TREATING PEOPLE AS ROBOTS

The Effects of Technological Changes in the Dutch Agro-food Sector on Central and Eastern European Migrant Workers

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SIGNIFICANCE OF RESEARCH

Technological advancements in agriculture have been replacing the need for human labor throughout history. Following the latest breakthroughs in agricultural robotics, the idea that the vast majority of workers will soon become redundant has become a pressing concern. When it comes to making strides in agricultural technologies, the Netherlands is perceived to be among the forerunners in this field. Some even refer to it as the '*Silicon Valley of agriculture'* (Schultz 2017). However, even in this country, the need for human labor in agriculture is still very much existent. The significance of migrant labor from Central and Eastern European (CEE) countries for the Dutch agriculture is enormous. They usually perform routine, manual tasks that do not attract many Dutch workers. It is estimated that around 30 percent of all CEE migrants in the Netherlands worked in the agro-food sector in 2016, and that they contributed almost 2 billion euros to the country's GDP (ABU 2018). Nevertheless, there are some who argue that ongoing technological advancements in the Dutch agricultural sector and the wider implementation of harvesting robots will further lead to a real or perceived devalorization of migrant workers who are often engaged in precarious, insecure forms of work.

This paper seeks to understand the current correlation between ongoing technological changes in the Dutch agricultural sector and effects that these changes have on CEE migrants' working and living conditions. Considering the continuous development and impact of agricultural technology, especially its often-times inconceivable evolution, this research is timely and highly relevant. Furthermore, this paper also contributes to the more general discussion on the impact that new technologies have on workers. The findings of this research indicate that the biggest concerns for CEE migrant workers remain the lack of decent housing conditions and their ill treatment, most commonly - unfair salary deductions and excessive work. When it comes to the effects of technological changes, workers have primarily been affected by technological improvements in energy efficiency that enabled shifting of outdoor crop cultivation into greenhouses which led to longer growing seasons. Season extensions, coupled with the growers' need to scale up production, substantially increased work intensity and imposed additional pressures on CEE migrants.

INTRODUCTION

The agro-food sector is one of the driving forces of the Dutch economy. This industry has been constantly on the rise in recent years in the Netherlands, peaking in 2017 with the value of exports amounting to 92 billion euros which made this country the second biggest agricultural exporter in the world, right behind the United States of America (Dutch News 2018). When one takes into account the fact that the US has a 270-times bigger landmass than the Netherlands (National Geographic 2017), it becomes clear how efficient Dutch agriculture actually is. What makes the Dutch agricultural sector stand out and so competitive, is the fact that the country is hosting a great number of worldwide renowned institutions that spearhead research directed towards finding innovative technologies that enable higher crop yields and more sustainable production. Due to the groundbreaking achievements in agriculture made by its research institutions and the economic surpluses created by the Dutch companies, the Netherlands is often admired by many and even referred to by some as an *'agro-food wonder'* (Holland Trade and Invest 2018). Nevertheless, there is another aspect of this story which has not been discussed so often. Simultaneously with the economic and technological development of the agricultural sector, there has been a rise in flexible employment on the Dutch labor market which has also vastly affected the agro-food industry and its many migrant workers. According to Statistics Netherlands, around 1.8 million workers - which is more than one fifth of the Dutch labor force in 2016 - were hired under non-standard forms of employment[1] (CBS 2017:107). It is further estimated that one in three employed immigrants in the Netherlands has a flexible contract (CBS 2016:11).

Even though the United Nations' International Labour Organization (ILO) has been pointing out that "non-standard jobs can provide access to the labour market, including of disadvantaged groups such as youth or migrants, and in some instances, can provide opportunities for moving to better jobs" (ILO 2016), it seems that prospects for upward social mobility of migrants in the Dutch labor market are rather limited. In practice, only 20 percent of the temporary workforce in the Netherlands is able to financially support themselves (CBS

[1] Non-standard form of employment is understood as work that deviates from the "standard employment relationship", i.e. work that is full time, indefinite, as well as part of a subordinate relationship between an employee and an employer. They are often times involuntary, especially for migrant workers, and may present serious risks to labor rights (ILO 2016b: xxi-xxiv).

2017:112), which leaves the remaining 80 percent of these workers highly vulnerable to exploitation and enduring bad working conditions. When it comes to migrant labor in the Netherlands, as well as in many parts of the world, a large deal of them is concentrated in low paid jobs such as construction, services or agriculture and they are often in greater threat of being engaged in precarious work relationships (Taran 2012). Due to the fact that some of the low paying sectors have not been outsourced to the Global South, they have witnessed deregulation that has enabled easier circumvention of fair work practices whose effects are primarily visible in lower wages and proliferation of exploitative practices (Pajnik 2016). According to Standing (2011:12), precarious work is not only characterized by labor insecurity and low income level, but also by the absence of work-based identity, lack of community support and inability to claim any kind of social protection benefits. Besides general labor regulations, there are many factors contributing to migrant workers' precariousness. For example, in response to an upsurge of documented cases of migrant workers' ill-treatment in the Netherlands, a joint research was conducted by FairWork and SOMO that shed light on the critical role recruitment agencies play in making migrants vulnerable to exploitation. Namely, their research has shown that the majority of workers' complaints have nothing to do with the nature of the job itself. Rather, they are directed towards some recruitment agencies and exploitative employers for unfair deductions in salary, inadequate housing, transportation problems and lack of any kind of social insurance (McGauran et al. 2016).

Another, less examined, factor contributing to migrant workers' vulnerability, particularly in agriculture, is the proliferation of new technologies and its impact on the agricultural labor force. In recent years, the issue of potential human labor replacement in various sectors of economy has become a point of interest for many scholars, and there has been a growing body of research on this topic. Autor et al (2003) analyzed how computerization changed job skill demands in the last quarter of the 20th century. They argued that technological advancements would benefit workers executing non-routine tasks that demand flexibility, creativity and problem solving capacities, while; in contrast, they would lead to the decrease of jobs involving routine tasks that typically employ manual workers. This study influenced a number of other studies that will often be referred to throughout this paper.

Bearing in mind the decreasing cost of technology (IEEE 2017), and the scope of ongoing innovations in agriculture (Successful Farming 2017), an assumption that a great deal of manual laborers in agriculture will become superfluous does not seem so implausible anymore. Taking a look back through history, the percentage of labor force engaged in the agricultural sector has been continuously decreasing on a global scale. The downscaling of the agro-labor force in the Netherlands is considerable, dropping 35 percent in less than two centuries – from 40.7 percent in 1800 to 5.3 percent in 1981, and then cutting in half in just 30 years to 2.5 percent in 2011 (Roser 2018). The automation of some agricultural tasks has been rapidly diffusing. In 2016, the global market revenue for agricultural robots was around $2.927 billion and it is estimated that this figure will skyrocket to over $11 billion in 2023 (AgriTech Tomorrow 2018) which implies that the wider dissemination of these technologies will lead to further labor replacement. Additionally, as this paper will elaborate, advancements in agricultural technologies do not necessarily make agricultural laborers redundant, but change their working conditions and affect them in different ways, both positively and negatively. That is why the central research question of this paper will be: *How do ongoing technological changes in the Dutch agriculture affect CEE migrant workers' employment and working conditions?*

THE PHENOMENON OF CEE MIGRANTS IN THE DUTCH AGRICULTURE: WHAT HAPPENS NEXT?

In order to properly address the main research question, the following chapter will look into the dual labor market theory which can be a helpful analytical tool for understanding the immense presence of CEE migrants in the Dutch agriculture. The second part of this chapter will further discuss the effects that technological advances in the current 'digital age' will have on employment by providing a brief overview of some agricultural technologies that will potentially lead to, or have already started, diminishing need for human labor in this sector.

1. LOOKING AT THE VAST NUMBER OF CEE MIGRANTS THROUGH THE DUAL LABOR MARKET THEORY

As in other parts of the world, the wave of right wing nationalism and xenophobia has been growing in the Netherlands and is often linked to migration (The New York Times 2017b). The popular animosity toward immigrants would probably be less of an issue if the public had a greater awareness of the importance of migrant workers for the Dutch economy. Cremers (2016:22) argued that immigrants in the Netherlands are "employed in labor intensive, poorly paid and dangerous 3D (dirty-dangerous-difficult) jobs." The largest percentage of these poorly paid and dirty jobs undertaken by migrants pertains to agricultural sector (ABU 2018). Explanations for such a great concentration of migrant workers in the Dutch agriculture could be given through understanding the dual labor market theory and following section will focus on shedding light on some of its main tenets.

The roots of the dual labor market theory could be found in United States of America where some labor economists in the late 1960s drew attention to the poverty and unemployment of disadvantaged workers living in urban areas or city ghettos (Uys and Blaauw 2006). This theory points to the existence of two labor markets in advanced capitalist economies – a primary market which consists of jobs that provide high wages, stability and good working conditions; and a secondary market with low skill jobs that are typified by hard working conditions, precariousness and low wages (Alonso 1981). Harrison (1972) referred to two different segments of the labor market as the core and the periphery of the economy where, depending in which sector they pertain to, companies follow primary or secondary labor market practices (Uys and Blaauw 2006). The primary sector or the core consists of privileged members of the working

force who reap the benefits of having a high income and stable employment while the secondary sector or the periphery contrasts to it in every manner because it consists of jobs that lack stability and frequently offer only seasonal employment (Harrison and Sum 1979).

