, secondary education by 81.9 percent and tertiary education by 99.8 percent. 83 observations were dropped in regression 2.1 and 2.2 as the regressions only include those respondents that actually have an income.

Table 14: Variables, definitions and expected outcomes of wage and perceived welfare

Variable	*Definition*	*Expected outcome on wage*	*Expected outcome on perceived welfare*
Age	Years	+	+
Age squared	Years squared	-	-
Gender	Female or male where male is equal to 1	+	+
No education	No education	Omitted	Omitted
Primary education	Grade 1-8	+	+
Secondary education	Grade 9-12	+	+
Tertiary education	More than grade 12	+	+
Control village	Effect of living in the control village	+/-	+/-

By running the regression on the perceived welfare effects on the entire sample no variables are significant indicating that there must be more variables important to explain the outcome of interest. The high p-value also indicates that other inputs explain what affects the respondents' welfare.

That the *control village* dummy has no significant impact on either wage or perceived welfare indicates that we cannot reject that the coefficient is not equal to zero. We therefore choose not to include this variable in the further regressions. However we still find it relevant to run regressions on the *control village* to compare and contrast with the treatments, though we do not anymore include the *control village* dummy.

Table 15: Regression on wage and perceived welfare on core variables

	Regression 2.1 Log wage (all groups)	*Regression 2.2* Log wage (all groups)	*Regression 3.1* Perceived welfare effect (all groups)	*Regression 3.2* Perceived welfare effect (all groups)
Age	.0801626	.0800876	-.0103996	-.0105985
	(3.85)***	(3.81)***	(-0.68)	(-0.70)
Age squared	-.0007782	-.000776	.000167	.000168
	(-2.89)**	(-2.85)***	(0.87)	(0.88)
Gender	.1755744	.1762043	-.0349532	-.0350862
	(2.09)**	(2.10)**	(-0.44)	(-0.44)
Primary education	.3367882	.3406612	-.0036313	-.0078266
	(2.14)**	(2.13)**	(-0.03)	(-0.07)
Secondary education	.8189107	.8163197	.1788334	.183269
	(4.94)***	(4.86)***	(1.41)	(1.44)
Tertiary education	.9982979	.9976376	.1276291	.1311963
	(5.72)***	(5.68)***	(0.94)	(0.96)
Control village		-.0462337		.0757269
		(-0.33)		(0.67)
Constant	4.047751	4.053028	2.390625	2.384794
	(10.32)***	(10.26)***	(8.50)***	(8.48)***
R-squared	0.2525	0.2529	0.0135	0.0147
P-value	0.0000	0.0000	0.5317	0.5889
Observations	307	307	373	373

Note: Standard errors are robust to heteroskedasticity

Note: T-test displayed in parenthesis

Note: The variable no education is omitted due to collinearity

*** Variable is significant at 1%

** Variable is significant at 5%

5.3 EXTENDED WAGE REGRESSION

We first add skilled profession where we have defined profession as either skilled or unskilled. Skilled is categorized based on whether the performed work requires a formal education and unskilled is work that can be done without any specific education. We also add working hours and work for company and run regression 2.3 on *treatment 1 and 2* to highlight the differences in wage depending on whether the respondent is employed by the companies or not.

In regression 2.4 we include the core variables and further add skilled production, unskilled office and skilled office. Skilled profession is now divided into skilled production

and skilled office dependent on where the work is carried out, production means actual production and office encompasses everything else including for example manager, nurse and accountant officer. Similarly unskilled is divided into unskilled production and unskilled office, where office for example includes guards, secretary, drivers and cleaners. We further add working hours, years employed and written contract into the model. We apply this regression only on *treatment 1* to see what determines the wage inside the company.

In regression 2.5 we use the same variables but return to the definition of profession as skilled and unskilled. To be able to compare and contrast the wage with the *control village* we also omitted years employed at the company. As there are many self-employed in the *control village* and we want to compare with all wage earners in the *control village* this is necessary. Finally we run the same regression 2.5 on the *control village* to be able to assess the general trend and expose differences between the samples. We choose to include the variable written contract rather than type of contract as this gives a higher significance level. This could be explained by the fact that the non-response rate is higher when asking for the type of contract.

Regression 2.3

$$Log\ wage_i=\beta_1+\beta_2 age_i+\beta_3 age\ squared_i+\beta_4 gender_i+\beta_5 primary\ education_i+\beta_6 secondary\ education_i+\beta_7 tertiary\ education_i+\beta_8 skilled_i+\beta_9 working\ hours_i+\beta_{10} work\ for\ company_i+e_i$$

Regression 2.4

$$Log\ wage_i=\beta_1+\beta_2 age_i+\beta_3 age\ squared_i+\beta_4 gender_i+\beta_5 primary\ education_i+\beta_6 secondary\ education_i+\beta_7 tertiary\ education_i+\beta_8 skilled\ production_i+\beta_9 unskilled\ office_i+\beta_{10} skilled\ office_i+\beta_{11} working\ hours_i+\beta_{12} years\ employed_i+\beta_{13} written\ contract_i+e_i$$

Regression 2.5

$$Log\ wage_i=\beta_1+\beta_2 age_i+\beta_3 age\ squared_i+\beta_4 gender_i+\beta_5 primary\ education_i+\beta_6 secondary\ education_i+\beta_7 tertiary\ education_i+\beta_8 skilled_i+\beta_9 working\ hours_i+\beta_{10} written\ contract_i+e_i$$

First we display the definitions of the variables used in the regression and the expected outcomes on wage.

Table 16: Variables (other than core variables), definitions and expected outcomes of wage

Variable	*Definition*	*Expected outcome on wage*
Unskilled	No specific education needed for task	-
Skilled	Specific education needed for task	+
Unskilled production	Unskilled tasks in production	Omitted
Skilled production	Skilled tasks in production	+
Unskilled office	Unskilled tasks outside production	0
Skilled office	Skilled tasks outside production	+
Working hours	Hours worked per day	+/-
Work for company	Employed by companies in this study	+/-
Years employed	Years	+
Written contract	Yes/no where yes is equal to 1	+

In table 17 we see that regression 2.3 again reveals the expected diminishing return to age as age and age squared are significant at 1 and 5 percent level respectively. Gender is not significant in this regression. Education does as hypothesized positively affect wage; wage increase with 48.8 percent when the respondent has primary education and 83.5 percent with secondary education and 83.0 percent with tertiary education.

