An Introductory Analysis of the Link Between Temporary Foreign Workers, Regional Unemployment Rates and Employment Insurance

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Abstract

The temporary foreign worker program has seen significant growth since the expansion of the program in 2002 and continues to remain a dominant aspect of the Canadian labour market. The entry of temporary foreign workers is providing Canadian employers with a dependent source of labour that requires minimal training and low wages. This paper examines the relationship between temporary foreign workers and the unemployment rates in each Employment Insurance economic region. The results suggest that the program is not totally perverse, but many dimensions of the program still require further analysis.

Introduction

The Temporary Foreign Worker Program is receiving much needed attention due to the high growth of temporary foreign workers coupled with persistently high unemployment rates in certain economic regions in Canada. Since the introduction of the Non-Immigrant Employment Authorization Program (NIEAP) in 1973, now known as the Temporary Foreign Worker Program (TFWP), migrant workers have become a significant group in the Canadian labour market. Temporary foreign workers allow Canadian employers to fill labour shortages when Canadians do not have the skills to fulfill the requirements of the position.[1] Due to the fact that the permanent immigration process takes longer periods of time[2], temporary foreign workers allow the Canadian economy to function more efficiently and flexibly by addressing these labour shortages immediately and therefore maintaining economic growth.

A key statistic of the Canadian economy, which is closely monitored, is the unemployment rate. As far as the Employment Insurance program in Canada in concerned, the unemployment rate determines the accessibility and generosity of benefits. The unemployment rate determines the length of work required to receive benefits as well as the duration of these benefits (Service Canada 2013). Temporary Foreign Workers may play an interacting role in this social insurance program as the entry of TFWs into regions with high unemployment rates may cause workers to stay on employment insurance for longer periods of time or leave the labour force all together. In

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[1] Canadians refer to an individual who is a Canadian Citizen or a permanent resident.
[2] The immigration process takes 13 months or more for federal skilled workers to obtain permanent residency depending on where the visa office is located. http://www.cic.gc.ca/english/information/times/perm/skilled-fed.asp

either case, government revenue is being spent to support workers who could potentially be employed in their respective regions. Lower-skilled temporary foreign workers will have a larger impact in regional labour markets where there is a majority of the workforce in cleaning, hospitality, manufacturing, oil and gas, and construction (McQuillan 2013). McQuillan (2013) estimates that there are approximately four unemployed Canadians searching for work in the construction industry for every employed person in this industry and three unemployed Canadians in the manufacturing industry for every employed person in the manufacturing industry.

The importance of analyzing the flows of temporary foreign workers who are entering regions of high unemployment or the stocks of temporary workers who are present in these respective regions is the potential impact on inter and intra provincial migration, wages and employment insurance benefits. Wages play a dominant role in determining who will be a labour force participant. In the absence of a temporary foreign worker program, employers will increase wages when they have difficulty finding a suitable worker for the job. The higher wage will attract individuals either locally or perhaps from other geographical regions, and potentially increase labour force participation. In theory, this adjustment process assumes perfect mobility of labour and will occur until every region exhibits the same unemployment rate (Gross 2010). When the temporary foreign worker program is implemented in the labour market, this eliminates the need to raise wages, as the employer can hire a temporary foreign worker at minimum wage or at a wage that is lower than the going wage. This places downward pressure on wages and can reinforce persistent differentials in the unemployment rates across regions. The persistence in unemployment rates will stem from Canadians

remaining unemployed, while temporary foreign workers fill the vacant positions. The ability to hire temporary foreign workers at low wages may create a situation where employers become dependent on the program (Worswick 2010). The ability to maintain wages at low levels reduces the incentive for Canadians to migrate to the regions of low unemployment, contributing to pockets of high unemployment areas. The presence of temporary foreign workers in the high unemployment areas may also be displacing Canadian citizens and permanent residents, increasing the cost of social assistance programs.

The research in this paper will focus on the impact of regional unemployment rates on temporary foreign workers. The number of TFWs entering Canada, the number of TFWs present on December 1st of each year, and the number of TFWs leaving each region will be analyzed against unemployment rates on a regional basis.

The paper is organized as follows. Section 2 will provide a history of the temporary foreign worker program, including the recent changes, and will document the persistent regional disparities in unemployment rates. Section 4 discusses the data set and the process employed to properly impute the regional data that are required in order to carryout the analysis. Sections 5 and 6 present the methodology and empirical results. Section 7 provides a discussion of the findings and potential policy alternatives to the temporary foreign worker program.

Temporary Foreign Workers in Canada

The introduction of temporary foreign worker programs into many OECD countries has provided greater labour market flexibility and has alleviated labour

shortages in certain regions and industries. Although some OECD countries have different policies in effect, most programs work very similarly (OECD 1998). In Germany, Switzerland and France, a temporary resident permit is granted along with a work permit. This allows the foreign worker to become legally employed in the host country. The United States, on the other hand, has a list of 20 visa categories, whereby each temporary foreign worker is classified into one category. This allows for flexibility in the program, as workers can change categories without re-applying for a permit.

Canada's Temporary Foreign Worker Program is administered collaboratively by Citizenship and Immigration Canada (CIC) and Human Resource and Skills Development Canada (HRSDC). HRSDC is the first point of contact for Canadian employers who are looking to hire a temporary foreign worker. Service Canada will then issue a Labour Market Opinion (LMO) as to whether the entry of this foreign worker will have a negative, neutral, or positive effect on the Canadian labour market. In most cases a positive or neutral LMO is usually required.

Exceptions to obtaining a positive or neutral LMO exist in the process to hiring foreign nationals as well. For example, professionals, traders, investors and business people coming to Canada are covered under international agreements such as the North American Free Trade Agreement and the General Agreement on Trade in Services. These workers do not require a labour market opinion; the only necessary requirement is a valid work permit (CIC 2013). This could ultimately provide distortions in the Canadian labour market if the entries of these workers have adverse effects on Canadians who are searching for jobs. Given that a worker requires a Labour Market Opinion, and this LMO is positive, Citizenship and Immigration Canada will assess the admissibility

requirements of each temporary foreign worker and ensure that these workers meet the intended requirements for the employment position.

Canada's policy position on temporary foreign workers remained fairly stable until 2002, when it expanded the program to include lower-skilled workers. In 1966 the Caribbean/Mexican Seasonal Agricultural Worker's Program was established to support the Canadian agricultural industry in periods of increased demand (HRSDC 2012). Since this period, the Government of Canada has expanded the program to include live-in caregivers, high-skilled workers and most recently, the introduction of the low-skilled pilot project in 2002. High-skilled occupations are classified as management, professional, scientific, technical or trade positions. Low skilled workers require no more than a high school education or 24 months of job specific training.