Dickens and Lang (1993) discerned some fundamental elements of the segmented labor market theory that are particularly visible in the Dutch economy in the contemporary context where a vast majority of CEE migrants is employed in 'peripheral industries' such as agriculture or construction. These two scholars asserted that segmented labor markets consist of different sectors, with distinct mechanisms that determine wage levels and employment policies, where access to primary markets is limited due to the fact that the demand is much greater than the availability of these kinds of jobs (Dickens and Lang 1993). Harrison and Sum (1979) asserted that almost anyone can enter the secondary labor market but the problem is that there is limited or no mobility at all between the primary and secondary sector, which usually means that people are unable to 'switch sectors'.

The development of dual labor market theory coincides with the flexibilization of labor markets and the reformation of social security systems (Hacisalihoglu 2015). The flexibilization of labor implies "changing work practices by which firms no longer use internal labor markets or implicitly promise employees lifetime job security, but rather seek flexible employment relations that permit them to increase or diminish their workforce, and reassign and redeploy employees with ease" (Stone 2005:1). Loosening the labor regulations was perceived as a key for enhancing competitiveness of companies and national economies in light of the ever-changing nature of markets and technologies, while simultaneously increasing employment opportunities by enabling people to gain work experience and establish contacts with employers (Eyck 2003). However, due to the lack of adequate social protection, flexible work has been linked increasingly with precarious work as a consequence of perturbing tendencies where employers take advantage of workers' subordinated situation that usually results in "wage deterioration, increased stress, work speed-up and intensification, increasing labor market inequality, insecurity and alienation" (Eyck 2003:vii).

In the late 1970s Michael Piore elaborated more on the labor market segmentation theory to try to explain why there is a large concentration of immigrants in low-skilled repetitive jobs and identified three reasons that explain this ingrained need for migrant workforce in advanced

industrial economies (McGovern 2007). The first explanation could be that when national economies expand, people aspire to obtain jobs that provide them with higher incomes which simultaneously put employers in a situation where they have to cope and decide whether to raise wages, replace labor through capital or employ foreign workforce. In most of the cases, recruiting an immigrant workforce turned out to be the most efficient and easiest way for businesses to thrive (McGovern 2007). The second reason, according to Piore, is found in the fact that repetitive and often physically demanding low status jobs do not offer many opportunities for career advancement. That is why there is a great concentration of immigrant workforce in these jobs who, especially in the initial stage of their careers, are not so focused on acquiring prestige in society but rather consider those jobs as a way to start earning some money (McGovern 2007). Lastly, segmentation theorists talked about dualism of capital and labor where the emphasis was on a division in the labor force between those who work in the first capital intensive sector and others who are employed in the second labor intensive sector. The presence of a significantly larger share of immigrants in the second sector is because there are simply more job openings and because they are not that much concerned with their social status as the native workers are (McGovern 2007). Doeringer and Piore (1971) argued that the placement of workers in primary or secondary sectors would not be only determined by skills and qualifications, but also by other discriminating factors such as race or ethnicity (Launov 2004). According to these two scholars, primary sectors are governed by internal labor markets which are "designed intentionally to discriminate" (Doeringer and Piore 1971:220).

In a similar vein, I found that the dual labor market theory is strongly correlated with the theory of ethnic antagonism or split labor market that also serves to explain the dynamics in the Dutch agricultural sector. Namely, in order for the labor market to be split it has to "contain at least two groups of workers whose price of labor differs for the same work, or would differ if they did the same work" (Bonacich 1972:549).

1.2. Engagement of CEE workers in the Dutch agriculture

In the early 1960s, more than half of all migrant workers in the Netherlands came from only five countries: Turkey, Suriname, Morocco, Indonesia and the Netherlands Antilles (Engbersen et al 2007). In the last two decades however, the number of people coming from these countries has levelled off; and a new pattern of migration flows emerged with workers

coming mostly from Central and Eastern European (CEE) countries - the majority from Poland (Engbersen et al 2010).

Three years following Poland's accession into the European Union in 2004, their workers were granted access to the Dutch labor market. It is estimated that in the three years following accession, more than 1 million Poles or 2.8 percent of the population left the country (Anacka 2010). Then in 2014, the Netherlands liberalized its labor market for Romanian and Bulgarian nationals as well, which enabled an increased influx of workers from these countries. Coupled with Polish people, whose number is still on the rise in this country and it is currently estimated to be around 205,000, CEE migrants now constitute a third of the overall immigrant population (CBS 2017). The most recent statistics show that this is a continuing trend since it is estimated that around five thousand Polish people migrated to the Netherlands in the first six months of 2018 (CBS 2018). When we include five thousand people more that came from Romania, Bulgaria and other Eastern European countries in the same period (CBS 2018), it becomes clear that people from CEE countries constitute the largest immigrant group entering the Netherlands this year.

The initial wave of engagement of Poles in the Dutch agriculture dates back to the early 1990s when a larger share of this country's population started looking for employment opportunities outside the confines of Poland (Pijpers 2010). Throughout this period there had been a growing number of illegally employed Poles in the Dutch agricultural sector, especially in jobs with a seasonal character (Pijpers 2010). Particularly striking were the occurrences of road blocks by the growers. Namely, there were several documented cases where farmers who were illegally employing undocumented Polish workers would block the entry roads to their lands so that illegal workers could escape to the nearest forest and avoid getting caught by labor inspectors (De Bakker 2001 cited in Pijpers 2010). Situations like that have led to the creation of stereotypes about Polish people referring to their diligence, willingness to engage in demanding manual labor-mainly agriculture and construction, acceptance to live in cheap housing and tendencies to isolate from the Dutch society (Torynczyk-Ruiz 2008). Polish immigrants in the Netherlands are often referred to in a pejorative manner. In recent years, it has become difficult for Polish people to fight with the deeply ingrained stereotype in the Dutch society that the only jobs available and suitable for them were either in agriculture or construction. In reality, this

meant that even highly skilled and educated Poles, which were coming to the Netherlands with completely different intentions than working in the agricultural sector, had to "prove that they are not one of the *flower people*"(Munteanu 2015:29). What Munteanu (2015) documented tells us that there were cases where these highly qualified Poles, due to their inability to find employment in desired sectors, at the end had to settle with working in horticulture in order to make their ends meet.

2. IS THIS TIME REALLY DIFFERENT? AGRICULTURAL AUTOMATION AND POTENTIAL LABOR REPLACEMENT

Even though technological changes actually spurred the need for new kinds of employment in the past, Mokyr and colleagues (2015:38) remind us that "while the predictions of widespread technological unemployment were, by and large, wrong, we should not trivialize the costs borne by the many that were actually displaced". Due to perpetual technological improvements in the 21st century, these authors pose the question whether or not will *this time be different* and whether a significantly larger share of workers, compared to last two centuries, will be displaced in the near future (Mokyr et al 2015). According to research by Frey and Osborne (2013) about susceptibility of jobs to automation in the US labor market, 47 percent of all jobs fall into a high risk category which means that they could be completely automated in the next decade. In another publication, these two authors claim that the percentage of jobs that are in risk of being automated is even higher in other 'developing countries', like in India where two-thirds of jobs could be potentially lost, and in China where there can be three-quarters less jobs (Frey and Osborne 2015). In contrast, Arntz and colleagues (2016) who analyzed the prospects of automation in 21 OECD countries, argue that Frey and Osborne's predictions are an overestimation, and state that the percentage of jobs that would be automated is around nine percent. Nevertheless, they do contend that the current technological changes outpace all the previous ones, and that low educated workers engaged in manual work will be most affected by these structural shifts (Arntz et al 2016).

Despite the fact that agriculture has historically been one of the sectors where technological advancements played a key role in the displacement of labor and migration from rural to urban areas, some labor intensive jobs, like crop picking and weeding, were hard to automate which is why there was always a great demand for labor in these subsectors (Wallace

1989). Over the last three decades, there has been an increasing focus on developing new types of harvesting robots, but due to their limiting performances, they still have not been so effective and widely diffused (Wouter Bac et al 2014). Investments in efforts to automate harvesting processes were especially noticeable for high value crops[2] whose cultivation requires a substantial manual labor input (Wouter Bac et al 2014). One of these labor demanding sectors is greenhouse horticulture, and it is estimated that labor costs in greenhouses in the Netherlands constitute 29% of all production costs, which is why reducing production costs is one of the main reasons that motivate investments in automation (Jukema and Van de Meer 2009 in Wouter Bac et al 2014).