Having a skilled profession shows a strong positive impact on wage as wage is 81.9 percent higher for skilled workers. Neither working hours nor work for company has a significant impact on the wage in this regression. We hypothesized there to be a difference in wage for those working at the companies compared to those outside, however we could not predict whether the wage would be higher or lower. Notable is that when measuring wage we omit all observations of unwaged respondents in both *treatment 2* and the *control village*.

When running regression 2.4 on *treatment 1* we see that age has a positive impact but that age squared is not significant. Being male increases the wage by 15.5 percent.

Table 17: Regression on wage

	Regression 2.3	*Regression 2.4*	*Regression 2.5*	*Regression 2.5*
	Log wage (*Treatment 1 and 2*)	**Log wage (*Treatment 1*)**	**Log wage (*Treatment 1*)**	**Log wage (*Control village*)**
Age	.0661073	.0427952	.0604277	.011043
	(3.48)***	(1.89)*	(2.56)**	(0.29)
Age squared	-.0007137	-.0004403	-.0006573	.0001407
	(-2.91)**	(-1.37)	(-1.93)*	(0.31)
Gender	.0005025	.1547187	.1112387	.6504058
	(0.01)	(1.96)*	(1.40)	(2.43)**
Primary education	.4876931	.2198209	.2647542	.01943
	(3.92)***	(1.94)*	(2.40)**	(0.04)
Secondary education	.8353037	.5221503	.558284	.8460217
	(6.49)***	(4.50)***	(4.83)***	(1.23)
Tertiary education	.8301941	.5474991	.6255898	-.3941766
	(5.48)***	(4.14)***	(4.76)***	(-0.69)
Skilled	.8194894		.6911443	1.744489
	(6.58)***		(5.28)***	(2.38)**
Skilled production		.5752311		
		(3.51)***		
Unskilled office		.1543458		
		(1.97)**		
Skilled office		1.0887		
		(6.02)***		
Working hours	.0116818	-.0489696	-.0254864	.0779668
	(0.54)	(-2.27)**	(-1.26)	(1.38)
Work for company	-.0394349			
	(-0.41)			
Years employed		-.0279885		
		(-1.82)*		
Written contract		.2385481	.2699296	-.8513681
		(2.91)***	(3.35)***	(-2.60)**
Constant	4.28721	5.268711	4.681867	4.414989
	(11.08)***	(12.11)***	(11.16)***	(5.02)***
R-squared	0.3919	0.5952	0.5510	0.4752
P-value	0.0000	0.0000	0.0000	0.0010
Observations	253	163	165	38

Note: Standard errors are robust to heteroskedasticity
Note: T-test displayed in parenthesis

Note: The variables no education, unskilled, unskilled production and do not work for company are omitted due to collinearity
*** Variable is significant at 1%

** Variable is significant at 5%

* Variable is significant at 10%

As in the previous regression education has a positive impact on wage, though not as strong; 22.0 percent for primary education, 52.2 percent for secondary education and 54.7 percent for tertiary education. Unskilled production is omitted and skilled production workers have a 57.5 percent higher wage, unskilled office gives a higher wage of 15.4 percent and skilled office 108.9 percent compared to unskilled production. Working hours is here significant at a 5 percent level and has a negative impact on wage. This could be due to the fact that overtime is to a greater extent required for unskilled workers than for skilled workers and therefore the wage decreases with working hours (Aynalem 2010, Nugose 2010 and Siminta 2010). Years employed has a negative impact, 2.8 percent for every additional year, though the companies have only been established between three and eleven years. Therefore the effect of this variable has its limitations. Having a written contract increases the wage with 23.9 percent and is significant at a 1 percent level.

In regression 2.5 age and age squared are significant and as in regression 2.2 display diminishing returns. Gender has no significant effect here. Education has again a positive effect on wage and skilled work has a highly significant and positive impact on wage. Working hours is not significant while written contract has a positive effect.

Running the same regression on the *control village* gives significant coefficients on gender, skilled work and written contract. Comparing the gender coefficient with the regression on *treatment 1* shows a stronger positive relationship of 65 percent between being male and wage in the *control village*. Similarly a skilled profession increases wage by 475 percent[1] which is a higher relative effect than the 200 percent[2] wage increase for skilled employees on the companies. A more unexpected result is the written contracts effect in the *control village* which gives a 134 percent[3] lower wage. This could be explained by the fact that many respondents are self-employed farmers who earn more than employed workers.

5.4 REGRESSION ON PERCEIVED CHANGES IN STANDARDS OF LIVINGS

We choose to examine the perceived changes in living condition as our outcome of interest to be able to evaluate the change in welfare in both treatment groups and the *control village*. By comparing *treatment 1 and 2* with the *control village* we can measure the impact of the companies on welfare and also assess the overall welfare changes.

[1] $Relative\ effect\ skilled = (e^{1.75} - 1) * 100$; *control village*
[2] $Relative\ effect\ skilled = (e^{0.69} - 1) * 100$; *treatment 1*
[3] $Relative\ effect\ written\ contract = (e^{0,851} - 1) * 100$; *control village*

In regressions 3.3 and 3.4 we choose to include the core variables and add wage, household size, working hours, work for company and profession on *treatment 1 and 2*. In regression 3.4 we also add the perceived changes in education, healthcare, water, food, roads and electricity in the last five years. Regression 3.3 and 3.4 are applied on *treatment 1 and 2* as the purpose is to assess the overall welfare effect of the companies on both directly and indirectly affected.

To be able to compare the welfare effects on the treatments and the *control village* and to capture all respondents, including the non-wage earners, we do not include any variables regarding work as too many observations then are omitted in the *control village*. Regressions 3.5 is thus applied both on the two treatments and on the *control village* and include the same variables as regression 3.4 with the exception of the work related variables.