The low-skilled pilot project was introduced due to employers reporting labour shortages, for which it was determined that Canadians could not fill these open positions. Pressure from employers to recruit and employ these low-skilled workers drove the expansion of the program in 2002 (Foster 2012). The number of foreign workers present on December 1st of each year grew by 97.5% between 2002 and 2007 and 69.1% between 2007 and 2012. This is an overall growth rate of 234% from the introduction of the program in 2002 until 2012 (CIC 2008, 2012). The entries of foreign workers have also seen strong growth rates in these periods. From 2002 to 2007, the growth rate of temporary foreign workers entering Canada was 48.7%, which slowed down to 29.5% between 2007 and 2012. The decrease in growth of temporary foreign workers entering Canada and foreign workers present between 2007 and 2012 may be explained by the downtown in the labour market due to the 2008 recession. These figures illustrate not

only how temporary foreign workers have become a significant player in the Canadian labour market, but also how employers have become dependent on the use of these workers.

Ruhs (2002) identified potential major adverse consequences of Temporary Foreign Worker Programs in the United States, Germany, Switzerland, Kuwait and Singapore, three of which I will concentrate on.

1. The emergence of "immigrant sectors"
2. The exploitation of foreign workers
3. How Temporary Foreign Worker Programs become longer in duration and larger in size than originally intended

Even though these adverse consequences were attributed to temporary foreign worker programs in foreign countries, they are all current features of the Canadian program.

The emergence of immigrant sectors in economic regions has become clearer as the program has progressed. In 2012, the majority of temporary foreign worker entries into the Atlantic Provinces were mainly low-skilled workers (HRSDC 2012). Prince Edward Island and New Brunswick were the two provinces that stood out the most. 83% of the entries into PEI were low-skilled workers, whereas in NB, 79.5% of the entries were low-skilled workers. Given that these Atlantic Provinces exhibit high levels of structural unemployment, the entry of temporary foreign workers may cause unemployment rates to decrease.[3] The temporary foreign workers are filling positions that the local workers are qualified for, and it might be prolonging their spells on EI.

[3] Unemployment rates would decrease because the number of unemployed would remain the same, but the size of the labour force would increase.

The entry of temporary foreign workers could have detrimental effects on human capital formation in the Canadian economy as youth who are entering the labour force cannot receive on-the-job training in order to "climb the ladder" in their respective fields. Youth unemployment has attracted attention when discussing the Temporary Foreign Worker Program, as many youth are finding it difficult to find entry-level jobs, and most will not want to work for the low wages being offered (McQuillan 2013). As the number of temporary foreign workers and post-secondary graduate's increases, one category of workers will likely begin to displace the other. Although graduates are recently trained, employers may opt to hire the temporary foreign worker as they may have more experience and can sometimes offer these workers lower wages.

To the extent that temporary foreign workers are highly skilled, there is no displacement effect because there is a genuine shortage of Canadian workers who are able and willing to do the job. To the extent that temporary foreign workers are unskilled, it is almost certain that there exist Canadian workers who are qualified to do the job. So why is there an apparent shortage of labour? One possibility is the wages are below the equilibrium level, and that a wage increase will resolve the shortage. Another is that many of the local workers are receiving EI benefits, and thus they have reduced their search intensity to the extent that they refuse these jobs. This scenario seems possible in areas with a high incidence of EI use, and it poses a major challenge for the EI program.

In order to employ a temporary foreign worker, employers must pay transportation costs to and from the source country and pay for private health insurance.[4]

[4] Employers must pay for private insurance until the foreign worker becomes eligible to receive provincial health coverage. HRSDC Employer Compliance. http://www.hrsdc.gc.ca/eng/jobs/foreign_workers/employer_compliance.shtml

Yet, this may not be enough to deter employers from becoming dependent on the temporary foreign worker program (Fudge & MacPhail 2009). Foster (2012) also points out how the strong growth of the program has led foreign workers to become employed in industries traditionally dominated by the domestic workforce, such as retail and restaurants. Consequently, since the expansion of the program in 2002, a minority of administrative regions and industrial sectors in Canada have become increasingly reliant on temporary foreign workers (McQuillan 2013).

The exploitation of foreign workers is a highly documented facet of the TFW program (Nakache & Kinoshita 2010). TFWs help to fill immediate labour shortages and are required to leave the country once the contract has expired. This allows for exploitation not only by business owners but also by the Government of Canada. These workers are required to pay employment insurance premiums, just as any Canadian citizen, but most never obtain the chance to receive these benefits unless they become a permanent resident (Nakache & Kinoshita 2010). In order to receive employment insurance benefits, an individual must have accumulated enough insurable hours within the past 52 weeks based on the unemployment rate in the administrative region. Even if a temporary foreign worker has accumulated enough hours to receive benefits, they will not be entitled to the benefits because of the structure of the employment insurance program. Once a work permit has ended, the foreign worker is no longer available to work, therefore creating a situation where the individual wants to work but is not a member of the labour force; this restricts their access to benefits. The temporary foreign worker may reapply with a different employer for a work permit, but once a new employment is found, they are once again no longer eligible to receive EI benefits.

Although HRSDC claims that temporary foreign workers are eligible for employment insurance, most workers will never become eligible for regular benefits due to the nature of the work permit and structure of the EI program. Temporary Foreign Workers who do qualify for employment insurance benefits usually do so under special benefits, but restrictions still apply. [5]

The temporary foreign worker program has become longer in duration and larger in size, which is especially prevalent in the Canadian economy. The number of foreign workers entering Canada has dramatically increased since the expansion of the program in 2002 to include low-skilled workers. The new qualification criteria were put in place due to Western provinces requiring low-skilled labour, but this source of low-skilled labour has become a source of dependency for Canadian employers as wages can be offered at low levels. One facet of this was the introduction of the 15% wage rule. Employers were able to offer temporary foreign workers wages that were 15% below the normal market wage. Introduced in 2012, if the firm had advertised the position at the going wage rate in the region and could not fill the position with a Canadian resident, the company could hire a TFW at a wage 15% below the going wage rate in that region. Due to the elimination of this policy, a firm whose application is rejected by CIC or HRSDC for hiring a foreign worker may respond by increasing the wage rate and filling the position with a Canadian applicant (Worswick 2013). This is what we would want them to do unless domestic labour supply appears to be restricted by EI benefits.

Under the TFW program, it is also very difficult for a low-skilled worker to become a permanent resident. Once a work permit has expired, the temporary foreign

[5] Maternity benefits, parental benefits and compassionate care are types of special benefits. http://www.mowateitaskforce.ca/issue/9-temporary-foreign-workers

worker must leave the country for four years until they become eligible to re-apply for another position. A channel for a low-skilled temporary worker to become a permanent resident in Canada is through the Provincial Nominee Program (Lowe 2010). There is no cap on the number of foreign workers allowed to become permanent residents under the PNP, although certain guidelines do exist. The worker must be able to fill a permanent job vacancy, and it must be determined that the entry of this worker will not hurt the Canadian labour market via a displacement effect. A similar pathway to becoming a permanent resident is through high-skilled occupations. Introduced in 2008, the Canadian Experience Class allows high-skilled workers who have obtained 2 or more years of experience in a skilled occupation to become a permanent resident (Sweetman & Warman 2010). Due to program regulations, permanent residency for high-skilled workers occurs more frequently than for low-skilled workers. The regulations are designed as such because of individuals with high skill levels will apply their human capital to the Canadian economy, making the Canadian labour force more productive and advancing the technological transformation for Canada as a whole.

