EFFECTS OF NORTH AMERICAN FREE TRADE AGREEMENT ON THE US LABOR MARKET: AN ARDL BOUNDS TESTING APPROACH

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http://doi.org/10.31039/jomeino.2020.4.1.6

Received 20 October 2019
Revised 10 December 2019
Accepted 02 January 2020

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Abstract

One of the political debates on negative effects of the economic integration between the USA and the other members of the North American Free Trade Agreement (NAFTA) Canada and Mexico is the rise of unemployment. This study aims to identify whether this thesis is true or not. For that the relations between the statistical variables employment, export, import, wages and gross domestic product were estimated through Autoregressive Distributive Lag model (ARDL). Empirical findings show that the import from the NAFTA countries has negative effect on the employment in the long run while its effect on the employment is positive in the short run. However, both the short run and the long run effects are so small that the negative effect is negligible comparing to the benefits of the economic integration.

Keywords: North America Free Trade Agreement (NAFTA), employment, trade, Autoregressive Distributive Lag model (ARDL).

JEL Classification*:* F10, F13, F16, J51, J53.

1. Introduction

There is some argument that the hourly wages in Mexico is lower than the ones in the US. Therefore, there were concerns about that the manufacturing industry would move from the United States to the Mexican economy, eliminating U.S. jobs.

But the researches since 1990's showed that these fears were overstated. For example, according to the Congressional Budget Office (1993) estimation, the total number of U.S. workers who changed their jobs due to NAFTA was likely to be less than half a million, spread out over at least a decade (Burfisher, Robinson, Thierfelder, 2001).

Economists such as Dean Baker of the Center for Economic and Policy Research and Robert Scott, chief economist at the Economic Policy Institute, claim that the increase in import from Mexico to the U.S. coincided with the loss of up to 600,000 U.S. jobs over two decades between 1993 and 2014 (Knowledge-Wharton, 2016)

However, the US manufacturing industry is under the stress of strong competition not because of the NAFTA but Chine. Hanson, an economist at the University of California, San Diego, says that the sharp decline in manufacturing jobs, which fell from seventeen million to eleven million between 2000 and 2010, is mostly attributable to trade with China and underlying technological changes. According to his study on the relations between labor market and trade, China is at the top of the list in terms of the employment impacts. Technology has the second rank, however the impact of NAFTA is quite law (McBride and Sergie, 2018).

Before 1994 the levels of US exports and imports with Mexico were both below $50 billion per year, while US-Canada trade was around three times that of Mexico. Total trade between the United States and Mexico appeared to increase after the reduction in tariffs (O'Leary, Eberts, Pittelko, 2012).

The US trade balance with Mexico was a positive $1.3 billion in 1994, but a negative $14.0 billion with Canada. The negative trade balance of the US with Nafta-area is $12.6 billion which is about 7.6 % of the US global trade deficit in 1994. Positive effects of the tarriff reductions on NAFTA countries grew over the years. Export of the Commoditiy products from the US to Mexico is $282,265.1 and the import from Mexico is $299,319.4 in 2017 (U.S. Census Bureau, 2019a).

It seems that the termination of NAFTA will distinctively impact the manufacturers in the US. While smaller manufacturers have some business advantages, larger ones for their supply chain are heavily dependent on sourcing and labor in Mexico (Guillot, 2018).

Table 1. Trade and Tarrif Reductions in the US

	Canada			**Mexico**		
Year	Export	Import	Balance	Export	Import	Balance
1992	90.6	98.6	-8.0	40.6	35.2	5.4
1993	100.4	111.2	-10.8	41.6	39.9	1.7
1994	114.4	128.4	-14.0	50.8	49.5	1.3
1995	127.2	144.4	-17.1	46.3	62.1	-15.8
1996	134.2	155.9	-21.7	56.8	74.3	-17.5

Source:U.S. Census Bureau, (2019a, 2019b) www.census.gov

Center for Automotive Research released a study in 2017 revealing that the NAFTA positively impacted the auto industry in the U.S. According to this study "continent-wide" reduction or elimination of tariffs lead manufacturers and suppliers to optimize cost and efficiencies by locating assembling operations and manufacturing in the best cost locations. Without NAFTA, large segments of the U.S. automotive industry move to other low-wage countries in Asia, Europe or South America leaving the thousands of workers lose their jobs. Moreover, US car manufacturers lose their shares in the NAFTA market because of strong competition of the companies settled lower labor cost countries. The same applies to the other manufacturing industries (Dziczek, et al., 2017).