Regression 3.3

$$\textit{Perceived welfare effect}_i=\beta_1+\beta_2 \textit{age}_i+\beta_3 \textit{age squared}_i+\beta_4 \textit{gender}_i+\beta_5 \textit{wage}_i+\beta_6 \textit{household size}_i+\beta_7 \textit{working hours}_i+\beta_8 \textit{work for company}_i+\beta_9 \textit{primary education}_i+\beta_{10} \textit{secondary education}_i+\beta_{11} \textit{tertiary education}_i+\beta_{12} \textit{skilled}_i+ e_i$$

Regression 3.4

$$\textit{Perceived welfare effect}_i=\beta_1+\beta_2 \textit{age}_i+\beta_3 \textit{age squared}_i+\beta_4 \textit{gender}_i+\beta_5 \textit{wage}_i+\beta_6 \textit{household size}_i+\beta_7 \textit{working hours}_i+\beta_8 \textit{work for company}_i+\beta_9 \textit{primary education}_i+\beta_{10} \textit{secondary education}_i+\beta_{11} \textit{tertiary education}_i+\beta_{12} \textit{skilled}_i+ \beta_{13} \textit{improved access to education}_i+\beta_{14} \textit{improved access to healthcare}_i+\beta_{15} \textit{improved access to water}_i+\beta_{16} \textit{improved access to food}_i+\beta_{17} \textit{improved access to roads}+\beta_{18} \textit{improved access to electricity}_i+e_i$$

Regression 3.5

$$\textit{Perceived welfare effect}_i=\beta_1+\beta_2 \textit{age}_i+\beta_3 \textit{age squared}_i+\beta_4 \textit{gender}_i+ \beta_5 \textit{household size}_i+\beta_6 \textit{primary education}_i+\beta_7 \textit{secondary education}_i+\beta_8 \textit{tertiary education}_i+\beta_9 \textit{improved access to education}_i+\beta_{10} \textit{improved access to healthcare}_i+\beta_{11} \textit{improved access to water}_i+\beta_{12} \textit{improved access to food}_i+\beta_{13} \textit{improved access to roads}+\beta_{14} \textit{improved access to electricity}_i+e_i$$

Table 18 contains information on how the variables used in the model are defined and their expected outcome on perceived welfare.

Table 18: Variables (other than core variables), definitions and expected outcomes of perceived welfare

Variable	*Definition*	*Expected outcome on perceived welfare*
Wage	Birr per month	+
Working hours	Hours worked per day	+/-
Work for company	Employed by companies in this study	+/-
Unskilled	No specific education needed for task	-
Skilled	Specific education needed for task	+
Imp. access to education	Perceived improvement in access to education last five years	+
Imp. access to healthcare	Perceived improvement in access to healthcare last five years	+
Imp. access to water	Perceived improvement in access to water last five years	+
Imp. access to food	Perceived improvement in access to food last five years	+
Imp. access to roads	Perceived improvement in access to roads last five years	+
Imp. access to electricity	Perceived improvement in access to electricity last five years	+

In table 19a and 19b the regression on perceived welfare is displayed. As expected wage has a positive, though small, impact on living condition in both regressions 3.3 and 3.4. In regression 3.3 working hours and primary education have a significant and positive impact on welfare and in regression 3.4 improved accesses to water has a positive impact.

In regressions 3.5 none of the core variables are significant though when projected on the treatments improved access to water show similar results as in regression 3.4. When the same regression is run on the *control village* improved access to electricity is the only significant variable illuminating a positive effect on perceived welfare.

Table 19a: Regression on perceived welfare

	Regression 3.3	*Regression 3.4*	*Regression 3.5*	*Regression 3.5*
	Change in living condition (*Treatment 1 and 2*)	**Change in living condition (*Treatment 1 and 2*)**	**Change in living condition (*Treatment 1 and 2*)**	**Change in living condition (*Control village*)**
Age	-.0243072	-.0079618	.0034743	.0199728
	(-1.13)	(-0.37)	(0.19)	(0.47)
Age squared	.0002594	.0000761	-.0000229	-.000149
	(0.96)	(0.29)	(-0.10)	(-0.35)
Gender	-.1408221	-.172325	-.0968484	.0216902
	(-1.38)	(-1.63)	(-1.08)	(0.09)
Wage	.0001231	.000097		
	(3.51)***	(3.22)***		
Household size	.0113332	.0074196	-.0968484	.0427092
	(0.91)	(0.63)	(-0.30)	(0.99)
Working hours	.0357627	.0326689		
	(1.73)*	(1.53)		
Work for company	.0202538	.0656974		
	(0.19)	(0.45)		
Primary education	-.2877606	-.2369094	.0253499	-.0665991
	(-1.92)*	(-1.45)	(0.18)	(-0.22)
Secondary education	-.0896333	-.0363094	.2166179	.0934499
	(-0.56)	(-0.20)	(1.48)	(0.21)
Tertiary education	-.254693	-.1731735	.1785576	.2907727
	(-1.35)	(-0.87)	(1.15)	(0.62)
Skilled	.1817396	.1994844		
	(1.15)	(1.39)		
Imp. access to education		.0876186	.0637946	-.0328038
		(0.73)	(0.65)	(-0.10)
Imp. access to healthcare		-.1111152	-.0532297	.4330417
		(-0.92)	(-0.54)	(1.39)
Imp. access to water		.3454009	.3185991	.4308159
		(3.29)***	(3.48)***	(1.16)

Note: Standard errors are robust to heteroskedasticity

Note: T-test displayed in parenthesis

Note: The variables no education and skilled are omitted due to collinearity

*** Variable is significant at 1%

* Variable is significant at 10%

Table 19b: Regression on perceived welfare, continued.