To complement this pathway to permanent immigration, foreign students entering Canada to complete their studies also have the opportunity to become permanent residents. Foreign students must be registered for full-time studies for at least two years and have one year of skilled employment experience in order to apply (Sweetman & Warman 2010). Warman (2007) performed a study on the topic of returns to foreign human capital of temporary foreign workers. His research showed that male TFWs receive higher returns to their foreign schooling compared to recently landed immigrants who receive almost no return. This makes economic sense, because the TFWs are

selected by the employers and given jobs according to their credentials. Many of the landed immigrants, on the other hand, have to search for employment on their own. It was also determined that TFWs receive higher returns to their labour market experience (Warman 2007). These new pathways to becoming permanent residents and the increased returns received by foreign workers in that category will undoubtedly increase the number of temporary foreign workers looking to enter Canada and once again create sectors and regions who rely heavily of TFWs.

The evolution of the Temporary Foreign Worker Program has caused policy makers to reconsider the objectives and goals behind this program. The expansion of the program in 2002 helped to fill labour shortages and maintain economic growth, but due to the exploitation of foreign workers and the formation of immigrant sectors, policy changes must be implemented so Canadian's are utilized first. Worswick (2013) recently analyzed four of the recent changes to the TFW program and proposed that a cap be imposed on the total number of entries allowed each year. The recent changes that have been applied to the program include:

1. Elimination of employers being able to hire foreign workers at wages up to 15% below the market wage
2. Introducing a fee per foreign worker application
3. Introducing job language requirements
4. Suspending employers who misuse the program
5. Recipients of EI will be provided with more information on available jobs (HRSDC 2012)

These changes to the TFW program are aimed at preventing Canadians from being displaced by temporary foreign workers. Eliminating the 15% wage rule will force employers to increase wages when a labour shortage persists. This behaviour is consistent with the adjustment process of the typical labour demand and supply model, whereby wages increase until quantity demanded equals quantity supplied, and the unemployment rate converges across all regions.

The introduction of a processing fee will make employers face the costs that hiring a temporary foreign worker has on other parties. For example, negative externalities may exist when a temporary foreign worker is hired (Worswick 2013). This negative externality will occur in the case where a Canadian could have been hired for the position, but instead is displaced by a temporary foreign worker, and claims employment insurance or another form of social insurance. As Worswick (2013) states, an experience rated fee related to the number of temporary foreign workers hired in the past might encourage employers to reconsider this mode of recruiting and turn to domestic labour sources.

In the 2012 Economic Action Plan, the Government of Canada introduced a new reform to the employment insurance program. This reform is designed so that recipients of employment insurance benefits are able to be better informed about employment opportunities in their region (HRSDC 2013). More information will be provided through the Job Alert System, which will help unemployed Canadians rejoin the labour force. Due to the fact that regional unemployment rates vary across the country, high unemployment rate regions should benefit disproportionately from this reform.

A main topic of discussion in regards to the Employment Insurance program is the very long-standing regional disparities of unemployment rates in the Canadian labour market. As revealed in employment insurance statistics, Atlantic Provinces as well as certain rural regions in the rest of Canada benefit disproportionately from the EI program due to the structure of employment. Regionally differentiated benefits allow employees in high unemployment areas to work a decreased amount of hours and gain entitlement for a longer duration in benefits. There are currently 58 administrative regions in Canada for which the unemployment rate is calculated and used to determine both the number of hours of work required to receive benefits and the duration of benefits during the unemployment phase. This benefit entitlement structure is one of the main disincentives to inter and intra provincial migration as seasonal and part-year employment patterns are very heavily subsidized (Gray & Busby 2011).

Temporary foreign workers may also play a role in the persistence of unemployment rates across economic regions. The number of temporary foreign workers present on December 1st of each year has almost doubled in every region since 2002 (CIC 2008, 2012). With the number of entries increasing on a yearly basis, this either means that employment opportunities are growing at a consistent rate or that temporary foreign workers are displacing Canadians in the labour market. Gross and Schmitt (2012) conducted a study using aggregated provincial data that analyzed the impact of temporary foreign workers on the persistence of regional unemployment rates. They found that the gap in unemployment rates between the high unemployment regions and the low unemployment regions was reinforced after the Temporary Foreign Worker Program was expanded. This all stems back to the original structure of the TFW program, as employers

can hire foreign workers at wages, which are lower than the going wage. Due to the fact that this research was based at an aggregated level of data, I conducted research on the 58 regions for which Employment Insurance benefits are administered.

By using the flows and stocks of temporary foreign workers in Canada, it was possible to re-map these regions into the 58 EI administrative regions. These imputations, coupled with the respective unemployment rate in each region, allow for an analysis of the relationship between the TFW program activity and local unemployment rates.

Data Collection

Data on the entry and compilation flows of temporary foreign workers and stock of foreign workers present on December 1st of each year were obtained from Citizenship and Immigration Canada's facts and figures (CIC 2008, 2012). The unemployment rates for each region were reported by HRSDC. The unemployment rate for the purpose of employment insurance is calculated monthly, so it was necessary to determine the overall average for each year. These variables are reported by administrative region. In order to analyze the impact of temporary foreign workers based on data that are compatible with the statistics on employment insurance, it was necessary to render the data on the activity of the TFW program compatible with the data on regional unemployment rates. This task involves a lot of concordance work because the two regional concordance schemes are not identical. Scheme A determined how data on TFW flows and stocks are organized according to regional category. Scheme B also organized data on unemployment rates according to regional category. The data were coded on TFW flows and stocks so that it

is organized according to scheme B. Table 1 shows how it was possible to complete this concordance and mapping.

Due to the fact that the regions from Citizenship and Immigration Canada did not exactly match up to the regions of Employment Insurance, I had to use the Labour Force Survey to assign these workers to the regions for which the data on unemployment rates are reported. One illustration of these imputations is shown in Table 1 using Nova Scotia. The regions for the reporting of the TFW for Nova Scotia were Halifax and Other Nova Scotia, whereas the regions for the payment of Employment Insurance benefits were Halifax, Eastern Nova Scotia and Western Nova Scotia. It is quite easy to see that there is an exact concordance for Halifax, as a direct mapping can be made from the number of temporary foreign workers reported by CIC to the economic region of the administration of EI. In order to determine the proper assignment of TFWs from Other Nova Scotia to Eastern and Western Nova Scotia, it was necessary to drill down to the Census Divisions level for both the Labour Force Survey and Employment Insurance regions. For the purposes of concordance, it was these Census Divisions that made the assignment of temporary foreign workers possible. As seen from Table 1, there is an exact concordance of census divisions for Cape Breton and Eastern Nova Scotia, which is displayed in boldface for these counties. It is also shown that there is an exact concordance of census divisions for Annapolis Valley and Southern with Western Nova Scotia, which is displayed by the counties marked with italics. Since North Shore had counties in both Eastern and Western Nova Scotia, it was necessary to obtain figures for the populations of the corresponding census divisions. It was then calculated that 82.18% of temporary

foreign workers belonged to Western Nova Scotia, whereas 17.82% belonged to Eastern Nova Scotia.