2. Literature Review

Burfisher, Robinson and Thierfelder (2001) studied the effects of the NAFTA on the US economy. They find that both the U.S. and Mexico benefit from NAFTA, also they found that it has had little effect on the U.S. labor market. Finally, studies find that trade creation greatly exceeds trade diversion in the region under NAFTA, especially in intermediate goods.

De La Cruz and Riker, (2014) investigated the effects of NAFTA preferences on labor market outcomes in the United States. They searched how NAFTA preference margins affect U.S. labor markets today. They used a CGE model and detailed data on NAFTA preference margins to estimate these economic effects.

Autor, Dorn and Hanson (2016), studied effect of China's strong trade competition on the labor market in developed countries. They displayed that trade shocks disrupt the careers of both high-wage and low-wage individuals in the US. Though the workers lose their job specifically in manufacturing sector, they persist to stay in the same sector. Labor-market adjustment to trade varies according to workers' initial labor-force attachment. It takes fewer years if the main income comes from earnings, and more years where Social Security Disability Insurance (SSDI) is the main source of their income.

Eduardo and Cota (2016), estimated the impact of US and Chinese industrial activity on the demand for labor in the manufacturing sector. They developed a time series co-integration model using data on industrial activity, Chinese exports, wages and the peso: dollar exchange rate. Their findings identify that exports from

China to the USA and wages in manufacturing sector affected labor demand negatively. But the factors such as US industrial production and the exchange rate encourage manufacturing activity.

3. Methodology and Data

In order to investigate Effects of North American Free Trade Agreement on The US Labor Market, the ARDL bounds testing approach is applied to co-integration developed by Pesaran, Shin and Smith (2001). The data employed in the study are in natural logarithmic form and covered 1985Q1 to 2018Q2 which is adequate to show the link between employment (EMP), wage (WG), Gross Domestic Product (GDP), Import (IMP) and Export (EXP) in the USA. The data are sourced from the United States Sources Bureau, United States Department of Labor Bureau and OECD Stat. The model for the labor market in The USA can be specified in a functional form as;

LnEMP = f (Ln WG, Ln GDP, Ln IMP, Ln EXP) (1)

The ARDL model specification is;

$$LnEMP = \alpha + \sum_{i=1}^{\eta} \beta_i LnWG_{t-i} + \sum_{i=0}^{b_1} \theta_i LnGDP_{t-1} + \sum_{i=0}^{b2} \mu_i LnEXP_{t-1} + \sum_{i=0}^{b2} \Omega_i \ LnIMP_{t-1} + u_t \quad (2)$$

ARDL model displayed in the equation (2) is inherently asymptotic. To overcome this problem, the optimum lag order is selected and the equation (3) is set up based on lag 1, ignoring the current level of the repressors to find:

$$LnEMP = \alpha + \sum_{i=1}^{\eta} \beta_i LnWG_{t-i} + \sum_{i=0}^{b_1} \theta_i LnGDP_{t-1} + \sum_{i=0}^{b2} \mu_i LnEXP_{t-1} + \sum_{i=0}^{b_3} \Omega_i \ LnIMP_{t-1} + u_t \quad (3)$$

Then, the ARDL model (3) is expanded to a special form of unrestricted Error Correction Model (ECM) as follow:

$$\Delta LnEMP = \alpha + \sum_{i=1}^{\eta} \beta_i \ \Delta WG_{t-1} + \sum_{i=0}^{b_1} \theta_i \Delta GDP_{t-1} + \sum_{i=0}^{b2} \mu_i \Delta EXP_{t-1} + \sum_{i=0}^{b_3} \Omega_i \Delta IMP_{t-1} + u_t \quad (4)$$

For the bound test co-integration, it must be ensured that the error term in equation (4) is similar and randomly moved with constant variance and zero mean. To prove this, the dependent variable and independent variables in equation (5) is assumed to be y and x.