	Regression 3.3	*Regression 3.4*	*Regression 3.5*	*Regression 3.5*
	Change in living condition (*Treatment 1 and 2*)	**Change in living condition (*Treatment 1 and 2*)**	**Change in living condition (*Treatment 1 and 2*)**	**Change in living condition (*Control village*)**
Imp. access to food		-.2406406	-.1991265	.2266202
		(-1.30)	(-1.43)	(0.72)
Imp. access to roads		.1596027	.1649838	-.4384449
		(0.95)	(1.30)	(-1.42)
Imp. access to electricity		.1219696	.1213469	.5573688
		(0.84)	(1.40)	(1.90)*
Constant	2.516595	2.053318	1.990071	.83457
	(5.45)***	(4.47)***	(5.88)***	(1.00)
R-squared	0.0838	0.1497	0.0832	0.3344
P-value	0.0002	0.0000	0.0084	0.0006
Observations	251	243	308	46

Note: Standard errors are robust to heteroskedasticity

Note: T-test displayed in parenthesis

Note: The variables no education and skilled are omitted due to collinearity

*** Variable is significant at 1%

* Variable is significant at 10%

6 SCOPE AND LIMITATIONS OF THE METHOD

There are alternative ways of answering a particular question. We chose to mainly use a quantitative method where primary data was collected. Another possible method could have been to perform a qualitative study on a smaller sample of either workers or employers. A completely qualitative study would be interesting for the understanding of the deeper perceptions of the contracts. This is why we have chosen to complement our questionnaires with qualitative interviews of workers, contractors and representatives from the government. This contributes to our analysis and is our secondary method. The limitation of a pure qualitative method is, as stated before, the sensitivity of the issue and the fact that people might be hesitant to answer honestly. Also the language barriers might complicate a more qualitative study as we would rely very much on a translator and there might be communication obstacles. As we want to collect statistical data and be able to

generalize our conclusion we have chosen to conduct a quantitative study on a larger sample.

It would have been adequate to perform a compare and contrast study with villages not affected by international investors. Due to the time limit and the difficulties in finding equal villages with the same prerequisite, one *control village* was studied to verify the causal effects. If the variables that that were determined before the companies entered and thereby the variable not determined by the companies were equal in *treatment 1 and 2* and the *control village* the *control village* would be a perfect comparison. However there are differences in the variables, and also in the variables where the change by the companies is measured there are differences due to for example a water project. It is still relevant to keep the *control village* as it gives some comparison and due to the limitation of time the *control village* we use is the most relevant found in the surrounding area.

A literature study of the micro level welfare effects of large scale land acquisitions in Ethiopia is currently not feasible since documentation is limited. The study could also have answered the questions by focusing on government representatives and the managers of the companies but it is then hard to achieve validity and reliability. A study of the written contracts could also be an alternative approach but this would only depict the formal working conditions and not display the real effects of the investments. Due to secrecy it is also hard to get hold of these contracts.

7 ANALYSIS

Our data shows that most of the employees were not farmers before they were hired by the companies. This contradicts our preconceptions that the agricultural farms would predominantly hire farmers. It also contradicts our assumption that those employed would farm the land themselves if the companies were not there. However, as Ethiopia's population consists primarily of farmers (Adenew 2009 p. 1) there are still many farmers who could otherwise farm the land given to investors and most of the interviewees would rather farm the land themselves if they got the opportunity. This means that even if not all of them were farmers before, they would still cultivate the land if it was given to them. As expected a high education is requested by the companies and also a diminishing preference of age as the companies prefer labor in working age. According to our expectations, having

members of the household working for the companies increases the prospect of being employed there. There is a negative relationship between household size and employment. In our sample the correlation between household size and education is low. It is however recognized that higher education often results in lower fertility (Sachs 2005 p. 65).

As shown in the statistics a majority of the respondents in *treatment 2* would prefer to work for one of the companies and most of them also applied for a job there. This reflects a great supply of labor and a great faith in the companies as many applied to improve their lives. This is also revealed in the public opinion captured in the *control village* where one of the main arguments is that these investments create job opportunities. That local people often identify jobs as the most important and immediate benefit of the investments is also discussed in the World Bank report. The report however argues that the valuation depends on whether the jobs are seasonal (2010b p. 49), which is the reality for many of the employees at the companies. The same argument is used by the government and their agencies to promote the stated positive outcomes (Obsaa Korbuu 2010). It is however difficult to assess if the public opinion is reflecting the government's position or if the government is also representing the public opinion. Either way the government has an incentive to promote the investments and has according to our data been successful. At the same time almost half of the workers on the companies have applied for other jobs while employed. This could indicate that the companies do not meet the expectations as employers. People do get jobs, but once employed the companies might not fulfill the expectations, or the employees once employed have the faith in acquiring a better job.

A higher wage at the companies is related to being a male, having an education, being skilled, having a contract and diminishing return to age. However there is no significant difference between the wages of employees at the companies contra other workers. That there is no higher wage associated with an employment at one of the companies illuminates that the ones without previous employment are expected to perceive an improved welfare when employed there while the ones with another job before do not. Both the statistics and the regression show that there are no differences in the salary between workers at the companies and the *control village*. However the regression reveals that a written contract has a positive effect on wage when employed at the companies, while a highly negative effect on the wage in the *control village*. This is probably explained by the high portion of

self-employed farmers in the *control village* that on average earn more than others there. At the companies more workers have written contracts, and when they have contracts the contracts are more frequently permanent, compared to the *control village*. This creates employment security which is harder to measure than the actual salary. In the *control village* education has no significant effect on wage, further enhancing the argument that most of them are self-employed and adjust their tasks according to ability in another way than possible at the companies. Our result is thus that the companies create some employment security though not a better wage compared to others. At the same time our result shows a significantly smaller household size for employees compared to others, indicating that this same amount of money is divided between fewer people. This indicates that employees at the companies still might be better off in a monetary sense.

Welfare is a difficult variable to measure. Our definition of welfare in this study is not all-embracing and due to the regressions have difficulties in capturing the whole reality. This could be one reason why the results are not very strong. That wage has a positive impact on the perceived welfare was expected as money has an impact on the living situation. The fact that the respondents in *treatment 1 and 2* value water as an important factor of their perceived welfare is an issue that the companies should take into consideration. Noteworthy is that all companies are heavy users of water and that there is water deficiency in the region (Hengsdijk and Jansen 2006 p. 21). This implies that with continued high water depletion and without any actions to develop the water system this could result in a potentially decreased welfare. That only a minority of the respondents see an increase in the supply of food implies that the food scarcity remains serious in the country (Roehm 2010). The argument that the companies use land that could have been cultivated for domestic food production still remains and the result above indicates that the issue is still relevant. If there would not have been a food deficit in the country the argument would not be as strong as there hypothetically would be less need to use the land for food production. In this case though there is a high demand of food that is not fulfilled and therefore the opportunity cost is higher in Ethiopia.