The next step was to determine the total labour force for each EI region. This imputation was required to determine the actual number of TFW entries and TFW workers present in each EI region. Table 1A displays the calculations made to assign the labour force into each EI region. Table 1B displays the calculations made to distribute the entry of temporary foreign workers into each EI region. By using the labour force survey to distribute temporary foreign workers into each EI region and then using total employment in each region, it was possible to determine the ratio of temporary foreign workers to total employment. This ratio allows for all economic regions in Canada to become comparable and thus suitable for analysis of the primary outcome variable, total entries to total employed. This makes the analysis feasible so it can be determined if there are proportionately more temporary foreign workers entering high unemployment regions. This could show the extent to which Canadian workers are being displaced in these high unemployment areas.

From Table 1A, the calculations to determine the aggregate labour force for each region are displayed. It is shown that the total labour force for Halifax is 239,700; Eastern Nova Scotia is 77,120 and finally, Western Nova Scotia had a total of 183,580. These figures are obtained by adding up the values of the respective counties within their boundaries. Table 1B displays the distribution of temporary foreign workers from Other Nova Scotia (ONS) to Eastern Nova Scotia (ENS) and Western Nova Scotia (WNS). The assignment was determined as follows:

$$TFW_{ENS} = (LF_{ENS} / (LF_{ENS} + LF_{WNS})) * TFW_{ONS}$$

$$TFW_{ENS} = (77120 / (77120 + 183580)) * 1010$$

$$TFW_{ENS} = 299$$

$$TFW_{WNS} = (LF_{WNS} / (LF_{ENS} + LF_{WNS})) * TFW_{ONS}$$

$$TFW_{WNS} = (183580 / (77120 + 183580)) * 1010$$

$$TFW_{WNS} = 711$$

In order to calculate the incidence rate of temporary foreign workers in Halifax and Eastern and Western Nova Scotia, total employment in each region had to be imputed in the same manner as the labour force. If the labour force were to be used again for the calculation of the ratio, the value for Eastern and Western Nova Scotia would be identical. The value for employment in each region is displayed in Table 1B. Now that the number of entries has been determined, it is possible to calculate the ratio of entries to the number of employed. The last column in Table 1B displays these results.

After completing the imputations, the number of temporary foreign workers leaving each region each year can be calculated by the following expression:

$$TFWL_{t+1} = TFWP_t + TFWE_{t+1} - TFWP_{t+1}$$

Temporary foreign workers leaving the region in the next year ($TFWL_{t+1}$) is equal to the number of temporary foreign workers present in the current year ($TFWP_t$) plus the number of temporary foreign workers entering the region in the next year ($TFWE_{t+1}$) minus the number of temporary foreign workers present in the next year ($TFWP_{t+1}$). I will analyze the relationship between exits of TFWs and the local unemployment rate. If the program is working as intended, there should be a positive relationship, because as

the unemployment rate rises (falls), there would be a higher (lower) incidence of exits by TFWs.

Tables 1A and 1B show the process that is carried out to derive the proper assignment of TFWs into each administrative region, which was completed for stocks, flows and exits.

Estimation

In order to properly evaluate the effect of temporary foreign workers on regional unemployment rates, it was necessary to conduct an analysis using panel data. Panel data will allow us to exploit inter temporal variation in the number of temporary foreign workers in Canada, which will be linked to the evolution of unemployment for each administrative region. Using a basic econometric model, it was possible to provide a preliminary analysis on temporary foreign workers.

The following basic equations were used for the analysis of this research:

1. $TWF_{it} = \alpha_i + \beta_0 UR_{it} + \varepsilon_{it}$

2. $TFW_{it} = \beta_0 + \beta_1 UR\,(6\%)_{it} + \beta_2 UR\,(6-7\%)_{it} + \beta_3 UR\,(7-8\%)_{it} + \beta_4 UR\,(8-9\%)_{it} + \beta_5 UR\,(9-10\%)_{it} + \beta_6 UR\,(10-11\%)_{it} + \beta_7 UR\,(11-12\%)_{it} + \beta_8 UR\,(12-13\%)_{it} + \beta_9 UR\,(13-14\%)_{it} + \beta_{10} UR\,(14-15\%)_{it} + \beta_{11} UR_{it} + \varepsilon_{it}$

3. $TFW_{it} = \beta_0 + \beta_1 UR_{it} + \beta_2 BUR_{it} + \varepsilon_{it}$

Equation one allows for each dependent variable (the flow of entries of foreign workers, the stock of foreign workers present on December 1st, and the flow of foreign workers leaving the region) to be regressed on the unemployment rate in the region. This is the most basic regression equation that is estimated. When regressing the flow of entries of foreign workers on the regional unemployment rate, it will be determined if more TFWs are entering high or low unemployment areas. A negative statistical

relationship between entries of foreign workers and the unemployment rate would suggest that the program is working as intended, i.e. to fill gaps in the labour market. The stock of the number of foreign workers present on December 1st of each year will determine if more workers are staying in high or low unemployment areas. I would expect for the statistical relationship between the stock of workers and the unemployment rate to be weaker than the preceding correlation. Finally, it will be interesting to look at the number of temporary foreign workers leaving each region each year. If it appears that more workers are staying in the high unemployment areas, this could mean that temporary foreign workers are displacing Canadian citizens. We will want to see a positive statistical relationship between exits of foreign workers and the unemployment rate.

Equation two allows us to indirectly analyze the impact of employment insurance on flows of temporary foreign workers. The independent variables in equation two are all dummy variables except for the unemployment rate. The rest consist of a set of dummy variables of the regional unemployment rate, which is a proxy for the generosity of Employment Insurance benefits. Equation three expands upon equation one by including a dummy variable for the unemployment rate. This is the binary unemployment rate (BUR); if the unemployment rate is below 10%, then a value of 1 is applied; otherwise it will be 0.

Due to the fact that the data calculations by region involve re-mapping and imputations, the first estimating sample is restricted to those regions for which there was a one-to-one correspondence between the two regional categorization schemes. The

advantage of the restricted sample is that the data are accurate. The disadvantage is that this sample is not representative of the entire labour force and labour market.