When it comes to open field operations, Moorehead et al (2012) explored the feasibility of using unmanned tractors that would perform mowing and spraying operations in orchards. Their argument was that, in comparison to conventional methods, these tractors provide notable productivity improvements. This technology is primarily targeting major agricultural companies that experience difficulties in finding skilled seasonal workers and see it as a way to reduce costs, but it also proves to be beneficial in decreasing their workers' chemical exposure (Moorehead et al 2012). Another tedious job that demands a lot of labor is hand weeding. It is estimated that for growing organic sugar beet in the Netherlands in 1998, around 73 hours per hectare were spent on hand weeding (Van der Weide et al 2002). Additionally, from the farmers' perspective, the labor for these operations is expensive and often not available (Bakker 2009). Acknowledging the fact that, due to environmental and health concerns, there is a growing popularity of organic food, and that some estimates show that there will be even more demand for these products (Grand View Research 2017), one might argue that farmers will be interested in reducing production costs as much as possible. According to Sorensen and colleagues (2005), who conducted a study on plausible effects of implementing new technologies and work methods in organic farming, introducing weeding robots would reduce the labor demand by 83-85 percent in sugar beet and 60 percent in carrot cultivation while potentially improving profitability by 72-

[2] Temu and Temu (2005) pointed out that the lack of a standard definition of high value agricultural crops pushed researchers to adapt their own definitions which they generated based on their research focuses. According to these two scholars, high value crops "refer to non-traditional food crops such as vegetables, fruits, flowers, houseplants and foliage, condiments and spices". They listed all the crops that they consider to be high valued: fruit crops (citrus, cashew, papaya, mango, pineapple, strawberry, jackfruit, guava, and watermelon), root crops (potatoes), vegetable crops (asparagus, broccoli, cabbage, celery, carrots, cauliflower, radish, tomato), legumes, (snap beans and garden pea), spices and condiments (black pepper, garlic, ginger, and onion), and cut flower and ornamental foliage plants (chrysanthemum, gladiolus, anthuriums, orchids, and roses).

85 percent. Furthermore, there is a great number of newly emerged, completely autonomous weeding robots that promise to liberate farmers from driving tractors for hours and offer the benefits of reduced production costs and drastically less herbicide application (Future Farming 2017; Ecorobotix 2018).

The effects of automation that diminish the need for labor have been most visible in dairy farming where the number of farms that use cow milking robots has been on the rise, and is expected to increase by 20-30 percent in the near future (Bloomberg 2018). Nevertheless, even in this sector the labor need is very high. A recent study in the USA has shown that eliminating migrant labor in the country's dairy sector would result in a $32.1 billion loss and would reduce employment by more than 200.000 jobs (Adcock et al 2015). Despite the fact that cow milking machines have been present for a while now, various reasons have been cited for choosing to stick with the conventional way of milking. For some, the biggest obstacle for wider diffusion of these technologies is the price, which amounts to around 200.000$ (Weekly Times 2018). However, those farmers who have invested in robotic milking systems emphasize the benefits of not having to wake up at 4 AM to engage in physically demanding work, enjoying much more spare time that they can spend with their families, increasing productivity and improved well-being of animals (Weekly Times 2018). In 2016, it was estimated that 20.5 percent of Dutch dairy farmers used milking robots and the tendency was that those numbers would be increasing (WUR 2016). Even though one of the main arguments for switching to automated milking systems is that it is less time consuming, some researchers pointed out that advantages of not having to spend that much time in the barn are neutralized by the fact that the implementation of this technology led to the creation of new labor tasks, such as checking alerts that robots send and interpretation of created data (WUR 2016). In relation to the employment of non-family labor (or migrant labor in most of the cases), Schewe and Stuart (2014) conducted a research about the adoption of automated milking systems among farmers in the US Midwest, the Netherlands and Denmark, and found that, on the majority of farms, the main incentive for automation was the rising cost of labor and belief that investing in milking robots would outweigh all the initial costs in the long run. There were several occasions where farmers continued employing laborers, but the profiles of workers that they were looking for changed since now they were looking for people with a "wider skill set who were comfortable with the

software" which either caused dismissals or retraining of existent workforce (Schewe and Stuart 2014:206).

The meat industry globally depends on migrant workforce and it has a notorious reputation for imposing inhumane working conditions where people are expected to work long hours at a rapid pace which sometimes leads to serious injuries of workers (NPR 2016). That is why more people from the meat industry are excited about the idea of introducing 'automated deboning robots' which could significantly reduce work related injuries and, when it comes to the chicken industry, potentially lower the production costs because it could replace around 75 percent of employed workers (The New Yorker 2017a).

THEORETICAL FRAMEWORK

The following chapter forms the backbone for analyzing the empirical part of this paper. It looks at the importance of migrant labor for agricultural sectors of, particularly, high income countries and gives a brief literature overview of migrants' involvement in different agricultural contexts. In addition, this chapter provides a conceptualization of precariousness which commonly defines CEE migrants' engagement in the Dutch agricultural sector. Furthermore, since it is expected that ongoing technological breakthroughs in agriculture would lead to decreased demand for workers, I have inquired into the notion of technological unemployment. Lastly, this chapter examines how technology can be used to further weaken workers' position and increase their precariousness.

1. MIGRANT LABOR IN AGRICULTURE

There are several factors that significantly separate agriculture from other industries. According to Timmer (1988:292), three key features make agriculture different i.e. determine the contribution that this sector will have to the economy of a particular country, specifically: a) peculiarities that agricultural production entails; b) the importance of farm households being the producer and consumer at the same time; and c) the role that agriculture has as a resource reservoir for national economies. It is of particular significance to look at the first feature – the specifics that characterize agricultural production. These peculiarities include seasonality of crop cultivation, geographical dispersion that implies usage of land surface as an essential input, and risks and uncertainties that every farmer is confronted with, primarily due to two very variable factors which are fundamental for their survival- weather and prices. It is of relevance for this research to look at the responses which farmers and agricultural companies give in their efforts to cope with the seasonal character of agriculture. These seasonal variations in cultivation impose pressures on agricultural producers in such a way that one of the greatest risks for them is the inability to find adequate labor supply needed to harvest crops which could sometimes result in farmers' failure to comply with their contractual obligations along the supply chain (Taylor 2010). Generally, there are two types of agricultural labor in high-income countries- owner operator or farm household labor and hired labor (Schmitz and Moss 2015). The supply of hired labor is mostly influenced by two crucial factors determined by the government: minimum wage rates and immigration policies (Schmitz and Moss 2015). Beneficial immigration policies, or

sometimes illegal migrations of workers, have played a pivotal role in ensuring sufficient supply of farm labor for advanced economies since the percentage of agricultural labor in these countries has been in constant decline due to tendencies of people to expand their income opportunities by shifting from agricultural to other sectors of the economy (Taylor 2010). That is why we can argue with certainty that it has been a rule of thumb that agricultural sectors of high-income countries have been greatly dependent on immigrant workers while middle-income countries are usually characterized as being in a transitionary process which implies gradually shifting reliance from domestic workforce to migrant workers (Taylor 2010).

Due to the fact that migrants are often engaged in informal labor relations with their employers, it has always been difficult to measure their involvement in agricultural sector of a particular country. Nevertheless, numerous scholars have dealt with the phenomena of migrants presenting the overwhelming majority of farm workers in high income countries. When it comes to the Netherlands, it is important to highlight publications referring to engagement of Polish farm workers. One of these is research conducted by Engbersen et al (2010) who argued that Polish people were filling the labor supply gap in the Dutch agriculture, since the national labor forces were reluctant to engage in this sector. However, their research shed light on problems that Polish people had related to bad housing conditions and concerns that some municipalities had regarding social consequences of such a huge influx of Polish workers (Engbersen et al 2010). According to Pijpers and Van der Velde (2007), who wrote about strategies of Polish workers to circumvent visa and work requirements before they were granted full access to Dutch labor market, the demand for Poles was particularly high in the Lower Rhine region since German and Dutch workers were not willing to engage in open-field work or any other job that is considered "hard, dirty and underpaid" (2007:829).

Looking at the examples of migrants' engagement in agricultural sectors of some other countries, one of the most controversial guest worker programs, whose effects still resonate in the contemporary agricultural context in the US, was The Bracero[3] Program that lasted from 1942 until 1964 which brought more than 4.6 million of Mexican workers to work in the US agricultural sector (Bracero History Archive 2018). Despite the fact that this agreement had safeguards which were supposed to protect Mexican workers' rights, in reality they were not

[3] Bracero comes from Spanish word brazo=arm, which in this context refers to people performing manual labor.

complied with and people who benefited the most from that program were US growers who had an abundance of cheap labor at their disposal (Bracero History Archive 2018). Even though this program ended in the 1960s, US farmers have continued employing migrant labor since some statistics indicate that in 2006 more than 75 percent of workers in the US agriculture were migrants, predominantly coming from Mexico (Taylor 2010). People coming from this country had the biggest incentives for migrating to work in US since their incomes were usually eight times higher compared to what they were earning back home (Taylor 2010).

When it comes to some European countries, Rogaly (2006) wrote about the drive for intensification of workplace regimes that corporate retailers exerted on migrant workers in Great Britain. What this intensification meant for migrants, in this research predominantly coming from CEE countries as well, was that they were expected to work harder in order to satisfy employers' growing demands who basically shifted pressures, imposed on them by the global market, on workers by increasing the speed and effort required for earning the minimum wage (Rogaly 2006). Rye and Andrzejewska (2010) analyzed the rising number of CEE migrants working in Norwegian agriculture. The responses they received from their interviewees indicated that, even though migrant workers were mostly aware that they were receiving significantly less compared to the Norwegian minimum wage, the main point of reference was the wage level in their country of origin and, since the differences were still very high, these workers did not even mind working longer hours (Rye and Andrzejewska 2010). Unlike the majority of scholars who have researched migrants' engagement in agriculture and concluded that they were usually only transient and exploited labor, Verinis (2011) unveiled a different reality in Greece. Namely, his research showed how Albanian and other Balkan and Eastern European migrants were changing the face of ailing Greek agriculture by reclaiming abandoned farmlands, addressing the environmental concerns and diversifying the economy of rural Greece (Verinis 2011).