$Y_t = \beta_0 + \beta_1 Y_{t-1} + \beta_2 X_{t-1} + \mu_t$ (5)

Equation (5) is increased by lag 1 to have

$Y_{t-1} = \beta_0 + \beta_1 Y_{t-2} + \beta_2 X_{t-2} + \mu_{t-1}$ (6)

The value of Y_{t-1} is substituted in equation (6) to get following equation

$Y_t = \beta_0 + \beta_1(\beta_0 + \beta_1 Y_{t-2} + \beta_2 X_{t-2} + \mu_{t-1}) + \beta_2 X_{t-2} + \mu_{t-1}$ (7)

Moreover, equation (5) is increased by an additional lag

$Y_{t-2} = \beta_0 + \beta_1 Y_{t-3} + \beta_2 X_{t-3} + \mu_{t-2}$ (8)

Y_{t-2} is substituted into equation (7) to have the following equation,

$Y_t = \beta_0 + \beta_1(\beta_0 + \beta_1(\beta_0 + \beta_1 Y_{t-3} + \beta_2 X_{t-3} + \mu_{t-2}) + \beta_2 X_{t-2} + \mu_{t-1}) + \beta_2 X_{t-2} + \mu_{t-1}) + \beta_2 X_{t-1} + \mu_t$ (9)

If the like-terms is factored out

$Y_t = \beta_0 (1 + \beta_1 + \beta_1^2 + \beta_1^3 + \ldots) + \beta_2 (\beta_1 X_{t-2} + \beta_1^2 X_{t-3} + \ldots) + (\mu_t + \beta_1 \mu_{t-1} + \beta_2 \mu_{t-2} + \cdots +)$ (10)

$Y_t = \beta_0 [\sum_{i=0}^{\infty} \beta_1^i] + \beta_2 [\sum_{j=1}^{\infty} \beta_1^i \, X_{t-(j+1)}] + \sum_{i=0}^{\infty} \beta_1^i \, \mu_{t-i}$ (11)

The term i = 0 1 converges to finite limit. The ARDL equation is stable and the bound test to co-integration is conducted if all the roots lie in the unit interval.

Restricted error correction model is developed to obtain the adjustment parameter (ECM (-1)).

The long run dynamic equation is stated as follows:

$EMP_t = \beta_0 EMP_{t-1} + \beta_1 WG_{t-1} + \beta_2 GDP_{t-1} + \beta_3 EXP_{t-1} + \beta_4 IMP_{t-1} + w_t$ (12)

Error term is obtained as below

$W_t = LnEMP_t - (\beta_1 LnWG_{t-1} + \beta_2 LnGDP_{t-1} + \beta_3 LnEXP_{t-1} + \beta_4 LnIMP_{t-1})$ (13)

The error term w_t is renamed as ECM and restricted with lag 1. Then it is inserted into the short run dynamic equation to provide the following error correction model;

$LnEMP_t = \beta_0 LnEMP_{t-1} + \beta_1 LnWG_{t-1} + \beta_2 LnGDP_{t-1} + \beta_3 LnEXP_{t-1} + \beta_4 LnIMP_{t-1} + ecm_{t-1}$ (14)

After that, the bound test is performed to get the F-stat and x^2 and compares them with the Pesaran statistics both at lower bond I(0) and upper bond I(1). If the computed F-stat and x^2 – stat are below I(0), there is no co-integration. If they are in between I(0) and I(1), test is inconclusive but if they are above I(1), then the variables are not co-integrated.

Priori Expectation

Each variable is theoretically expected to have negative or positive sign in the model. Also, this expectation has to do with the direction of the variable. It states the various ways in which the explanatory variables are expected to affect the dependent variable in the model. Specifically, at 0.05 significance level, all null hypotheses would be rejected if *p – values* < 0.05.

Table 2. Variables and Expected Signs

Independent Variable	**Full Name**	**Expected Sign**
WG	Wage	-
GDP	Gross Domestic Product	+
EXP	Export	+
IMP	Import	-

4. Empirical Results

4.1. Unit Root Test

Variables used in the model were exposed to unit root test to check if they are stationary in order not to be faced with spurious regression results. ADF test results which is one of the most appropriate unit root tests were in Table 2 for all the variables.