Administrative Region Number	EI Economic Region
3	Prince Edward Island
7	Fredericton-Moncton-Saint John
24	Kingston
30	London
32	Windsor
39	Winnipeg
42	Regina
43	Saskatoon
46	Calgary
47	Edmonton
56	Yukon
57	Northwest Territories
58	Nunavut

As seen from the table above, there were only 13 regions that did not require any re-mapping or imputations. Although the process of determining the distribution of temporary foreign workers into each region was complex, it is sufficient to use the sample comprised of exact concordances for the primary results and the full sample of imputed regions for the secondary results. This will determine how robust the results are to the changes in sampling schemes.

Regression Results

The primary regression results were taken from the sample comprised of exact concordances as shown above. By using fixed effects, random effects and between effects, I was able to determine if time invariant characteristics in each region biased the estimated coefficient of the unemployment rate variable. The dependent variable is

calculated as the ratio of temporary foreign workers to the total number of employed individuals in each region. The baseline value for the dependent variable, the overall number of entries of temporary foreign workers in Canada compared to the total number of employed in 2012, was 0.012. This means that approximately 1.2% of the employed population in Canada consisted of temporary foreign workers entering Canada. In 2000, temporary foreign workers only accounted for 0.79% of the total employed population. This is an increase of approximately 50% in the incidence rate over the last decade.

Tables 2 to 4 show the results for the most basic regression model. Entry flows of foreign workers, foreign workers present on December 1st of each year, and exit flows are regressed on the unemployment rate. Table 3 displays the results when fixed effects specification was estimated. Based on 164 observations, the simple correlation between entries of foreign workers and the unemployment rate was 0.5049 showing a moderate positive relationship between the two variables. A significant coefficient at the 10% level is displayed for entries of foreign workers, although there is weak explanatory power. This initial result portrays the idea that the Temporary Foreign Worker Program is not as responsive as it should be to local unemployment rates. The estimated coefficient for entries of foreign workers shows that as the unemployment rate increases, fewer temporary foreign workers are entering the region. Temporary foreign workers leaving each region and foreign workers present are not statistically significant and have no explanatory power. The estimated coefficient indicates that as the unemployment rate increases, more temporary foreign workers would be leaving these high unemployment regions. The number of observations for this estimate is lower as the first year is dropped in order to properly estimate total TFWs leaving the region.

To extend the analysis on just the unemployment rate in each region, I estimate the equation to include fixed and between effects. Fixed effects will allow me to exploit the time-series information in the data, whereas between effects will allow me to exploit the cross-sectional information in the data. A critical component to a proper analysis is determining which method to use. In order to determine which method is appropriate, I conducted a Hausman test, which indicates whether the error term is correlated with the exogenous variable. In the current case, a significant result is obtained stating that we can reject the null hypothesis of the absence of correlation, so fixed effects is the correct method to use (as opposed to random effects). This is easily understood, as many time-invariant characteristics such as the composition of industries, demographics and composition of education levels of the labour force by region could all play a role in determining the unemployment rate in each region.

The results using fixed effects are displayed in table 3. The entries of foreign workers decrease as the unemployment rate increases. This is a result that would be expected. As the unemployment rate in a region increases, fewer temporary foreign workers should be entering these regions due to lower employment opportunities. When analyzing the temporary foreign workers still present on December 1st of each year, we get an interesting result, but it is not significant and the equation has no explanatory power. As the unemployment rate increases, so does the number of temporary foreign workers present in the region. Interestingly enough, this could be due to the fact that more employment is seasonal and part time in high unemployment rate areas creating a situation where Canadians are displaced for a longer period of time.

Due to the structure of the eligibility parameters of the Employment Insurance program, it was relevant to include a series of variables relating to the generosity of the program in order to capture a potential relationship between TFWs and the EI program. Employment Insurance is structured so that if you live in a region with a high unemployment rate, you require fewer hours to qualify for benefits, and you receive these benefits for a longer period of time. The existence of temporary foreign workers in regions with high unemployment rates could possibly allow the individuals to collect EI benefits and for a longer period of time. There are vacancies in these high unemployment regions where a high proportion of the labour force receives EI benefits. Some of these workers may be refusing to work these jobs at the going wage, so those receiving EI benefits might have higher reservation wages than those not receiving benefits. It depends on the extent to which the EI program administrators are enforcing the job search requirements for EI recipients. So the real policy issue is: should EI recipients have their benefits reduced if they refuse to take the jobs that TFWs are filling?

The second model that was estimated used a dummy variable for each level of benefit generosity with 6% being the least generous, and 15% being the most generous. The results of this specification are shown in Tables 5 to 7. The categorical variable, over 15%, was omitted from the regression. After performing a Hausman test, fixed effects is still the best method to use when estimating this regression. Since the highest unemployment rate region was omitted, a positive coefficient was expected for low unemployment areas. This pattern is seen in Table 6. Due to collinearity of the categorical variable, the categorical variable for 14%-15% was also omitted. The magnitude of temporary foreign workers present on December 1st of each year displays

that approximately 0.008 of these individuals will enter the least generous region relative to the highest unemployment rate region. This is the highest magnitude when comparing the other regions and this would be expected given that there are more employment opportunities in low unemployment regions. For example, urban communities tend to have moderate to low unemployment rates and Toronto, Vancouver and Montreal see the biggest influx of temporary foreign workers each year. This is consistent with the findings I have presented. Very weak negative correlations also exist between the entries of foreign workers and the described dummy variables. Although the correlation is weak, it demonstrates how more generous regions could receive fewer temporary foreign workers.

Finally, I also estimated the effects of a binary variable. The binary variable is collapsed from the full set of categorical variables for all of the ranges of unemployment rates to see if temporary foreign workers have more of an effect on high unemployment areas than low unemployment areas. A Hausman test confirmed that fixed effects was the correct model to use for this regression. Table 9 shows the coefficients for the entry of temporary foreign workers. It shows how fewer temporary foreign workers enter regions with high unemployment rates, which is consistent with the findings from Table 3 and Table 6.

The secondary results are displayed in Tables 11 to 19. These results include all of the observations, including those regions for which imputations were made. These imputations involved calculations allocating the distribution of temporary foreign workers into each EI administrative region. Tables 11-13 present the results for the most basic regression using the full sample. Both random and fixed effects models display

almost identical estimated coefficients. In either case, there is a negative relationship between the entry flows of TFWs and the regional unemployment rate and both have almost no explanatory power. Tables 14-16 present the series of variables relating to the generosity of the EI program. When including fixed effects, significant positive coefficients are displayed for the entries of temporary foreign workers for the low unemployment areas. This is as expected, as more temporary foreign workers should be entering the regions with low unemployment rates. When using random effects, we obtain the same results but with very low explanatory power. Finally, Tables 17-19 present the results for the binary variable. For both random and fixed effect models, it is seen that more temporary foreign workers are entering regions with unemployment rates above 10%. Once again, in both cases, there is an r-squared of under 1%, indicating almost no explanatory power.