2. PLACING THE CONCEPT OF PRECARIOUS WORK IN THE DUTCH AGRICULTURAL CONTEXT

This section will seek to elucidate the notion of precarious work which is important for understanding CEE migrants' vulnerable positions. Even though the use of this term has been widely adopted, there is not a single definition that would be applicable to every context. One of the main reasons why the notion of precariousness has to be fluid is because employers

continuously find loopholes and new ways that allow them to go around legislation (ILO 2011). This enables companies to shift risks and responsibilities to workers while simultaneously increasing the profitability of their businesses (ILO 2011). Nevertheless, there are several dimensions of precariousness that are common to every interpretation. According to Rodgers (1989:3), there are four defining aspects of precarious work: 1) The first dimension relates to uncertainty i.e. these jobs are deemed precarious because they 'push' workers into a short-term thinking matrix since the risk of job loss is high; 2) The second aspect of precariousness relates to the employers' control over working conditions, wages and pace of work that all together contribute to rising insecurity of employees; 3) The third dimension regards workers' lower rate of protection from ill treatment, discrimination, unfair dismissal and lack of access to social security benefits such as health insurance, pensions or unemployment compensations; and 4) The fourth aspect relates to low wages, and it could be perceived as the most ambiguous since not every low wage job classifies as precarious, rather the ones where low incomes are followed by poverty and social insecurity of workers. While stating the fact that the use and boundaries around this notion could be very often arbitrary, he emphasizes that "the concept of precariousness involves instability, lack of protection, insecurity and social or economic vulnerability" (Rodgers 1989:3). This is in alignment with how ILO (2011:5) interpreted it:

> "Although a precarious job can have many faces, it is usually defined by uncertainty as to the duration of employment, multiple possible employers or a disguised or ambiguous employment relationship, a lack of access to social protection and benefits usually associated with employment, low pay, and substantial legal and practical obstacles to joining a trade union and bargaining collectively".

Taking a step back and reflecting on the dual labor market theory, that helped us understand better the huge concentration of CEE migrants in the Dutch agricultural sector, is a helpful analytical tool for analyzing migrants susceptibility to experiencing multiple forms of precariousness. Due to migrants' perception of temporariness of their stay, the inability to find jobs in desired sectors or just out of necessity to earn money, they are more likely to observe their jobs purely instrumentally which could also lead them to willingly lower down their subjective expectations when it comes to working and living conditions (Anderson 2010). That makes these people subjects of targeted recruitment processes undertaken by employers who seek to establish mechanisms of control over migrants which actually 'produces' the precarious

worker along that process (Anderson 2010). This is particularly possible in industries like agriculture, where labor costs constitute a significant component of overall production costs which enables employers, who are in an endless pursuit of being more competitive so that their profit margins would go up, to put a downward pressure on workers' wages (Kroon and Paauwe 2013). As long as the workers, who can be easily replaced at any time, are perceived just as a commodity whose sole purpose is to improve company's performance, the system of precarious work is likely to perpetuate (Kroon and Paauwe 2013).

Another contributor to the proliferation of temporary forms of employment, which often pushed vulnerable workers into precarious situations, was the integration of formerly planned economies into the globalized capitalist system (ILO 2011). This is of particular importance for this research because the accession of several CEE countries into the EU has allowed larger mobility of people originating from these countries which resulted in increasing the pool of dispensable workforce in the Netherlands. It is this same pool of workers that has been one of the main sources of labor for the Dutch agriculture (van der Meuelen et al 2011 in Kroon and Paauwe 2013).

Based on the complaints of some Polish workers that McGauran et al (2016:16-36) documented, some of the most common exploitative practices that migrants have been enduring in the Netherlands can be identified as follows: a) intimidation - forcing workers to work harder and longer due to fears that they would be dismissed. Besides intimidation, there were several documented cases of sexual harassment against female workers; b) wage issues - which usually mean that migrant workers are often paid less than what is guaranteed in that particular sector by the collective labor agreement. Another widely diffused phenomenon is wage discrimination between Dutch and migrant workers where migrants are payed less for doing the same job; c) dreadful housing conditions which are sometimes accompanied by violations of workers' privacy through camera surveillance and sporadic entries of security guards into their dwellings; d) unconditional flexibility-which implies that, after working for a particular company for longer periods of time, workers would be fired only to be hired again by the same company 3 or 6 months later. The main reason behind it is that companies do not want to allow migrants, who want to stay in the Netherlands, to secure a more stable labor position to which they are entitled to according to the Dutch law. By temporarily firing those workers, companies do not allow

them to move from temporary to permanent contracts or from phase A to phase B in their contracts with recruitment agencies that guarantees them higher wages.

3. TECHNOLOGICAL UNEMPLOYMENT

Placing the discussion in the wider context, it can be observed that migrant workers in the Netherlands (as well as in many other parts of the globalized world) are mainly engaged in middle-skilled or low-skilled jobs, which are more susceptible to automation processes that would significantly diminish the need for human labor in those sectors (Grubanov-Boskovic and Natale 2017). Even though technological advancements are usually perceived to be the leading factor in achieving economic development, fears that improving technologies would have a negative impact on employment have been present ever since the end of the 18th century, and roots of this anxiety could be traced back to the first technological transition, i.e. the beginning of the Industrial Revolution (Mokyr et al 2015). The 1881 Luddite Movement in Nottingham is considered to be the first 'rebellion' of workers against technology being introduced to the work environment. The Luddites were not against mechanization *per se*, but were fighting against circumvention of fair labor practices by employers. Namely, the employers did not put people that had gone through apprenticeship to run the machines and were not paying decent wages to their employees (Smithsonian Magazine 2011). Their smashing of weaving apparatuses as a way of expressing indignation due to rising unemployment is perceived to be the initial expression of workers' fears of being replaced by machines (Campa 2017). In the scientific sphere, David Ricardo (2004:282) was one of the first economists to introduce the idea that unemployment may occur as a result of technological advances in his book *On the Principles of Political Economy and Taxation* where he expressed the view that the use of machinery could be beneficial, but that it might be "accompanied only with that portion of inconvenience which in most cases attends the removal of capital and labor from one employment to another". He elucidated his position by saying that "the discovery and use of machinery may be attended with a diminution of gross produce; and whenever that is the case, it will be injurious to the laboring class, as some of their number will be thrown out of employment, and population will become redundant, compared with the funds which are to employ it." (Ricardo 2004: 286)

The notion of technological unemployment was further elaborated by John Maynard Keynes (1968) in his seminal work *Economic Possibilities for our Grandchildren* whose almost

utopian essay, written in the midst of the Great Depression, offered a glimpse of hope for a brighter future since he believed that 'economic problem' could be solved and that people would eventually experience freedom from pressing economic cares. He saw technological unemployment as a temporary problem and defined it as an "unemployment due to our discovery of means of economizing the use of labor outrunning the pace at which we can find new uses for labor" and stated that it occurs when "the increase of technical efficiency takes place faster than we can deal with the problem of labor absorption" (Medium 2017). Keynes particularly emphasized the effects that technologies would have on agriculture and food production:

> "We may be on the eve of improvements in the efficiency of food production as great as those which have already taken place in mining, manufacture, and transport. In quite a few years-in our own lifetimes I mean-we may be able to perform all the operations of agriculture, mining, and manufacture with a quarter of the human effort to which we have been accustomed." (Keynes 2010:325)

Emphasizing the beneficial aspects of capital accumulation which would eventually lead societies beyond work, he argued that the temporary problem of technological unemployment would be resolved in the longer run and that advancements in technology would lead to a shorter workweek (Spencer 2018).

4. THE RELATIONSHIP BETWEEN PRECARIOUSNESS AND TECHNOLOGY WITHIN A CONTEMPORARY SOCIO-POLITICAL CONTEXT

The reason why some scholars believe that we should not draw parallels with the past and why *this time will be different* is because they perceive that technological advancements from the era of the Industrial Revolution actually benefited a larger share of people in the long run since it created more employment opportunities for low skilled workers. In contrast to it, Frey and Osborne (2015) claim that the current 'digital age' is actually making a greater deal of people worse off. These two authors articulated their argument bluntly by saying that "the digital age has been the age of capital rather than the era of labor" (Frey and Osborne 2015:12). Spencer (2018:7) argues that, in the current *business friendly policy environment*, new technologies could bring about potential unemployment in some sectors, but deteriorating working conditions alongside as well. He claims that workers' power will be even more decreased with the proliferation of the 'gig economy' companies, like Uber and Deliveroo, and that success that these businesses are currently experiencing was enabled by technological advancements which

played a key role in creating a pool of disposable workforce with fewer labor entitlements (Spencer 2018). Workers who are hired on the spot are lacking any kind of social safety nets, and are pushed in a precarious situation that forces them to work longer hours to compensate for the time when they are out of work (Friedman 2014).