Table 3. Unit Root Test Result for the Variables

Variables					
	τ	**%1**	**%5**	**%10**	
EMP (0)	-1.5831	-3.4804	-2.8834	-2.5785	0.488
EMP(1)	-6.4178	-3.4804	-2.8834	-2.5785	0.000
WG (0)	1.8735	-3.4821	-2.8841	-2.5789	0.344
WG(1)	-3.4651	-3.4820	-2.8841	-2.5789	0.010
GDP(0)	-1.3793	-3.4808	-2.8836	-2.5786	0.591
GDP(1)	-5.0718	-3.4808	-2.8836	-2.5786	0.000
IMP(0)	-2.0172	-3.4820	-2.8841	-2.5789	0.279
IMP(1)	-6.3707	-3.4820	-2.8841	-2.5789	0.000
EXP(0)	-3.1060	-3.4820	-2.8841	-2.5789	0.029
EXP(1)	-6.2509	-3.4820	-2.8841	-2.5789	0.000

As it is seen in Table 3, all variable are stationary in their I(1) form while they are not in their I(0) form.

4.2.ARDL Regression Model

Since the order of integration has been established, hypotheses testing can be done with the most appropriate model that suites the hypothesis.

Table 4. ARDL Regression Model

Selected Model:	ARDL(6, 2, 2, 5, 6)		
Dependent Variable:	GDP		
Independent Variables:	WG, GDP, IMP, EXP		
R-squared	0.9994	Mean dependent var	11.7097
Adjusted R-squared	0.9993	S.D. dependent var	0.10390
S.E. of regression	0.0028	Akaike info criterion	-8.71590
Sum squared resid	0.0008	Schwarz criterion	-8.13617
Log likelihood	583.79	Hannan-Quinn criter.	-8.48011
F-statistic	6826.1	Durbin-Watson stat	2.23522
Prob(F-statistic)	0.0000		

According to ARDL Regression Model results shown in Table 4, R-squared (0.999403) and Adjusted R-squared (0.999.256) are almost 1 which means the model perfectly fits the data and the probability of F-statistics is 0 which is desirable. Durbin-Watson stat 2.235221 near to 2 is also desirable. Akaike Info Criterion report -8.715490 mention the relative quality of the model with other models which could be considered

alternatively but it shows higher the value as compare to other models. That's why the model with AIC value of -8.715490 was chosen for the study.

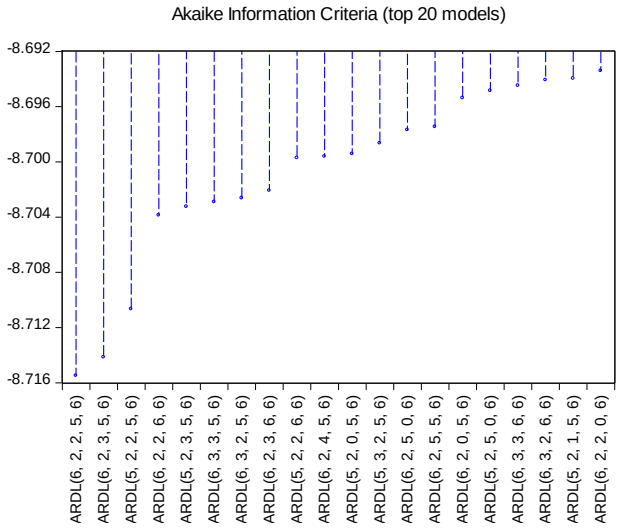

Figure 1. Akaike Info Criterion

Akaike Info Criterion report -8.715490 indicates the relative quality of the model with other alternative models. it has higher value than the other models, so the model with AIC value of -8.715490 is accepted for this study.

4.3. Error Correction Mechanism

According to the co-integration theory, the short-run disequilibrium between the variables may have a tendency to adjust into the long-run equilibrium. The long-run equilibrium can be obtained if the error term of the VECM is negative in sign. The results of the combined short-run dynamic coefficients associated with the long-run relationships obtained from the ECM equation are given in Table 5.

Cointeq = Ln EMPLOG - (0.8338* Ln GDP - 0.3226* Ln WAGE - 0.0867 * Ln IMP + 0.0767* Ln EXP + 0.2450)

The signs of the short-run dynamic effects are sustained to the long-run. The equilibrium correction coefficient estimated -0.11(0.0000) is highly significant and has the expected sign and indicate the 11% speed of adjustment to equilibrium after a shock. Approximately 11% of disequilibria from the previous periods' shock converge to the long-run equilibrium in the current period. Furthermore, it means the combined effect is 11% which means any disequilibrium in the long run can be corrected by 11% in the short run dynamics.