In this context, the imputations according to each administration region have never been done to my knowledge and thus represent a contribution to analyzing the Temporary Foreign Worker Program in Canada. It is possible to directly analyze the overall impact of temporary foreign workers in each region, which can help inform us about reforms to the Temporary Foreign Worker program. As seen with all tables, the explanatory power of the predictor variables is extremely low; and basically zero in most cases. Several equations display high F-statistics, which means we reject the null hypothesis that these coefficients are jointly zero. Given the low statistical significance of all regressions, accurate data on temporary foreign workers in each region needs to be readily available for estimations of this kind. Although careful imputations were made, it is merely an educated estimate of the impact of the unemployment rates on the number of

entries of temporary foreign workers, foreign workers present and foreign workers leaving these regions each year.

Conclusion

Given the growth of the temporary foreign worker program in Canada since the loosening of the regulations in 2002, it has become quite evident that Canadian employers have become dependent on this source of labour. The flow of entries have almost doubled, displacing a certain number of Canadian workers, and contributing to a situation where social insurance programs are being used to support the increased number of unemployed. By allowing employers to pay temporary foreign workers a low wage, Canadian individuals and recent graduates may opt out of the labour force, weakening the labour market.

In analyzing the impact of regional unemployment rates on temporary foreign workers, I found a negative statistical association between the entries of TFWs and the local unemployment rate. This was an expected result, as there are fewer employment opportunities in high unemployment areas. Even though there is a tendency for fewer TFWs to enter these areas, it was still shown that some TFWs do enter the high unemployment areas, which would not only displace Canadians but also increase or maintain the unemployment rate. In the absence of inter-provincial migration, these displaced workers will often resort to social insurance. Temporary foreign workers directly provide the Canadian economy with an immediate source of labour, but indirectly may be forcing Canadian individuals to social insurance programs.

The primary regression results suggest that the program is not totally perverse, in that I discern the expected statistical correlation between entry flows and stocks of TFWs

and the regional unemployment rates, but many regional, time-invariant characteristics need to be included to further advance this research. It will also be constructive for the Government to provide statistics on the entries of temporary foreign workers and foreign workers present for each EI administrative region. By gathering information and compiling at this level, it will be easier to determine the impact of temporary foreign workers on the labour market of each region.

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Appendix

Table 1: Re-Mapping of Census Divisions

TFW Region	Labour Force Regions	Census Divisions (2006)	Population	EI Administrative Region	Census Divisions (1996)
Halifax	Halifax			Halifax	
Other Nova Scotia	Cape Breton	**Iverness County**		Eastern Nova Scotia	**Antigonish County**
		Richmond County			**Cape Breton County**
		Cape Breton County			**Guysborough County**
		Victoria County			Halifax County
	North Shore*	**Guysborough County**	9058		**Richmond County**
		Antigonish County	18836		**Iverness County**
		Colchester County	50023		**Victoria County**
		Cumberland County	32046		
		Pictou County	46513		
	Annapolis Valley	*Annapolis County*		Western Nova Scotia	*Annapolis County*
		Kings County			*Colchester County*
		Hants County			*Cumberland County*
	Southern	*Shelburne County*			*Digby County*
		Yarmouth County			*Hants County*
		Digby County			*Kings County*
		Queens County			*Lunenburg County*
		Lunenburg County			*Pictou County*
					Queens County
					Shelbourne County
*Western Nova Scotia 82.18%, Eastern Nova Scotia 17.82%					*Yarmouth County*

Source: Community Profiles from the 2006 Census, Statistics Canada.

http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E. 2011-3-30

Table 1A: Concordance and Imputations

TFW Region	# of Entries	Labour Force Regions	Size of Labour Force according to LFS	EI Administrative Region	Aggregate LF
Halifax	1314	Halifax	239700	Halifax	239700
Other Nova Scotia	1010	Cape Breton	62700	Eastern Nova Scotia	77120
		North Shore*	80900		
		Annapolis Valley	60400	Western Nova Scotia	183580
		Southern	56700		

*Western Nova Scotia 82.18%, Eastern Nova Scotia 17.82%

Source: Community Profiles from the 2006 Census, Statistics Canada.

http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E. 2011-3-30

Eastern Nova Scotia = Cape Breton + North Shore*17.82%

Western Nova Scotia = Annapolis Valley + Southern + North Shore*82.18%

Table 1B: Imputations

EI Administrative Region	Aggregate LF	TFW's in EI Regions	Employment	Ratio
Halifax	239700	1314	225100	0.005837406
Eastern Nova Scotia	77120	299	66448	0.004499759
Western Nova Scotia	183580	711	164052	0.004333992

Source: Community Profiles from the 2006 Census, Statistics Canada.

http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E. 2011-3-30

TFW in Eastern Nova Scotia = (Aggregate LF ENS / (Aggregate LF ENS + WSN)) * Other Nova Scotia

TFW in Western Nova Scotia = (Aggregate LF WNS / (Aggregate LF ENS + WSN)) * Other Nova Scotia

Ratio = TFW in EI Region / Employment

*Tables 2-10 Most Restricted Sample

Table 2: Restricted sample regions regressed on the unemployment rate using random effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	*0.0001484	0.0001282	***0.0002378
	[0.0000797]	[0.000142]	[0.0000619]
Wald Chi^2	3.47	0.82	14.73
Observations	164	164	153
R^2			
Within	0.0302	0.0011	0.0021
Between	0.4465	0.0549	0.5783
Overall	0.2549	0.0313	0.376

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 3: Restricted sample regions regressed on the unemployment rate using fixed effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	**-0.0004361	0.0001634	0.0001001
	[0.0002017]	[0.0004059]	[0.0001854]
F-Statistic	4.68	0.16	0.29
Observations	164	164	153
R^2			
Within	0.0302	0.0011	0.0021
Between	0.4465	0.0549	0.5783
Overall	0.2549	0.0313	0.376

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 4: Restricted sample regions regressed on the unemployment rate using between effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	**0.0002495	0.0001211	***0.000255
	[0.0000838]	[0.0001515]	[0.0000656]
F-Statistic	8.87	0.64	15.09
Observations	164	164	153
R^2			
Within	0.0302	0.0011	0.0021
Between	0.4465	0.0549	0.5783
Overall	0.2549	0.0313	0.376

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 5: Relationship between TFW's and generosity of EI using random effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
Under 6%	***-0.0381874	**-0.0344257	-0.0072956
	[0.0086185]	[0.0175373]	[0.0075333]
6%-7%	***-0.0372591	**-0.0326497	-0.0076296
	[0.0081399]	[0.0165891]	[0.0071075]
7%-8%	***-0.0351581	*-0.0288935	-0.0059622
	[0.0077193]	[0.0157354]	[0.0067605]
8%-9%	***-0.0339999	**-0.0294074	-0.0073568
	[0.0072247]	[0.0147388]	[0.0063217]
9%-10%	***-0.0317901	*-0.0273091	-0.0073486
	[0.006972]	[0.0142234]	[0.006095]
10%-11%	***-0.0302425	**-0.0271557	-0.007964
	[0.0064306]	[0.0131598]	[0.0056277]
11%-12%	***-0.027089	*-0.0229829	-0.0061011
	[0.0060877]	[0.0124931]	[0.0053266]
12%-13%	***-0.027684	**-0.0247409	-0.0072498
	[0.0057951]	[0.0118793]	[0.0050912]
13%-14%	***-0.0274011	**-0.0236663	-0.0073708
	[0.0057367]	[0.0117112]	[0.0050066]
14%-15%	omitted	omitted	omitted
UR	***-0.0016823	*-0.0015625	-0.0001119
	[0.0004303]	[0.0008746]	[0.000376]
Wald Chi^2	52.14	8.27	46.72
Observations	164	164	153
R^2			
Within	0.0788	0.0303	0.0419
Between	0.7025	0.2067	0.6761
Overall	0.4662	0.1206	0.4589