Going back to Keynes' predictions, one has to admit that he was definitively right about the rising productivity since some estimates show that, in the time period between 1870 and 1998, the average labor productivity grew 15 times in USA and 18 times in Europe (Herman 2014:49 in Spenser 2018). However, if we take a look at the current state of affairs, it becomes pretty obvious that Keynes' utopian ideas of technology bringing about freedom from economic care or shortening the workweek to 15 hours are nowhere near to being realized. According to Friedman (2017), the thing that Keynes could not predict was the current situation where income earned from providing labor has been drastically decreasing starting from 1970s while in contrast to it, income earned from owning capital has been rapidly increasing. This has led towards widening wage gaps and exacerbating global inequalities which have had significant implications when it comes to having access to technology and choosing under which conditions will that technology be used i.e. determining what kind of effects will it have on workers' lives. So, it is important not to talk only about technology, but rather discussing about technology within a particular societal and economic context proves to be of vital importance. Spencer (2018:6) offers a fitting articulation of this point:

> "The fact is that while capitalism has created the potential for a reduction in work hours it has not always developed the conditions to fully realize this potential. Indeed, despite continuous gains in productivity linked to technological progress, it has created pressures that have maintained and even extended work time. At the same time, it has served to maintain and indeed grow employment, extending work to a greater share of the population."

Creating more work so that more people can find employment is a laudable aim to strive for. However, if we look at the link between technological advances and the quality of work, we realize that technology has often been a tool for generating more burdensome jobs. The most stirring examples of how technology can play a part in increasing workers' precariousness and imposing additional pressure on them are noticeable in unbridled behavior of some corporations. Technological advancements helped them to create a more rigid work environment where employees' tasks are intensified while they are under constant surveillance. It is not a surprise at

all anymore when we hear that some companies started monitoring their workers' performances by forcing them to wear electronic armbands that determine their location and measure their productivity (Moore and Robinson 2016). Nor it is surprising to see that some companies use these tracking devices to penalize their workers if they take 'unscheduled' toilet breaks that they do not record on their devices (Rawlinson 2013). Barr's (2018) experience unveils how technology can be used to additionally debase workers employed in supermarkets who are in charge of picking and sorting online orders from customers. He explains how productivity of every worker is tracked through handheld electronic devices, and how workers often endured humiliations from their supervisors, on a weekly basis, for not fulfilling the targets that were given them:

> "The effect of constant targets—or rather, a constant failure to meet targets—is disempowering, even demobilizing. It creates a sense that your failure isn't a product of unrealistic targets, or even the rigorous strictures of the work behind the convenience of online grocery, but instead the result of an individual lack of effort."

Some of the most startling cases were documented in China where combination of rigid surveillance systems, body searches and working long hours have subdued workers to that extent that some of them committed suicides by jumping from the factory's rooftop (Chan and Pun 2010). The company decided to respond by installing safety nets, which they called *nets with a loving heart*, and announced that they would test every new potential employee for hidden mental health issues (Chan and Pun 2010). Some labor scholars categorized these suicides as a form of resistance (Moore and Robinson 2016).

The fundamental argument of this section is that technology is not politically neutral, and (even though some might not agree with this) it does not affect people autonomously. Rather, technology is shaped by those who have means to deploy it, and it is up to them to decide how they will use it (Spenser 2018). If we look at the negative way that technology impacted workers' lives in some cases, Keynes' idea of world beyond work seems highly implausible at the moment. Optimists would say that we would need to wait a bit longer in order for these predictions to come true. Pessimists would probably say that it is an unattainable goal.

FIELD WORK

The following chapter presents the methodology of this research project; the way it was implemented, including a reflection on its challenges; a presentation of the collected data; and finally, the results of the conducted research.

1. METHODOLOGY

This section explains the data generation process and sheds light on obstacles encountered during the research. In addition, I reflect on how my time spent in the Netherlands has helped me become more aware of the perceptions that some people have about Eastern Europeans. This realization has probably led me to incorporate some of my own biases, and may have influenced the way I approached this research process as well.

1.1. Data generation

This research is concerned with finding out what the effects of technological changes in the Dutch agriculture on CEE migrant workers are. I decided that the best way to answer my research question was through the use of qualitative research that included in depth semi-structured interviews with open and closed ended questions. The data presented in this paper was gathered from twelve interviews. All the interviews were recorded, transcribed and analyzed together with the notes I was taking during every conversation. There was only one particular case where respondent did not feel comfortable with being recorded, so I solely took notes instead. In order not to reveal my interviewees' identities, I have changed their names while referring to statements of some of them in the empirical part of this paper.

Bearing in mind that a significant number of Dutch agricultural companies in the last 10 years has been depending on workers coming from recently joined EU member countries, predominantly Poland, in order to answer my research question, it was important to find people who have been concerned with migrant workers' engagement in the Dutch agriculture. All the leads were pointing towards the FNV, the largest trade union in The Netherlands. Thanks to contacts that Professor Karin Astrid Siegmann, with whom I jointly conducted the majority of interviews, had with some union representatives, I managed to obtain valuable insights from FNV's advisors and shop stewards. Likewise, in order to gain more elaborate insights about the current degree of ongoing technological innovations in the Dutch agriculture, I have gotten in

touch with the Dutch Organization for Agriculture and Horticulture (LTO Nederland) which represents the largest and most influential agricultural organization in the Netherlands. Table 1 provides an overview of my respondents' backgrounds.

No.	Name	Gender	Nationality	Occupation	Organization/Agricultural Sector
1.	Julius	M	Dutch	Consultant	The Netherlands Trade Union Confederation (FNV)/Agrarisch Groen
2.	Agnieszka	F	Polish	Consultant	FNV/Agrarisch Groen
3.	Gerda	F	Dutch	Project Leader	FNV/Agrarisch Groen
4.	Ron	M	Dutch	Academic	Tilburg University
5.	Inge	F	Dutch	Labor Policy Advisor	Westland Municipality
6.	Joost	M	Dutch	Socio-Economic Advisor	The Dutch Federation of Agriculture and Horticulture- LTO Nederland
7.	Robert	M	Polish	Worker/Shop steward	FNV/Flower Sector
8.	Tomasz	M	Polish	Worker/Shop steward	FNV/Meat sector
9.	Jan	M	Dutch	Worker/Shop steward	FNV/Flora Holland
10.	Franck	M	Dutch	Consultant	FNV
11.	Ursula	F	Dutch	Socio-Economic Advisor	The Social and Economic Council of the Netherlands (SER)
12.	Geert	M	Dutch	Consultant	FNV

Interviews were mainly conducted in offices of different organizations in The Hague, Utrecht, Amsterdam and Rotterdam. The majority of the meetings were held during the day in a very formal environment. In contrast to it, there were few interviews that were carried on in coffee places where the atmosphere was more casual. Since one respondent lived in a remote place and had a tight schedule, we agreed to meet at a rather unconventional location. We meet in a bar at the Schiphol airport and had a conversation while he waited for a friend. Interviews that were conducted in public places would not last that long because it would be hard to isolate the background noise and would usually end up in chit chatting. My research has also taken me to homes of two workers in Hoofddorp and Noordwijkerhout. These two interviews were a very vivid experience because I got an opportunity to observe participants from another angle and to glance at what their private life looks like. While interviewing one Polish worker at his apartment, it seemed to me that his housemate, who was also from Poland and was employed in horticultural sector, was not comfortable with us being there. Our respondent was an active trade union member who participated frequently in projects whose purpose was to inform migrant workers about their rights and to empower them to speak out against employers' exploitative practices. By the end of the interview, he reached out to his roommate and asked him if he was willing to have a brief conversation with us about his experiences but his answer was negative.

On one occasion, I visited FNV's weekly consultation meeting where they usually send one of their representatives to meet migrant workers who want to discuss about particular issues. I have witnessed a situation where a Polish woman, employed through a recruitment agency and working in the Dutch agricultural sector for the last 4 years, came with her boyfriend, who served as translator because she did not speak Dutch, to report that she was forced to pay transport to her work even though her contract stated that those costs would be covered. I was sitting in the back of the room, observing and taking notes. Even though this woman allowed Professor Karin Astrid Siegmann and me to be present in the room while she was talking about her predicament, it was clearly a very unpleasant and emotional experience for her. At the end of the meeting we approached her with a request to schedule an interview, but we never heard back from her.

Furthermore, because of the busy schedule of some respondents, two interviews were conducted over the phone. At the end of every conversation, interviewees were asked to suggest further subjects from their acquaintances which eventually led to a snowball effect. According to O'Leary (2004:110), "snowball sampling is often used when working with populations that are not easily identified or accessed". That is exactly the case with CEE migrant farmworkers who are often inaccessible and reluctant to talk about their experience in the Netherlands (McGauran et al 2016). Additionally, in order to gain more insights regarding the impact that technology has and will have on people, I have participated in two symposiums where the focus of the first conference was on presenting latest technological advances in agriculture in Europe, while the second meeting was more concerned with the interaction of workers with new technologies and discussion on future of work in general. Besides interviews and observations, my findings were supplemented with secondary sources like books, academic papers and web pages from which I extracted additional information regarding the scope of current automation of agricultural operations in the Netherlands and ongoing trends in migration from CEE countries.