Employees at the companies are more prone to see a positive change in their living conditions due to the companies, than people living in the surrounding area in general. This implies that being employed by one of the companies creates welfare benefits. The *control*

village records the most positive change in their living condition. The answers to the questions on changes in living condition differ from our weighted welfare measure. This suggests that welfare can include different variables and the outcomes from our question regarding the change in living condition are determined on an individual basis. That the measures are not completely compatible shows that the definition can be further improved. Despite a vast majority stating the public opinion to be positive regarding the international large scale investments, a minority of the ones close to the companies see a positive impact due to the investments. This implies that the public opinion is not shared by them.

Depending on how one defines welfare the outcome varies. However our results indicate that people working for the companies see a more positive change in their welfare due to the companies than the ones affected by the companies but not employed by them.

8 CONCLUSION

This study aimed to analyze how the welfare of households located in the Oromia Region along the Central Rift Valley in Ethiopia is affected by large scale land acquisitions. This is done by a quantitative study based on data collected by us at three companies in the affected region. The sample contains both workers at the companies, people affected but not employed by the companies and a *control village*.

Our data indicates that a majority of the people in the surrounding area would prefer to work for the companies, implying that there is a large supply of labor for the companies and a belief that the companies will improve peoples' living situation. However, most workers have applied for other jobs, which could indicate a dissatisfaction of the employment or a belief in finding a better job.

Wage has a positive impact on welfare. There is no higher wage associated with an employment at the companies compared to other employments, though the household sizes for the employees at the companies are smaller than for others and therefore the income per person in the household is still larger. A job at the companies brings security as it is more common for the employees to have a written contract. It is recognized that the companies do create job opportunities. However one has to compare this with the opportunity costs for the local inhabitants to farm the land themselves.

That water is very important for welfare and the fact that the companies are heavy users of water, despite the shortage of water in the area, implies that in a longer perspective this could have negative implications for the welfare. Employees at the companies tend to see a greater role of the companies in an improvement of their welfare than other people in the area. The public opinion however has an even more positive attitude towards the large scale land investments than those affected. The inference from this is that the government's position is mirrored among the public, or vice versa, but is not completely reflecting what those affected by the investments experience.

As large scale land acquisitions in Africa is an increasing phenomenon there are still many areas to investigate. To further develop our result the demand for labor could further be examined by characterizing the supply of labor meeting the companies to get a further understanding of the labor market. The working conditions at the companies compared to other workplaces could be further developed to examine the labor security of the employees and how this affects the welfare. It would also be of great importance to further analyze the spill-over effects of the companies on the welfare. As our welfare definition does not explain the whole picture of welfare our study could be complemented with other approaches and definitions. It would be interesting to do a similar study in the future to capture the real long term effect. A similar study could also be done on other affected areas to be able to generalize the results further.

To conclude, this study highlights the complexity of measuring welfare as we find the companies to have both positive and negative impacts on peoples' welfare. The study also emphasizes the overall intricacy of the investments and how different components of the households' welfare are affected diversely and we thereby verify that the story is not completely black or white.

9 BIBLIOGRAPHY

Adenew, Berhanu, 2009. *The Performance of Ethiopian Agriculture: A Retrospective Study.* Ethiopian Economic Association.

Alemu, Hilina, 2010. "Saudi Star to Swallow 100.000sqm of Bishoftu Land", *Addis Fortune.* February 21, 2010. <http://addisfortune.com/Saudi%20Star%20to%20Swallow%20100,000sqm%20of%20Bishoftu%20Land.htm> (September 29, 2010).

Angrist, D. Joshua and Pischke, Jörn-Steffen, 2009. *Mostly Harmless Econometrics – An Empiricist's Companion*. United States of America: Princeton University Press

Ashine, Argaw, 2009. "Hunger-ridden Ethiopia defends land grabs", *Business Daily.* August 14, 2009. <http://www.businessdailyafrica.com/Company%20Industry/-/539550/639306/-/u8arkuz/-/ > (September 06, 2010).

Aynalem, Fethanegest, 2010. Oral interview: December 7, 2010. Manager of Administration and Finance, Castel Winery PLC.

Bigsten, Arne and Kebede, Bereket et al, 2005. *Poverty, income distribution and labour markets in Ethiopia.* Sweden: Almqvist & Wicksell Tryckeri AB.

Central Statistical Agency, 2010a. *Agricultural Sample Survey 2009/2010, volume IV – Report on land utilization (private peasant holdings, Meher season).* Addis Ababa, Ethiopia.

Central Statistical Agency, 2010b. *Section B-Population.*

Central Statistical Agency and ORC Macro, 2006. *Ethiopia demographic and health survey 2005.* Addis Ababa, Ethiopia and Calverton, Maryland, USA.

Chowdhury, Abdur and Mavrotas George, 2006. *FDI and growth: What Causes What?* United Nations University.

Cotton, Linda and Ramachandran, Vijaya, 2001. *Foreign Direct Investment in Emerging Economies – Lessons from sub-Saharan Africa. Discussion Paper No. 2001/82.* United Nations University. World Institute for Development Economics Research (WIDER).

Cotula, Lorenzo and Vermeulen, Sonja et al, 2009. *Land grab or development opportunity? Agricultural investment and international land deals in Africa.* London/Rome: Russell Press.

Davison, William, 2010. "Ethiopian Central Bank Says Devaluation to Boos Exports, Domestic Output", *Bloomberg.* September 03, 2010. <http://www.bloomberg.com/news/2010-09-03/ethiopian-central-bank-says-devaluation-to-boost-exports-domestic-output.html> (September 11, 2010).

De Schutter, Olivier, 2009. *Large-scale land acquisitions and leases: A set of minimum principles and measures to address the human rights challenge*. United Nations General Assembly, Human Rights Council Thirteenth session.

Dulane, Abdirashid, 2010. No 'land grab' in Ethiopia. *Japan Times*. April 11 2010.

Ethiopian Investment Agency, 2010a. *Factor Costs*.

Ethiopian Investment Agency, 2010b. *Our Services*. <http://www.ethioinvest.org/index.php> (September 11, 2010).

Ethiopian Investment Agency, 2010c. *Summary Licensed Agriculture Investment Projects by land size required and region 1992-2010.*

Federal Democratic Republic of Ethiopia, 2005. *Proclamation NO. 89/1997 – Rural Land Administration Proclamation of the Federal Government of Ethiopia.* 3rd Year No. 54. Addis Ababa. <http://www.ethiopar.net/type/English/hopre/bills/2004_2005/Proc%20NO.%2089-1997%20Federal%20Rural%20Land%20Administration.pdf> (April 3, 2011)

FAO, 2009. *Foreign direct investment - win-win or land grab?*. <http://www.fao.org/fileadmin/templates/wsfs/Summit/WSFS_Issues_papers/WSFS_FDI_E.pdf> (August 27, 2010).