Table 5. Error Correction Mechanism

Dependent Variable: Employment				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(Ln EMP (-1))	0.08196	0.08472	0.967442	0.3356
D(Ln EMP (-2))	-0.09191	0.08252	-1.11378	0.2680
D(Ln EMP (-3))	0.21971	0.07549	2.91064	0.0044
D(Ln EMP (-4))	0.13751	0.07991	1.72076	0.0883
D(Ln EMP (-5))	0.11667	0.07516	1.55245	0.1237
D(Ln GDP)	0.19113	0.05125	3.72952	0.0003
D(Ln GDP (-1))	0.14466	0.05628	2.57057	0.0116
D(Ln WAGE)	0.00832	0.02280	0.36473	0.7161
D(Ln WAGE (-1))	0.08817	0.02409	3.6602	0.0004
D(Ln IMP)	0.00240	0.00956	0.2505	0.8027
D(Ln IMP (-1))	0.00487	0.00942	0.5171	0.6062
D(Ln IMP (-2))	-0.00848	0.00912	-0.9297	0.3547
D(Ln IMP (-3))	0.01575	0.00900	1.7493	0.0832
D(Ln IMP (-4))	0.02531	0.00932	2.7161	0.0078
D(Ln EXP)	0.00878	0.01030	0.8522	0.3961
D(Ln EXP (-1))	0.02139	0.01008	2.1223	0.0362
D(Ln EXP (-2))	0.00723	0.00902	0.8015	0.4247
D(Ln EXP (-3))	-0.00250	0.00875	-0.28550	0.7758
D(Ln EXP (-4))	-0.02839	0.00950	-2.9872	0.0035
D(Ln EXP (-5))	-0.01888	0.00654	-2.8877	0.0047
CointEq(-1)	-0.11242	0.01915	-5.8719	0.0000

4.3.1. Long Run Associations

Lon run associations of the variables are shown in Table 6. Some of the long run coefficients of the model like Ln Wage (-0.323) and Ln GDP (0.83) are statistically significant at 5%. T-Statistic values and their probabilities verify that the wage has a negative effect on the employment while the effect of the GDP is positive.

Table 6. Long Run Coefficients

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Ln WAGE	-0.322590	0.138825	-2.323725	0.0221
Ln GDP	0.833777	0.177993	4.684326	0.0000
Ln IMP	-0.086658	0.045231	-1.915881	0.0582
Ln EXP	0.076744	0.039337	1.950938	0.0538
C	0.245000	1.954976	0.125321	0.9005

As for the impact of trade between countries, both export and import have no effect on the employment in the long run at 5% significance level.

Table 7. Long Run Coefficients

Test Statistic	**Value**	**K**
F-Statistic	5.477917	4
Significance	**I(0) Bound**	**I(1) Bound**
10%	2.2	3.09
5%	2.56	3.49
2.5%	2.88	3.87
1%	3.29	4.37

Null Hypothesis of the ARDL Bounds testing is that the variables are not associated in the long run. If the calculated F Statistic is in between lower bound I(0) and upper bound I(1) at 5% significance level than the null hypothesis is accepted.

According to ARDL Bound Testing results, calculated F-statistic 5.477917 is higher than the F-statistics tabulated on all the significance level for both I(0) and I(1). That's why the alternative hypothesis that the variables are associated in the long run.

4.3.2. Short Run Associations

Short-run relationships between the variables are determined by checking the significance and the values of the VECM coefficients. The Wald test, which is the generalization of the *t* or *z* statistic, and the maximum likelihood estimate function are utilized to check the significance of the short-run associations among the variables (Harrell, 2001). Thus, the coefficients of the variables in the VECM are tested applying the Wald test and the results are presented in Table 8.