1.2. Obstacles in data generating and limitations of the research

Even though I included in my initial risk analysis that the fact that I did not speak Dutch nor Polish language would probably be an impediment for getting in touch with potential interviewees, I would have to admit that I did not expect the implications of that limitation would be so broad, and that would occasionally make me feel like I was stuck in a dead end. That is why I believe that one of the biggest barriers for this research was my inability to get in touch with more CEE migrant farmworkers. Since the role of the FNV was pivotal for generating data for my research, I was greatly dependent on their representatives for linking me with workers, which sometimes did not turn out to be feasible. I experienced that while interviewing Agnieszka from FNV, who originally comes from Poland and is in charge of mobilizing migrant workers in agriculture. She explained that they were planning on launching a pilot project by the end of 2018 that would spread the awareness among migrant workers about their rights whose purpose is to, hopefully, decrease their chances of being exploited. She stated that it took a lot of time for her to create a relationship of trust with some of these workers, and that bringing an outsider who does not speak Polish or Dutch, like me, to interview them in this stage would probably be too overwhelming for some of them.

Furthermore, something that I realized while I was already approaching the end of the data generating phase was that this research would have been much more comprehensive if I have opted to focus on one particular sector of the Dutch agriculture or one particular region. I believe that taking this path, would have allowed me to go much more in depth and delve into specifics. Nevertheless, the positive aspect of interviewing people with different backgrounds was that I got insights about the current situation regarding working conditions and technological advancements from different sectors of the Dutch agriculture. I also understood how workers' conditions vary depending on the agricultural sector they are employed in or the region that they live in. When it comes to implementation of technology, the situation is the same since the type of work being done and prospects of automating a particular operation or impact that technology might have on work differ as well. Finally, due to constant fluctuation and often very informal presence of CEE migrants in the Netherlands, it is very difficult to keep track of their engagement in the agricultural sector. I believe that is the reason why, throughout my research process, I was sometimes getting ambiguous answers from my respondents.

1.3. Reflexivity

Flood (1999:35) argued that "without some degree of reflexivity any research is blind and without purpose" (cited in Finlay 2002). According to Berger (2015:220), reflexivity in research challenges the idea that knowledge production is an unbiased process and it reminds us that it should serve as a tool to recognize that researcher's personal characteristics such as "gender, race, affiliation, age, sexual orientation, immigration status, personal experiences, linguistic tradition, beliefs, biases, preferences, theoretical, political and ideological stances, and emotional responses to participant" play an important role in the way data is being collected and interpreted.

When I decided to engage in this research, I was aware of the fact that, mostly due to language barriers, I would be perceived as an outsider by many of the actors involved and that it would be rather challenging to create a relationship where people would feel comfortable in opening up to me. Before coming to ISS, apart from glancing at some media reports about working conditions in agro-food sector in various countries, I did not know much about the predicaments that migrant workers were coping with. My interest in this topic was sparked during the discussions that we had in the Global Food Politics course where we touched upon

these issues on several occasions. Situations where a researcher is studying the unfamiliar can offer several advantages and disadvantages at the same time. On the one hand, it can be an empowering experience for respondents, which is especially important when studying a marginalized group such as migrant workers, because the researcher is not knowledgeable about the topic and has to encourage interviewees to speak out (Berger 2015). Additionally, not knowing much about a particular issue can lead a researcher to ask new questions and discover innovative directions in approaching a specific phenomenon (Berger 2015). On the other hand, there are significant obstacles with studying the unfamiliar. Some of them are the researcher's inability to fully grasp situations that she or he has not personally experienced, absence of language sensitivity in investigating a particular topic and judging or including personal biases in interpreting respondents experiences which may have impacts on conceptualizing a particular research (Berger 2015).

Finally, I have to share one reflection that I found to be relevant for my relationship with this research process. Even though I considered myself to be an 'experienced migrant', since I lived in several countries before coming to ISS to study, I have to admit that this research and the time spent in the Netherlands have helped me understand a bit more the way people perceive me as well. Primarily, this means that I became more aware of the fact that I was often viewed by others as an 'Eastern European' which I did not consider as an important part of my identity before. I experienced how people's perceptions of me changed when they would hear that I had a surname that ends in IC. I witnessed several occasions where people were referring to Eastern Europeans in a condescending manner and labeling them as second-class citizens. Despite the fact that I was in a privileged situation since I got the opportunity to study in The Hague, I have also sometimes felt in everyday interaction that I was being judged solely based on my ethnic background. Because I experienced these situations firsthand, I can say that they impelled me to develop an 'Eastern European solidarity' that allowed me to understand, in at least a tiny way, what is it like to be perceived as a second-class citizen in a 'Western country'. Having said that, I must finish with stating that I do not really know what is it like working as a migrant laborer in the agro-food sector and I do not really know what is like hoping that your employer or recruitment agency will not try to exploit you. That is why, from my position, I can only empathize with these workers because I have not actually walked in their shoes.

2. NOTES FROM THE FIELDWORK

This section analyses the data gathered throughout the research process. In doing so, I have tried to zoom out and bear in mind that different backgrounds of my respondents (as presented in section 4.1.) may have caused them to have different stances about ongoing changes is the Dutch agriculture.

2.1. Working and living conditions of CEE migrants: Business as usual?

"Employers see those people as machines, they would be happy if their employees could work 24 hours a day. Employers need fingers, cheap fingers if I may call it like that"

Julius, representative of the Dutch trade union FNV

It looks like there has been a growing awareness within the Dutch society about hardships that migrants employed in agriculture were going through. Based on interviewees' responses, there is a perception that conditions for CEE migrants have been improving in recent years, but then again, bearing in mind that conditions before were *terrible* (as one worker from the floral industry depicted them), even a small improvement is a step forward. Saying that does not change the fact that there is still a large number of CEE workers who endure harsh working and living conditions.

When asked about the frequency of labor inspections undertaken by the Dutch regulatory bodies, the general impression of trade union representatives is that they are occurring more rarely in the last 10 years since the capacities of these bodies are diminishing. When it comes to living conditions of CEE migrants, there are some indications that things are moving in a better direction because some companies invested in the construction of so called *Polish hostels* where they accommodate their seasonal workers. This is a significant improvement compared to putting these people in caravans which has been general practice so far. However, those are still isolated cases because the main recurring theme for CEE migrants in the Netherlands, and the first thing that was usually pointed out by the interviewees, were terrible housing conditions. For some exploitative employees, accommodating migrant workers and imposing high monthly rents on

them is practically a separate business activity because it generates more income for some agricultural companies than selling the crops that these workers grow. One of their most common abusive practices is putting significantly more workers than there are beds available in one house, which sometimes results in people agreeing to share beds, sleeping in shifts, or just sleeping on the floor. As my respondents conveyed, what it look like in practice is that employers or recruiting agencies place 16-18 people to sleep in a 4 or 5 bedrooms house that would not have enough bathrooms or stoves for cooking, and they would cut significant percentages of workers' salaries at the end of the month which would justify as housing expenses. Another common mechanism for exploiting seasonal migrant workers is through system of fines. For example, according to responses that some of my interviewees gave me, there were cases where workers would be fined up to 500 euros for turning on the heating in the house. Or they would get fined 50 euros for keeping the light on for too long. The system of punishments was also commonly used in their workplaces. For example, when people would not deliver the required daily target, they would get salary deductions at the end of the month, or their supervisors would arbitrarily fine them for staying on their lunch break for too long. Consequently, workers live in constant and legitimate fear that they would lose their jobs, apartments or other rights should they voice any complaints about the abuse they are subjected to by their employers or recruitment agencies.

Robert is a Polish worker in his early thirties, who has been living in the Netherlands for almost seven years now. He considers himself to be privileged because he is working under a direct contract with his employer. Robert stated that he initially found a job in the metal industry when he arrived in the Netherlands, but since he was not satisfied with it, he only spent two months working there and pretty soon started looking for other options. His search led him to one small-scale flower company for which he has been working for six years now. Robert is part of the group of workers who had negative experiences with Dutch labor agencies because, on several occasions, they tried to deduct his salary without any explanations and cut down on his vacation days. He stated that he would eventually manage to resolve every issue that he had with his labor agency, but asserted that it required a lot of engagement from his side to claim his rights. The turning point for Robert was the moment when he signed a direct contract with his employer which, according to him, is something that does not happen very often to CEE migrants employed in the Dutch agriculture. He has been an active member of FNV for quite

some time now, and has been participating in various events whose purpose is to raise awareness and inform migrant workers about their rights in the Netherlands. Robert reiterates that it is indeed really difficult to organize workers into some kind of collective action due to different reasons, which are mainly expressed in a deeply ingrained fear of losing a job, and mentioned that he was sometimes labeled *crazy* for proposing anything that would put their jobs at risk. Nevertheless, Robert understands fears that these people might have in voicing their concerns because he heard several stories where people who, for example complained about housing conditions like heating problems or so, were fired, put on a bus and taken back to Poland.