Gemechu Gelashe, Tilahun, 2010. Oral interview: December 20, 2010. Investment promotion expert, Ethiopian Investment Agency.

GRAIN, 2008. *Seized! The 2008 land grab for food and financial security*. <http://www.GRAIN.org/briefings/?id=212> (August 27, 2010).

Hengsdijk, Huib and Jansen, Herco, 2006. *Agricultural development in the Central Ethiopian Rift valley: A desk-study on water-related issues and knowledge to support a policy dialogue.* Wageningen: Plant Research International B.V. <http://www.crv.wur.nl/NR/rdonlyres/559750BE-9421-4807-8D0C-9B6F068A1A7C/84318/Nota_375_binnenwerkrevised.pdf> (February 11, 2011).

Hill, R. Carter, Griffiths, William, E. and Lim, Guay, C, 2008. *Principles of Econometrics – third edition*. United States of America: John Wiley & Sons, Inc.

IIED, 2009. *'Land grabs' in Africa: can the deals work for development?*. <www.iied.org/pubs/display.php?o=17069IIED> (August 27, 2010).

International Labour Organization, 2004. *National Labour Law Profile: Federal Democratic Republic of Ethiopia.* <http://www.ilo.org/public/english/dialogue/ifpdial/info/national/eth.htm> (February 01, 2011).

Interviewee *control village*, 2010. Oral interview: December 17, 2010. Farmer, Wondo Genet.

Josefsson, Oscar, 2009. *Getting Attached – A study on domestic biogas and the integration of sanitation in Ethiopia.* University of Gothenburg.

Knaup, Horand and von Mittelstads, Juliane, 2010. "Foreign Investors Snap Up African Farmland", *Der Spiegel.* July 30, 2010. <http://www.spiegel.de/international/world/0,1518,639224,00.html> (September 06, 2010).

Ministry of Education, 2005. *Fact Sheets: Ethiopia – Education System.* <http://www.ethiopia.gov.et/English/MOE/Information/Pages/Fact%20Sheets.aspx> (January 3, 2011).

Ministry of Finance and Economic Development, 2002. *Ethiopia: Sustainable Development and Poverty Reduction Program.* Addis Ababa: Ministry of Finance and Economic Development.

National Bank of Ethiopia, 2010: *National Bank of Ethiopia – Annual Report 2008/09*. Addis Ababa: National Bank of Ethiopia.

Non-worker Elfora, 2010. Oral interview: December 21, 2010. Farmer, Bishan Guracha.

Nugose, Mulat, 2010. Oral interview: December 14, 2010. Farm manager, Elfora Agro-Industries PLC.

Obsaa Korbuu, Omaan, 2010. Oral interview: December 6, 2010. Mayor, Local Government of Ziway.

Oxford Dictionary. Welfare. <http://oxforddictionaries.com/view/entry/m_en_gb0944380#m_en_gb0944380>. (April 05, 2011).

Rice, Andrew, 2009. "Is There Such a Thing as Agro-Imperialism", *New York Times.* November 16, 2009. <http://farmlandgrab.org/9107> (September 06, 2010).

Rice, Xan, 2010. "Ethiopia - country of the silver sickle - offers land dirt cheap to farming giant", *The Guardian.* January 15, 2010. <http://www.guardian.co.uk/world/2010/jan/15/ethiopia-sells-land-farming-giants> (October 01, 2010).

Roehm, Kai, 2010. Oral interview: December 26, 2010. Head of Awassa Sub-Office, World Food Program.

Sachs, Jeffrey, 2005. *The end of poverty – How we can make it happen in our lifetime.* London: Penguin Books.

Shephard, Daniel and Anuradha, Mittal, 2009. *The Great Land Grab - Rush for World's Farmland Threatens Food Security for the Poor.* The Oakland Institute.

Siminta, Ann, 2010. Oral interview: December 4, 2010. Company Standards Complains Manager, Sher Ethiopia PLC.

UNDP, 2010. “Human Developmend Index and its components”. *Human Development Report 2010.* UNDP.

United Nations in Ethiopia, 2011. *About Ethiopia*. <http://www.unethiopia.org/About_Ethiopia.aspx> (February 07, 2011).

Vidal, John, 2010. "How food and water are driving a 21st-century African land grab", *The Observer.* March 07, 2010. <http://www.guardian.co.uk/environment/2010/mar/07/food-water-africa-land-grab> (September 06, 2010).

Wells, A et al, 2011. “Ethiopia’s land rush: Feeding the world”. *The Guardian*. <http://www.guardian.co.uk/global-development/video/2011/mar/21/ethiopia-land-rush>, 2011-03-22.

Worker Castel, 2010. Oral interview: December 10, 2010. Daily worker, Castel Winery PLC.

Worker Elfora, 2010. Oral interview: December 14, 2010. Daily worker, Elfora Agro-Industries PLC.

Worker Sher, 2010. Oral interview: December 4, 2010. Daily worker, Sher Ethiopia PLC.

World Bank, 2010a. *Ethiopia: Country Brief*. <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/ETHIOPIAEXTN/0,,menuPK:295939~pagePK:141132~piPK:141107~theSitePK:295930,00.html> (August 27, 2010).

World Bank, 2010b. *Rising Global Interest in Farmland Can It Yield Sustainable and Equitable Benefits*. <http://siteresources.worldbank.org/INTARD/Resources/ESW_Sept7_final_final.pdf> (September 11, 2010).

World Food Program, 2006. *Country Programs Ethiopia 10430.0 (2007-2011)*. <http://one.wfp.org/operations/current_operations/project_docs/104300.pdf> (September 11, 2010).

Zenawi, Meles, 2010. "World Economic Forum 2010." *World Economic Forum.* <http://digob.com/world-economic-forum-pm-meles-zenawi-talks-about-land-grabs/> (September 11, 2010).