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 6: Relationship between TFW's and generosity of EI using fixed effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
Under 6%	**-0.0087299	-0.0082774	0.0021654
	[0.0042688]	[0.0086575]	[0.003657]
6%-7%	*-0.0074745	-0.005873	0.0021896
	[0.0039215]	[0.0079532]	[0.0033437]
7%-8%	-0.0058558	-0.0027369	0.003564
	[0.003631]	[0.007364]	[0.0031006]
8%-9%	-0.0050522	-0.0031639	0.0017256
	[0.0032161]	[0.0065225]	[0.0027326]
9%-10%	-0.0031174	-0.0017053	0.0014
	[0.0033173]	[0.0067278]	[0.0028085]
10%-11%	-0.0026405	-0.0015409	-0.000083
	[0.0030106]	[0.0061057]	[0.0025546]
11%-12%	-0.0000439	0.0022199	0.0012971
	[0.0031241]	[0.006336]	[0.0026513]
12%-13%	-0.0006327	-0.0000971	0.0000884
	[0.002926]	[0.0059342]	[0.0024889]
13%-14%	omitted	omitted	omitted
14%-15%	omitted	omitted	omitted
UR	***-0.0013913	-0.0009489	0.0002147
	[0.0004314]	[0.000875]	[0.000374]
F-Statistic	1.44	0.68	0.92
Observations	164	164	153
R^2			
Within	0.0836	0.0415	0.0597
Between	0.4888	0.1183	0.4527
Overall	0.2812	0.0492	0.2933

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 7: Relationship between TFW's and generosity of EI using between effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
Under 6%	-0.0685332	-0.1333693	-0.0226225
	[0.07765]	[0.1831985]	[0.0752326]
6%-7%	-0.0680825	-0.1287287	-0.0252558
	[0.0713337]	[0.1682966]	[0.068796]
7%-8%	-0.020766	-0.0328823	0.009964
	[0.0810285]	[0.1911694]	[0.0791335]
8%-9%	**-0.3933994	*-0.7973623	*-0.2461911
	[0.1277608]	[0.3014241]	[0.0895102]
9%-10%	0.9223004	1.887849	0.6355494
	[0.4815739]	[1.13617]	[0.3849488]
10%-11%	0.2292933	0.4779255	0.1887772
	[0.2394936]	[0.5650336]	[0.2107405]
11%-12%	-0.2564489	-0.5172135	-0.1598049
	[0.0865043]	[0.2040883]	[0.0635378]
12%-13%	omitted	omitted	omitted
13%-14%	omitted	omitted	omitted
14%-15%	omitted	omitted	omitted
UR	-0.0031818	-0.0064985	-0.0008873
	[0.0038759]	[0.0091444]	[0.0037539]
F-Statistic	7.45	2.24	7.94
Observations	164	164	153
R^2			
Within	0.0001	0.0003	0.0026
Between	0.9371	0.8173	0.9407
Overall	0.0001	0	0.0001

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 8: Relationship between TFW's and a binary unemployment rate using random effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	0.0001343	0.0001883	***0.000343
	[0.0001173]	[0.0002159]	[0.000092]
BUR	-0.0001102	0.0010959	0.0019834
	[0.001509]	[0.0028901]	[0.12113]
Wald Chi^2	2.88	0.9	16.26
Observations	164	164	153
R^2			
Within	0.0283	0.0019	0.0178
Between	0.4456	0.0568	0.5732
Overall	0.2543	0.0329	0.3793

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level

Standard Errors are in Brackets

If Unemployment Rate>=10 , BUR=0

If Unemployment Rate<10, BUR=1

Table 9: Relationship between TFW's and a binary unemployment rate using fixed effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	**-0.0005104	0.0002517	0.0002608
	[0.0002346]	[0.0004725]	[0.0002111]
BUR	-0.0010164	0.0012085	0.0021372
	[0.0016302]	[0.0032838]	[0.0013666]
F-Statistic	2.52	0.15	1.37
Observations	164	164	153
R^2			
Within	0.0328	0.002	0.0195
Between	0.447	0.0567	0.5444
Overall	0.255	0.0328	0.3581

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level

Standard Errors are in Brackets

If Unemployment Rate>=10 , BUR=0

If Unemployment Rate<10, BUR=1

Table 10: Relationship between TFW's and a binary unemployment rate using between effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	0.0002699	0.0001695	*0.0002961
	[0.0002077]	[0.0003755]	[0.0001614]
BUR	0.0003946	0.0009366	0.0007978
	[0.0036422]	[0.0065848]	[0.0028305]
F-Statistic	4.04	0.3	6.95
Observations	164	164	153
R^2			
Within	0.0325	0.002	0.0093
Between	0.4471	0.0568	0.5816
Overall	0.2552	0.0329	0.3822

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets
If Unemployment Rate>=10 , BUR=0
If Unemployment Rate<10, BUR=1

*Tables 11-19 Full Sample

Table 11: Full sample regions regressed on the unemployment rate using random effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	***-0.0005038	-0.0002299	*-0.0001412
	[0.0000941]	[0.0001536]	[0.000822]
Wald Chi^2	28.61	2.24	2.95
Observations	749	749	693
R^2			
Within	0.0452	0.0025	0.0051
Between	0.0002	0.0092	0
Overall	0.0007	0.0068	0.0001

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 12: Full sample regions regressed on the unemployment rate using fixed effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	***-0.0005768	-0.0002482	*-0.000158
	[0.0001008]	[0.0001877]	[0.0000873]
F-Statistic	32.68	1.75	3.28
Observations	749	749	693
R^2			
Within	0.0452	0.0025	0.0051
Between	0.0002	0.0092	0
Overall	0.0007	0.0068	0.0001

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 13: Full sample regions regressed on the unemployment rate using between effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	-0.0000245	-0.0001929	-0.00000939
	[0.0002584]	[0.0002673]	[0.0002449]
F-Statistic	0.01	0.52	0
Observations	749	749	693
R^2			
Within	0.0452	0.0025	0.0051
Between	0.0002	0.0092	0
Overall	0.0007	0.0068	0.0001