There are some seasonal workers who knowingly come to the Netherlands on a temporary basis, completely being aware that they would live and work in harsh conditions. They actually embrace the idea of working longer hours since they have an opportunity to earn substantially more money compared to working in their home countries. Situations like this make any effort of collectively organizing workers much harder because their motives for coming to the Netherlands and, planned duration of their stay, vary significantly. Particularly Polish people had a reputation of being obedient, working hard and not complaining about the workload that they had. Julius from FNV was very outspoken about it:

> "The thing is that employers are aware that they can easily fire someone and get an immigrant worker for less money that would work longer hours and would not ask any compensation for that. Plus, migrants do not want to play football with their kids on a Saturday."

During my interviews I was interested in the gender dynamics among Dutch agricultural workers and wanted to hear more about it from my respondents. My interest was motivated by Dolan's (2004) analysis of the UK-Africa horticulture value chain. In her work Dolan emphasized the prevalence of women in the Kenyan horticultural sector and reiterated some of the stereotypes that companies have about women being more productive due to their 'nimble fingers', having the capacity to endure tedious work but most importantly, being more reliable and obedient since they would tend to have aversion towards engaging into conflicts. My respondents confirmed that, as in any other country, women working in Dutch agriculture are more susceptible to having a precarious employment since they are more threatened and sexually intimidated. I received elaborate feedback about this and many other issues from Jan, a Dutch worker employed at the largest flower auction in the world, Flora Holland. Jan has been working

in the Dutch flower industry since 1991. He works in the logistical sector of the auction and his job entails collecting the purchased good from warehouses with his cart and transferring into the auction building. Working in this industry for quite some time now and witnessing various changes in it, he ironically refers to agriculture as a *paradise for practically educated or low-skilled workers.* Initially working as a teacher before moving to flower industry, Jan has been a voluntary shop steward for the FNV since 2002. Throughout the years, he got acquainted with a lot of negative experiences that migrant workers employed in various sectors of Dutch agriculture had to go through. Being a very versatile person, he also shared with me his passion for photography by showing me a part of his collection of photographs that he took which captured some of the moments from lives of Polish seasonal agricultural workers who worked in the Netherlands. When I asked Jan about gender dynamics in the Dutch flower sector, he expressed his belief that women were definitively more susceptible to being ill-treated because he witnessed some of these situations firsthand:

> "One flower company had a working space in our building, and there, for example, Polish girls were not allowed to go to the bathroom during their working hours. They were only allowed to go to toilet during the breaks, so when that moment would arrive you could see 20 or 30 girls rushing to bathrooms. Afterwards they would run upstairs to have a smoke and go back to work immediately. The same company was very problematic, and also always had problems with wages and taxes, so the Dutch tax office and labor investigation office undertook inspections several times."

2.2. Will the shortage of workers 'push' Dutch agriculture towards automation?

"Political climate in this country has become such that these migrants feel welcome to come here to work, but they are not welcome to stay"

Inge, policy advisor in the Westland Municipality

From the Dutch farmers' perspective, one of the main reasons for initiating investments in automation of certain agricultural operations are increasing costs of labor in this country. What seems to be driving that cost rise is the fact that the pool of disposable CEE migrant workers, on which Dutch agriculture has been depending on in recent years, has started drying out. This particularly refers to seasonal workers coming from Poland. Namely, even though statistics indicate that the Netherlands is still very much a favorable destination for Polish migrants because they have been the largest ethnic group entering this country in the first six

months of 2018, several interviewees stated that Poles are becoming less interested to work in the agricultural sector, and that those who decide to come to the Netherlands have started looking for jobs in other sectors of the Dutch economy. They believe that the reason behind it lies in the fact that the wage gap between those two countries is narrowing since Poland has one of the fastest growing economies in Europe which has caused unemployment levels in this country to go down significantly (Cipiur 2017). What this means for the Netherlands is that, despite the fact that there is a rising number of Romanians and Bulgarians employed in the agricultural sector, there is not a sufficient number of seasonal laborers that would satisfy the growing demands of the Dutch agriculture.

At the moment there is an interesting dynamics happening in the US. Namely, due to more stringent regulation of immigrant influxes, the pool of migrant labor force in that country has started drying up. Bearing in mind that in the US as well, migrant workers represent the vast majority of the agriculture labor force, a declining number of immigrants has pushed farmers to start investing more in automation of their operations (Reuters 2017). The situation in the Netherlands is a bit different because, unlike the US where the lack of available workforce is a consequence of tightening immigration laws, the shortage of seasonal labor in this country is understood as a result of economic restructuring of some of the CEE economies. I got a pretty illustrative example of how has the interest of Polish seasonal laborers to work in the Dutch agriculture been declining in recent years from Joost. He is a representative of LTO Nederland which is considered to be the most important agricultural organization in the Netherlands whose purpose is to seek to improve social and economic position of more than 50.000 Dutch farmers and agricultural entrepreneurs. Joost shared with me a compelling story which vividly depicts changes that have been happening:

> "10 years ago, together with my colleague, I have started going to Poland where we organized something like job fairs. When we started with that practice, we went to Wroclaw which is in the western part of Poland, and 2 years ago when we started experiencing labor shortage, we had to go to a city called Bialystok that is all the way in the eastern part of the country. So you see that it's getting harder and harder to find Poles who are willing to come here to work."

Joost believes that another factor that contributed to the shortage of Polish workers is the fact that Germany introduced the minimum wage in 2015. This made the Netherlands a less appealing option for Poles since they realized that there was no point of going further away from

home when they can have the same salaries in Germany. He deemed that the Netherlands should adopt some of the initiatives that countries like Denmark are propagating that include undertaking campaigns in Romania and Bulgaria to attract agricultural workers to that country. He argues that the Dutch government should organize a similar arrangement with some of the Baltic countries because, potentially, a shortage of workers can become a serious problem for Dutch agriculture in the long run. Even though Joost heard only a few stories about farmers who lost some of their crops because they were unable to find enough labor force to harvest it, he believes that this can become a more common occurrence in the coming period since it has notably been much harder in 2018 to find workers compared to the year before. Looking back at the shortage of migrant workers in the USA that seems to be driving investments in agricultural automation in that country, I would predict that this might be a new trend in the Netherlands as well since this is exactly what the representative of LTO Nederland stated when he talked about farmers' motivation to start investing in automation of some operations:

> "It is becoming much harder in every agricultural sector to find workers which leads you to think that if I as a farmer cannot find a laborer quickly and easily, maybe I should start thinking in a different direction. This is where new technologies should emerge to resolve that issue."

Talking about new technologies, it is important to emphasize that despite the fact that the discussion about agricultural technologies replacing the need for migrant labor in the Netherlands is a hot topic, throughout my research I have not found any evidences that agricultural robots are being widely implemented as a substitute for labor in greenhouses or open field operations. The responses that I got from my interviewees pointed out that these changes will be visible in the coming years, usually projecting that some of these technologies would be much more widespread in five to ten years from now. However, I have to put a huge question mark over statements like this and be aware of provisional estimations of my respondents which were not based on any empirical facts. Additionally, I have to be aware of limitations of my research, primarily when it comes to an insufficient sample size for making such a general claim since there are differences in the way people are treated while working on a small scale family farm and for a giant agricultural corporation. The same thing applies when it comes to access and interaction with the technology. Nevertheless, some of the responses that I got from my interviewees point out that, even though they claimed that it seemed premature to talk about laborers being replaced by machines, new technologies have been impacting people, and

probably will continue to affect CEE migrant worker' lives even more in the future. In the following section, I will reflect on that correlation.

2.3. Technological advancements and its impact on workers

"I think that we must be very aware how we educate young people and new employees for our sector because the future will be very different."

Joost, representative of the LTO Nederland

One of the first things that Jan from Flora Holland shared with me was his experience of nearly being replaced by a machine recently. Namely, people in charge of running Flora Holland were considering of investing into robots that would transport flowers within the building instead of people who are doing that task at the moment by driving small cart trains. His superiors gave up that idea in the end because it turned out that some parts of the building had uneven floors which would not allow those robots to operate properly. It is important to note that Jan's job is not purely agricultural but rather logistical. Furthermore, it is worth emphasizing again that Flora Holland is the biggest flower auction in the world which is why this story confirms the intuitive assumption that new technologies will be more diffused in large scale companies. Talking about flower farming in the Netherlands, Jan stated that more advanced technologies can be found in a lot of flower nurseries where a majority of operations like potting, soil handling and tray transport have been conducted by robots for years now, and require only a minimal human labor input

Jan's experience corroborates claims of some other respondents who stated that there was no wide adoption of harvesting robots in the Netherlands at the moment. Even though there have been a lot of enhancements in technologies like robotic sweet pepper harvesters that are becoming more precise in cutting the crop, apple harvesting robots that are now causing less damage while picking the fruit or strawberry picking robots that are becoming much faster, those technologies are still not used extensively. The main explanations for that are high costs, but also ingrained perceptions that these technologies are still not sophisticated or fast enough to replace humans. Additionally, according to Joost from LTO Nederland, a lot of growers feel uncertain about implementing harvesting robots because they believe that it is still very risky since these technologies are at its inception, at least when it comes to their wider commercial use. Even

though Dutch farmers are aware that there are continuous improvements in the field of agricultural robotics, Joost claims that a great deal of them is still hesitant:

> "People have heard a lot about these new technologies, they know and talk about them, but it's still early. Because agricultural robots are not so commercially diffused, people don't want their companies to be early adaptors of these technologies because they do not want to be first ones to find out what's wrong with them. They do not want to be the first one to cope with possible side effects. They want this technology to mature."