APPENDIX 1: CORRELATION

The linear association between two variables can be assessed through correlation analysis. Correlation between variables can take values in the range -1 to 1 and indicates the strength of the association (Hill et al 2008 p. 82). We here display the correlation between variables used in our regressions that have a value below -0.5 or above 0.5. As we use different samples for different regressions the correlations are divided accordingly: entire sample, *treatment 1 and 2*, *treatment 1*, *treatment 2* and the *control village*.

Table 18: Correlation

Variable 1	Variable 2	Correlation	N
Entire sample			
Electricity	*Treatment 1*	-0.6620***	382
Treatment 1	*Treatment 2*	-0.7595***	390
Workers control	*Treatment 1*	0.7595***	390
Tertiary education	Unskilled	-0.5111***	320
Tertiary education	Skilled	0.5111***	320
Treatment 1 and 2			
Electricity	Work for company	-0.6382***	329
Log wage	Skilled	0.8185***	277
Treatment 1			
Wage	Skilled	0.5684***	179
Log wage	Skilled	0.6374***	179
Wage	Skilled office	0.5553***	179
Roads	Electricity	0.5052***	178
Log wage	Unskilled production	-0.5029***	179
Log wage	Skilled office	0.5371***	179
Treatment 2			
Roads	Food	0.5380***	154
Control village			
Primary education	Skilled	-0.6187***	43
Tertiary education	Skilled	0.8685***	43

Probability for correlation between variables. H_0= No correlation between variables, H_1=H_0 is not true

***Correlation significant at 1%

APPENDIX 2: QUESTIONNAIRE *TREATMENT 1*

Questionnaire for *Treatment 1*

This questionnaire will be treated with total confidentiality and no names will be published.

1. Age: ……. Years

2. Gender:

☐ (1) Male

☐ (0) Female

3. Number of people in the household: ……. People

   Number of people in the household under 12 years old: …….

   Number of people in the household between 12-20 years old: …….

   Number of people in the household between 21-65 years old: …….

   Number of people in the household over 65 years old: …….

4. Highest completed education level:

☐ (1) None

☐ (2) Primary school

☐ (3) Secondary school

☐ (4) More

5. Name of home village: ……

6. What is your job/ main task on the premises?

   ……

   ……

7. Distance between work and home: ……. Kilometers

8. How many years have you been working for the company? ……. Years

9. Do you have a written contract?

☐ (1) Yes

☐ (0) No

10. What type of contract do you have?

☐ (1) No contract

☐ (2) Limited contract

☐ (3) Permanent contract

11. How many hours do you work per day? ……. Hours

12. What is your monthly salary? ……. Birr

13. What did you do for a living before you started here?

……..
……..
……..

14. Did you apply for another job outside of the company while employed there?

☐ (1) Yes
☐ (0) No

15. How many members of your household work for the company? …….members

16. Has access to education increased for your household in the last five years?

☐ (1) Yes
☐ (0) No

17. Has access to healthcare increased for your household in the last five years?

☐ (1) Yes
☐ (0) No

18. Has access to water increased for your household in the last five years?

☐ (1) Yes
☐ (0) No

19. Has access to food increased for your household in the last five years?

☐ (1) Yes
☐ (0) No

20. Have roads been improved in your Kebele in the last five years?

☐ (1) Yes
☐ (0) No

21. Has access to electricity increased for your household in the last five years?

☐ (1) Yes
☐ (0) No

22. How has your household's living condition changed in the last five years?

☐ (3) Improved living situation

☐ (2) Same as before

☐ (1) Worse living condition

23. Do you think the company has contributed to the change?

☐ (1) Yes

☐ (0) No

24. Would you prefer to cultivate the land for private use?

☐ (1) Yes

☐ (0) No

25. If you did not work here what would you do instead?

.....

.....

.....

Thank you very much for participating and taking your time!

APPENDIX 3: QUESTIONNAIRE *TREATMENT 2*

Questionnaire for *Treatment 2*

This questionnaire will be treated with total confidentiality and no names will be published.

1. Age: ……. Years

2. Gender:

☐ (1) Male

☐ (0) Female

3. Number of people in the household: ……. People

   Number of people in the household under 12 years old: …….

   Number of people in the household between 12-20 years old: …….

   Number of people in the household between 21-65 years old: …….

   Number of people in the household over 65 years old: …….

4. Highest completed education level:

☐ (1) None

☐ (2) Primary school

☐ (3) Secondary school

☐ (4) More

5. Name of home village: ……

6. What is your profession? ……

7. If you work, what is the distance between home and work? ……. Kilometers

8. If you work, how many hours do you work per day? ……. Hours

9. If you work, what is your monthly salary? ……. Birr

10. Would you prefer working for the company?

☐ (1) Yes

☐ (0) No

11. Have you applied for a job there?

☐ (1) Yes

☐ (0) No

12. Why/why not?

……
……
……

13. If **YES** why do you believe you did not get a job?

……
……
……

14. How many members of your household work for the company? …….members

15. Has access to education increased for your household in the last five years?

☐ (1) Yes
☐ (0) No

16. Has access to healthcare increased for your household in the last five years?

☐ (1) Yes
☐ (0) No

17. Has access to water increased for your household in the last five years?

☐ (1) Yes
☐ (0) No

18. Has access to food increased for your household in the last five years?

☐ (1) Yes
☐ (0) No

19. Have roads been improved in your Kebele in the last five years?

☐ (1) Yes
☐ (0) No

20. Has access to electricity increased for your household in the last five years?

☐ (1) Yes
☐ (0) No

21. How has your household's living condition changed in the last five years?

☐ (3) Improved living situation
☐ (2) Same as before
☐ (1) Worse living condition

22. Do you think the company has contributed to the change?

☐ (1) Yes

☐ (0) No

23. Would you prefer to cultivate the land for private use?

☐ (1) Yes

☐ (0) No

Thank you very much for participating and taking your time!

APPENDIX 4: QUESTIONNARIE *CONTROL VILLAGE*

Questionnaire for the *control village*

This questionnaire will be treated with total confidentiality and no names will be published.

1. Age: ……. Years

2. Gender:

☐ (1) Male

☐ (0) Female

3. Number of people in the household: ……. People

   Number of people in the household under 12 years old: …….

   Number of people in the household between 12-20 years old: …….

   Number of people in the household between 21-65 years old: …….