Table 8. Wald Test

Null Hypothesis	**Statistic**	**Value**	**df**	**Prob**
$\alpha_{21}= \alpha_{22}= 0$	F-statistic	1.138	(2, 102)	0.324
	Chi-square	2.277	2	0.320
$\alpha_{31}= \alpha_{32}= 0$	F-statistic	6.266	(2, 19)	0.003
	Chi-square	12.532	2	0.002
$\alpha_{41}= \alpha_{42}= \alpha_{43}= \alpha_{44}= \alpha_{45}=0$	F-statistic	16.022	(5, 102)	0.000
	Chi-square	16.022	5	0.000
$\alpha_{51}= \alpha_{52}= \alpha_{53}= \alpha_{54}= \alpha_{55}=0$	F-statistic	3.372	(6, 102)	0.005
	Chi-square	20.233	6	0.003

α_{21} and α_{21} are the coefficients of ΔlnWG. Probability of the chi-square for null hypothesis [α_1=0] is 32% which is more than 5%. So, the lagged value of the wage has not short-term effect on the employment.

α_{31} and α_{32} are the coefficients of Δ lnGDP and the probability of the chi-square for null hypothesis [α_2 =0] is 0.2% which is less than 5%. So, the short run associations of the GDP and employment are not rejected. According to ECM results shown in table 4, Coefficients of Current and 1 lagged value of GDP is respectively 0.19113 and 0.14466 at the 5% significance which means the GDP positively affects the employment.

α_{41}, α_{42}, α_{43}, α_{44} and α_{45} are the coefficients of ΔlnIMP and the probability of the chi-square for null hypothesis [α_3=0] is 0% which is less than 5%. So, the short-term association of the import and the employment is statistically significant. According to ECM results shown in table 4, coefficient of 4 lagged import value is 0.0253 at 5% significance level. This means that the import of the US from Canada and Mexico is positively affects the employment. But the value of the coefficient is so small that the effect could be omitted.

α_{51}, α_{52}, α_{53}, α_{54} and α_{55} are the coefficients of ΔlnEXP and the probability of the chi-square for null hypothesis [α_3=0] is 0.3% which is less than 5%. So, the short-term association of the export and the employment is statistically significant. ECM results in table 4 display that export of the US to the NAFTA countries negatively affects its domestic employment. Coefficients of 4 and 5 lagged values of the export are -0.02839 and -0.01888 respectively and statistically significant at 5% level.

4.4. Residual Diagnostic Tests

The regression for the underlying ARDL model passes residual diagnostic tests against serial correlation, normally distribution and the heteroscedasticity test at 5% level of significance.

The stability of error correction models could be tested with graphical investigation (Pesaran, Shin and Smith, 2000). The Cumulative Sum (CUSUM) and the Cumulative Sum of Square (CUSUMSQ) indicate if the model is stable.

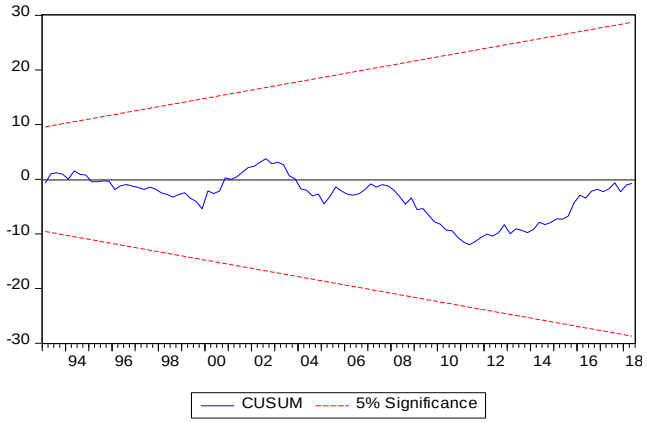

Figure 2. Cumulative Sum of Recursive Residuals

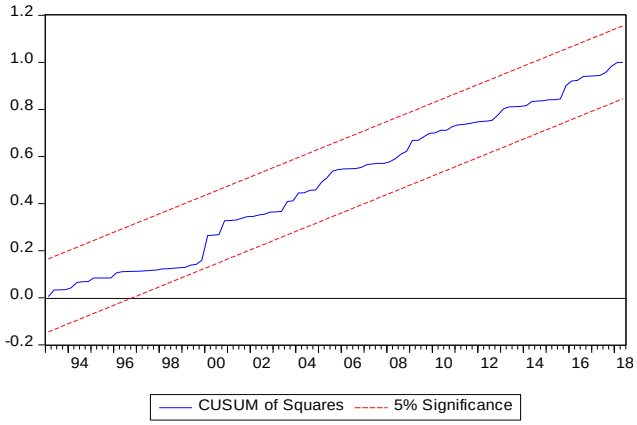

Figure 3. Cumulative Sum of Square of Recursive Residuals

Figures 2-3 labelling CUSUM and CUSUM of Squares show that the estimated lines are well within the critical limits indicating the 5% significance level. Therefore, the estimated models are reliable and stable.