Hoping to find out something more about the phenomenon of globally renowned Dutch greenhouses, I got in touch with *Inge*, a highly positioned policy advisor in Westland Municipality. Westland is the biggest greenhouse horticultural community in the world that employs 25.000 people in greenhouses while the majority of the remaining 35.000 jobs in this region is linked with agriculture through the supply chain. Greenhouses in this municipality have been highly dependent on migrant labor since the 1990s and, at the moment, around 12.000 job postings are taken by mostly CEE migrants. In 2011, around 95 percent of employed migrants were Poles but, as Inge confirmed the ongoing migration trends, the percentage of Polish workers is decreasing and now amounts to approximately 70 percent. She was also pretty convinced that the number of Poles working in the Dutch agricultural sector will continue to go down in the coming period Unlike some other regions of the Netherlands, Westland has had significantly higher labor standards that impeded some 'dubious' recruitment agencies to operate there. Inge stated that a key strategy for preventing and combating these predatory agencies is ensuring that migrants workers are informed about their rights – especially relating to housing and working conditions – including through information campaigns in their mother tongues. Even though she states that it is impossible not to have some issues because strategies of agricultural employers who wish to avoid fair labor standards are becoming more 'innovative', Inge believes that unfair treatment of workers is a very rare occurrence in this municipality.

The responses that I got from Inge, as well as from other respondents, point out that the main driver of technological advancements in Dutch agriculture is the need for more sustainable production because it is the only way to cope with pressing environmental concerns. Some of the most important technological changes in greenhouses are linked with improvements in energy efficiency that allowed growers to avoid dependency on fossil fuels and to simultaneously generate heat and electricity on site. Enhancements in Dutch energy grid technologies have

allowed greenhouse growers to create more income by selling the surplus energy that they produce. Thanks to the maximum utilization of sunlight through innovative materials used for coatings and surface treatments of greenhouse roofs, growers are lowering production costs and managing to deliver higher crop yields at the same time. Furthermore, continuous developments in LED technology allow growers in greenhouses to compensate the lack of sunlight in winter days by installing overhead lights that enable normal plant development. I was told that it is easy to recognize these modern greenhouses because they are significantly taller and bigger compared to older types.

Improvements in energy efficiency and indoor climate conditions have impacted the seasonal character of greenhouse work. Before, the greenhouse season in the Netherlands lasted around 6 months, from April until October. Nowadays, we can say that greenhouses do not offer seasonal work anymore but rather almost a 12 month employment since seasons have been extended from February until December. Longer seasons made working in greenhouses more appealing for CEE migrants because it provided them with nearly a year long, uninterrupted income opportunity. The improved features of greenhouses and their ability to store heat more efficiently, allowed growers to shift cultivation of some crops that were traditionally linked with open-air operations like asparagus or grapes, into greenhouses. This provided them further advantages of having higher percentage of marketable crops by shielding them from potential damages of increasingly changing weather patterns. Shifting production to greenhouses has undoubtedly benefited some workers as well because they do not have to endure harsh weather conditions in the fields anymore.

Despite this obvious convenience for workers, there are negative aspects of these technological changes which have been affecting CEE migrants the most. Due to the difficulties involved in coping with cultivation costs, some companies have reportedly been leaving the Netherlands and shifting their production to countries like Russia. In order to avoid that and to remain more competitive on the global market, growers have been exerting more pressure on their workers. That meant that, besides the fact that technology has allowed growers to extend cultivating seasons, some agricultural companies have been extending their employee's working hours as well. According to responses that I got, a normal week for a CEE migrant consists of 60 working hours while it does not come as a surprise to hear that, during harvest time, they even

work more than 80 hours a week. Furthermore, developing technologies that can change crop features have resulted in producing more different varieties which has also made satisfying buyers' expectations a more difficult task. Inge explained to me this concretely by giving an example from the Dutch flower industry where companies were growing around 10 types of orchids just a few years back, but now are producing 20 or 30 varieties of this flower. It is exactly this need to intensify production that pushes growers to search for workers who will not resist much when requested to do more hours in the fields or in the greenhouses.

Unlike the Westland municipality, where it seems that workers have been treated more fairly compared to other regions in the Netherlands, it looks like this intensification of agricultural production has been more detrimental for people working in Limburg area. Agnieszka, originally from Poland, is a FNV representative living in this region. Besides stating that she gets a lot of complaints from migrant workers about exploitative employers, she also shared her opinion that prolonged cultivating seasons in Dutch greenhouses actually contributed to more work related injuries among CEE migrants. While in the past these injuries were more common for people over 50, Agnieszka notes that there has been an increasing occurrence of younger people reporting serious back and shoulder problems that came as a consequence of overwork.

Lastly, I deemed it was important to reflect one more time about the long term effects of labor replacing technologies. I found that some concerns of trade union officials were very indicative about the possible, future trajectory of the Dutch agriculture. Frank, FNV representative from Rotterdam, was explaining how challenging it can be to negotiate a collective bargaining agreement that would be suitable to everyone since there is a great deal of CEE migrant workers who find it to be in their best interest to work over the weekends so that they could earn more. He went on to conclude by saying that it would get only harder from now on to negotiate further because he believed that a lot of those agricultural jobs would become redundant in the future. Since it was a recurring theme throughout this research to talk about the time frame of 7 to 10 years as a moment when the labor demands in the Dutch agriculture would be significantly different, that forced me to reiterate questions that many before me have been asking about the changing nature of agricultural work. What exactly will be the average profile

of agricultural worker and what will the future of the Dutch agriculture look like? Joost from LTO Nederland does not seem to have any doubts about it:

> "We said to our members they will not need so many CEE migrant workers in the future. There will be necessity for labor, but much less definitively. These workers will have to be much more comfortable with interacting with technology. I think that we are approaching that turning point now. And when it happens, I think that this will be a swift change."

CONCLUSION

The preceding research highlights the importance of CEE migrants for the Dutch agriculture, while at the same time, tries to incorporate the debate about the effects that automation in the 21st century will have on the future of work. Even though history has shown that progress in technology usually leads to the creation of more jobs, there has been a growing amount of research purporting that this will not be the case going forward. New technologies, some of which already developed, are expected to massively affect agricultural labor, turning a large part of the labor force redundant. For example, current developments in robotics could fully automate operations like crop picking and weeding, thus leading to widespread technological unemployment and the further downscaling of the agricultural labor force. The Netherlands is expected to be among the first countries to experience this anticipated technological revolution in the agricultural sector.

The findings of this research, however, advise caution. Namely, despite the many agro-technologies referenced in the paper, whether those existing or anticipated in the near future, such as the sweet paper harvesting robot or robotic apple and strawberry pickers, the research suggests that the complete 'take-over' of the agri-industry in the Netherlands by machines is not happening anytime soon. The research presented above indicates that the Dutch agricultural sector still relies primarily on people to perform picking operations, mostly on CEE migrant workers, and that there has been a growing shortage of agricultural labor in this country.

A critical finding of this research is that, while waiting for robots to come and take their place, some actors in the Dutch agriculture actually treat CEE migrants like they already have robots working for them. Specifically, thanks to breakthroughs in LED technology and energy efficiency, Dutch growers have been able to modify indoor environmental factors which have led to shifting more production into greenhouses and extending cultivating seasons to an almost yearlong production. On the one hand, that has benefited CEE migrants because they have been shielded from working outside, in unfavorable weather conditions and allowed them to generate more income because of the season's extension. On the other hand, this race to scale up productivity has led to further abuse of migrants – such as increasing the burden of work and imposing longer hours – on top of those common problems CEE migrants experience in the

Dutch agro-food sector relating to housing conditions, wage issues, discrimination and intimidation.

Should the further sophistication and affordability of harvesting and similar robots cause a surplus of labor in the near future, it is important to consider what it would mean for CEE migrants and other displaced agricultural labor? By relying on Schewe and Stewart (2015) we can expect that there will still be a need for, at least, some workers, though for a different kind of workers - those who are more comfortable dealing with machines. For those that do get displaced, capitalism should be able to find a new way to create even more jobs by generating more commodities through the use of technology (Huws 2014) and thus, the consequences of technological advances in the current digital age will resemble those from the past. However, there is a danger that new technologies will (and already are) lead to a decrease in quality of those newly created jobs and the further deterioration of working conditions (Spencer 2018).

The future of CEE migrant workers looks somewhat different when placed in its wider context. Namely, it is important to keep in mind that the predictions described above rely on the assumption that the global socio-political structure remains unchanged. It seems obvious however that one thing will soon challenge the creation of more jobs whose sole purpose is commodity reproduction – environmental limits which are already causing capitalism's extractive potential to wither.

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