   Number of people in the household over 65 years old: …….

4. Highest completed education level:

☐ (1) None

☐ (2) Primary school

☐ (3) Secondary school

☐ (4) More

5. Name of home village: ……….…….….…..……

6. What is your profession? …….……………….….…………….…………….….…….……

7. Distance between home and work: ……. Kilometers

8. Are you self-employed?

☐ (1) Yes

☐ (0) No

9. If **NO** how many years have you been working for your current employer? ……. Years

10. Do you have a written contract?

☐ (1) Yes

☐ (0) No

11. What type of contract do you have?

☐ (1) No contract
☐ (2) Limited contract
☐ (3) Permanent contract

12. How many hours do you work per day? ……. Hours

13. What is your monthly salary? ……. Birr

14. Has access to education increased for your household in the last five years?
☐ (1) Yes
☐ (0) No

15. Has access to healthcare increased for your household in the last five years?
☐ (1) Yes
☐ (0) No

16. Has access to water increased for your household in the last five years?
☐ (1) Yes
☐ (0) No

17. Has access to food increased for your household in the last five years?
☐ (1) Yes
☐ (0) No

18. Have roads in your Kebele been improved in the last five years?
☐ (1) Yes
☐ (0) No

19. Has access to electricity increased for your household in the last five years?
☐ (1) Yes
☐ (0) No

20. How has your household's living condition changed in the last five years?
☐ (3) Improved living situation
☐ (2) Same as before
☐ (1) Worse living condition

21. What is the public opinion about the large scale farming contracts?

☐ (1) Positive

☐ (0) Negative

22. Why?……
……
……

Thank you very much for participating and taking your time!

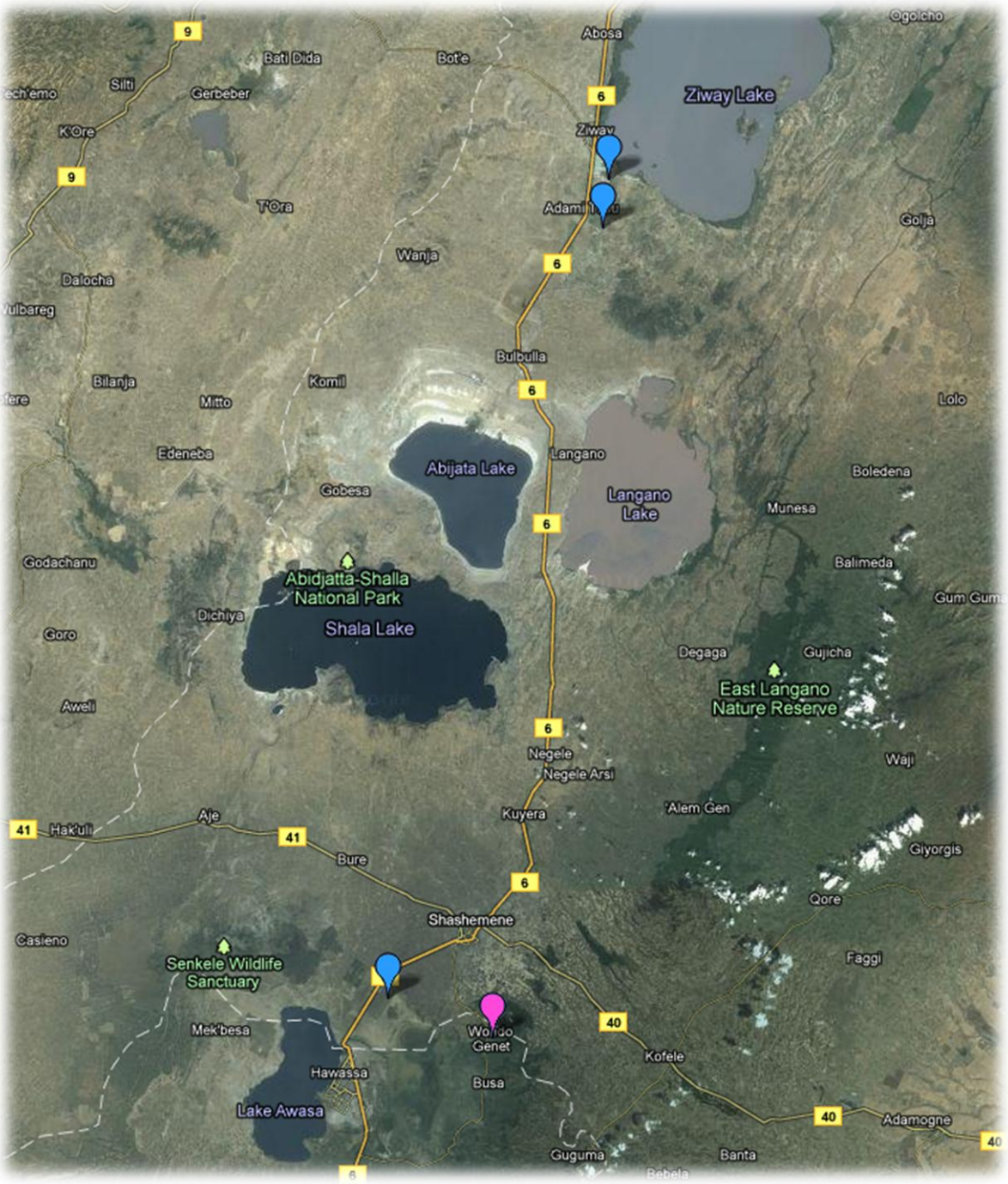
APPENDIX 5: MAP OF ETHIOPIA AND THE OROMIA REGION

To understand where this study has been undertaken we here display two maps; one of Ethiopia and one more detailed over the location of the companies.

Figure 1: Map of Ethiopia and the Oromia region

This map displays the visited Oromia region along the central rift valley in Ethiopia. The green mark represents Addis Ababa and the blue marks represent the three studied companies and the *control village*.

Figure 2: Detailed map of the location of the studied companies



The blue marks represent the three studied companies, Elfora Agro-Industries PLC at the bottom, and Castel Winery PLC and Sher Ethiopia PLC at the top. The pink mark represents the *control village* in Wondo Genet. All companies are located close to road 6 which leads to the capital of Ethiopia, Addis Ababa.