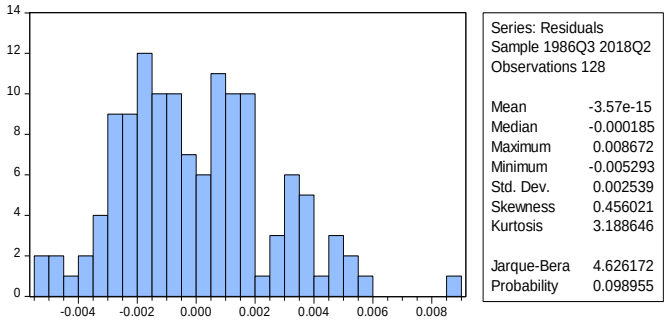

Figure 4. Jarque – Bera Test For Normality

The Jarque-Bera residual normality test for the model which indicates 4.626 with a 10% probability value is more than 5% and supports the null hypothesis that the residuals are normally distributed.

Table 9. Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.471388	Prob. F(6,96)	0.1962
Obs*R-squared	10.77977	Prob. Chi-Square(6)	0.0954

The Breusch-Godfrey serial correlation LM test displays that the P-Value of the observed R^2 is 9.5% which means the null hypothesis that the residuals are not serially correlated is accepted.

Table 10. Heteroscedasticity Test: ARCH

F-statistic	1.156572	Prob. F(1,125)	0.2842
Obs*R-squared	1.164304	Prob. Chi-Square(1)	0.2806

The heteroscedasticity test also shows a P-Value of 28% for the observed R^2 meaning that the null hypothesis that the residual has no ARCH effect is accepted. All these tests confirm that the model is robust for policy consideration.

5. Conclusion

One of the political debates on negative effects of tariff reductions between The USA and the other NAFTA member countries Canada and Mexico is the rise of unemployment. This study identified whether this argument is true or not by implementing Autoregressive Distributive Lag model (ARDL) on the variables; employment, export, import, wages and gross domestic product. ARDL Bounds testing results supported that the variables are associated in the long run.

Some of the long run coefficients of the model like Ln Wage and Ln GDP are respectively -0.323 and 0.83 which are big enough to strongly affect the employment. The wage has a negative effect on the employment while the effect of the GDP is positive.

As for the impact of trade on the employment, both of export and import of the US from the other NAFTA countries have no statistically significant impact in the long run.

On the other hand, findings of the model displayed that all the variables have short run relations with the employment in the US.

Coefficient of Labor wage with lag 2 is 0.08817. GDP and its one lagged value have the coefficients respectively 0.19113 and 0.14466. Both of the GDP coefficients positively affect the employment.

As for the short-term association of the commercial trade with the employment, import of the US positively affects the employment while the export is negative in sign. Coefficient of the import with lag 4 is 0.0253 which is so small to be considered. Coefficients of the export with lag 4 and 5 are respectively -0.02839 and -0.01888 which is also so small to be considered when criticizing the NAFTA. Also, there were some arguments that elimination of NAFTA would shrink the trade between member countries resulting the loose of jobs in manufacturing sectors. Also, some firms would move their manufacturing facilities to the best cost countries leaving again the labor lose their jobs because of the strong competition in the international market.

As a result, when the positive effects of NAFTA on the member economies are considered, dynamics negatively affecting the employment are negligible.

Author contributions

Mustafa Ozturk and Osman Nuri Aras together carried out the data analysis, designed and wrote the introduction and literature review of the paper, provided extensive advice throughout the study regarding the abstract, introduction, literature review, research methodology, data analysis, results and discussion, and conclusions of the manuscript. The discussion was a team task.

Conflicts of interest

The authors declare no conflict of interest.

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