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 14: Relationship between TFW's and generosity of EI using random effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
Under 6%	*0.0052116	0.007644	***0.0069557
	[0.0027162]	[0.0047916]	[0.0023432]
6%-7%	*0.0047999	*0.0078395	***0.0068336
	[0.0024926]	[0.0044098]	[0.0021426]
7%-8%	**0.0053764	**0.0088348	***0.0073126
	[0.0023163]	[0.0041108]	[0.0019915]
8%-9%	***0.0050053	**0.0092351	***0.006723
	[0.0021436]	[0.0038155]	[0.00184]
9%-10%	**0.0044656	***0.0101165	***0.007224
	[0.0019814]	[0.0035394]	[0.0016977]
10%-11%	0.0009041	0.0026398	**0.0036283
	[0.0017944]	[0.32186]	[0.0015379]
11%-12%	0.0024959	*0.0053674	***0.0046624
	[0.0016263]	[0.0029359]	[0.001388]
12%-13%	-0.0001685	0.0007249	**0.0031189
	[0.16696]	[0.003031]	[0.001468]
13%-14%	-0.0009885	-0.0006162	0.0009886
	[0.0013488]	[0.0025626]	[0.001151]
14%-15%	*-0.0021369	-0.0031469	-0.0007143
	[0.12052]	[0.0022165]	[0.001025]
UR	-0.0001507	0.0002	0.0002497
	[0.002088]	[0.0003501]	[0.0001819]
Wald Chi^2	77.72	53.6	57.29
Observations	749	749	693
R^2			
Within	0.1087	0.0723	0.085
Between	0	0.0172	0.0018
Overall	0.001	0.0278	0.0053

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 15: Relationship between TFW's and generosity of EI using fixed effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
Under 6%	*0.0048311	0.0078114	***0.0069774
	[0.0027815]	[0.0051692]	[0.0023988]
6%-7%	*0.0045111	*0.0080188	***0.006869
	[0.0025473]	[0.0047339]	[0.0021894]
7%-8%	**0.0051354	**0.0089412	***0.0073407
	[0.0023619]	[0.0043894]	[0.002031]
8%-9%	**0.0048129	**0.0093335	***0.0067548
	[0.0021817]	[0.0040545]	[0.0018734]
9%-10%	**0.004308	***0.0101937	***0.0072491
	[0.002012]	[0.0037392]	[0.0017248]
10%-11%	0.0007409	0.0026241	**0.0036248
	[0.0018177]	[0.003378]	[0.0015591]
11%-12%	0.0023285	*0.0052997	***0.0046487
	[0.0016418]	[0.0030511]	[0.0014031]
12%-13%	-0.0004117	0.0002569	**0.0029919
	[0.0016794]	[0.0031211]	[0.0014784]
13%-14%	-0.0011686	-0.0006811	0.0009699
	[0.0013551]	[0.0025184]	[0.0011583]
14%-15%	*-0.0022663	-0.0032739	-0.0007464
	[0.0012052]	[0.0022397]	[0.0010279]
UR	-0.0002506	0.0001587	0.0002303
	[0.0002214]	[0.0004115]	[0.0001919]
F-Statistic	7.57	4.84	5.27
Observations	749	749	693
R^2			
Within	0.1091	0.0725	0.0851
Between	0	0.0155	0.0014
Overall	0.0009	0.0257	0.0046

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 16: Relationship between TFW's and generosity of EI using between effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
Under 6%	0.0023023	0.005706	0.0008644
	[0.0245043]	[0.0257987]	[0.0243214]
6%-7%	-0.0049621	0.0005208	-0.0047686
	[0.0230061]	[0.0242214]	[0.0227662]
7%-8%	0.0098655	0.013862	0.0081841
	[0.0226976]	[0.0238966]	[0.0225317]
8%-9%	-0.0069286	0.005343	-0.0064199
	[0.0221346]	[0.0233038]	[0.0212528]
9%-10%	0.0244938	0.0256711	0.0224408
	[0.025758]	[0.0271187]	[0.0241037]
10%-11%	-0.0139607	-0.0151079	-0.0156428
	[0.0253405]	[0.0266791]	[0.023208]
11%-12%	-0.0087579	-0.004434	-0.0027871
	[0.0193309]	[0.020352]	[0.0177703]
12%-13%	**0.0533411	**0.0510047	**0.0544399
	[0.0230622]	[0.0242804]	[0.0231962]
13%-14%	-0.037489	-0.0450396	-0.0320426
	[0.0650293]	[0.0684644]	[0.0549357]
14%-15%	0.0114929	0.0209239	0.0045701
	[0.0319307]	[0.0336175]	[0.0269169]
UR	0.0000707	0.0001933	0.000036
	[0.001307]	[0.001376]	[0.0012843]
F-Statistic	1.06	0.92	1.1
Observations	749	749	693
R^2			
Within	0.0006	0.0058	0.0111
Between	0.2019	0.1807	0.2081
Overall	0.0256	0.0274	0.0363

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level
Standard Errors are in Brackets

Table 17: Relationship between TFW's and a binary unemployment rate using random effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	**-0.0002432	0.0002592	0.0000816
	[0.0001043]	[0.0001747]	[0.0000907]
BUR	***0.0036081	***0.0068377	***0.0030859
	[0.0006597]	[0.0012092]	[0.0005746]
Wald Chi^2	59.93	34.34	31.92
Observations	749	749	693
R^2			
Within	0.0853	0.0474	0.0491
Between	0	0.0067	0.0007
Overall	0.0006	0.0143	0.0001

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level

Standard Errors are in Brackets

If Unemployment Rate>=10 , BUR=0

If Unemployment Rate<10, BUR=1

Table 18: Relationship between TFW's and a binary unemployment rate using fixed effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	-0.000306	0.0002719	0.0000711
	[0.0001103]	[0.000205]	[0.0000953]
BUR	0.00365	0.0070103	0.0031261
	[0.0006621]	[0.0012308]	[0.0005777]
F-Statistic	32.21	17.16	16.34
Observations	749	749	693
R^2			
Within	0.0855	0.0474	0.0491
Between	0	0.0065	0.0006
Overall	0.0006	0.0142	0.0001

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level

Standard Errors are in Brackets

If Unemployment Rate>=10 , BUR=0

If Unemployment Rate<10, BUR=1

Table 19: Relationship between TFW's and a binary unemployment rate using between effects

	Entries of Foreign Workers	Foreign Workers Present	Foreign Workers Leaving Region
UR	-0.0002093	-0.0000861	-0.0001344
	[0.0005038]	[0.0005217]	[0.0004708]
BUR	-0.0027982	0.0016167	-0.001901
	[0.0065294]	[0.0067613]	[0.006096]
F-Statistic	0.1	0.28	0.05
Observations	749	749	693
R^2			
Within	0.0399	0.0376	0.0445
Between	0.0035	0.0102	0.0018
Overall	0	0.0125	0

Notes: *Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level

Standard Errors are in Brackets

If Unemployment Rate>=10 , BUR=0

If Unemployment Rate<10, BUR=1