Post Keynesian Effective Demand and Unemployment
"Evidence from Nordic Countries"

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Abstract: The study is trying to identify the most important determinants of unemployment in Nordic countries, where the recent low grow the period in Europe also affected the Nordic economies as well as their labor markets. The study utilized co-integration and error correction model approach. Although, the unit root tests showed that the variables were integrated of different orders, the co-integration result showed that the variables were co-integrated, the regression estimate based on short run and long run ARDL approach models. This study argues that policies tailored to boost effective demand can play an important role in reducing unemployment across Europe as well as improving economic performance, the results show that the gross income distribution, import, long run interest rate, government expenditure has a significant influence on Unemployment rate. Based on these findings, this study recommended that there is still the need for government to take urgent steps against the rising unemployment rate, because unemployment is a major impediment to social progress and results in waste of trained manpower.

Key words: Post Keynesian effective demand, macroeconomics policy, unemployment, stabilization policy, Palestinian

INTRODUCTION

Growth, inflation and unemployment are the great themes of macro-economic theories and the major targets of economic policies. These phenomena have always been a reason for great debates and well-known concepts like the Phillips Curve, the NAIRU or Okun's Law have been developed to explain their linkages. Their origin lies in statistical observations which revealed negative correlations between inflation and unemployment (the Phillips Curve) or growth and unemployment (Okun's Law). The statistical evidence initiated numerous publications which today fill libraries rather than bookshelves (Vogler-Ludwig and Stock, 2010).

Unemployment increased substantially across the world after the sharp oil price rises of the 1970s and the collapse of the Bretton Woods system of fixed exchange rates. But unlike many other parts of the world, unemployment in many European countries never returned to the low levels seen during the Golden Age after the Second World, Some three decades later and in the wake of the major recessions of 1974-75,1980-84 and 1991-94, Europe is afflicted with enduring high levels of unemployment, between the mid-1970 and the mid-1980, the average rate soared from about 2->10% (Tille and Yi, 2001). Throughout the 1990s, the fifteen member states of the European Union (EU) experienced an average rate of unemployment of about 10% (Cameron, 2001) (Fig. 1 and 2).

If we look at the most recent Euro stat data from 2012 paint a stark picture: over 24 % unemployment in Greece and Spain, over 14% in Portugal (Nordic countries hav strong economic links to other European economies, therefore, the recent low grow the period in Europe also affected the Nordic economies as well as their labor markets). Nordic countries average of 6.5 and a European average of 10.5%. There are many reasons for unemployment: besides the general situation on the labour market, one might mention education and training systems, labour market and employment policies but also the stratification and distribution of opportunities in society (Dietrich, 2012).

As things stand at the moment, the escalating unemployment rates in many European countries can be attributed predominantly to both The global financial crisis deeply affected the world's largest economy which slipped into recession at the end of 2007 (Cazes et al., 2011), more recently, the sovereign debt crisis of 2012 have taken a heavy toll on the labour market in Europe, although to differing degrees in various countries. This is most evident by the different unemployment rates which have reached unprecedented levels among EU countries (Micallef, 2013). The policy of unrelenting austerity that has dominated European crisis management thus far can be held responsible the most recent increase in unemployment rates in above mentioned countries.

The objective of this study is to investigate which variables have a significant effect on employment rate in Nordic countries (Sweden, Finland, Denmark, Norway,
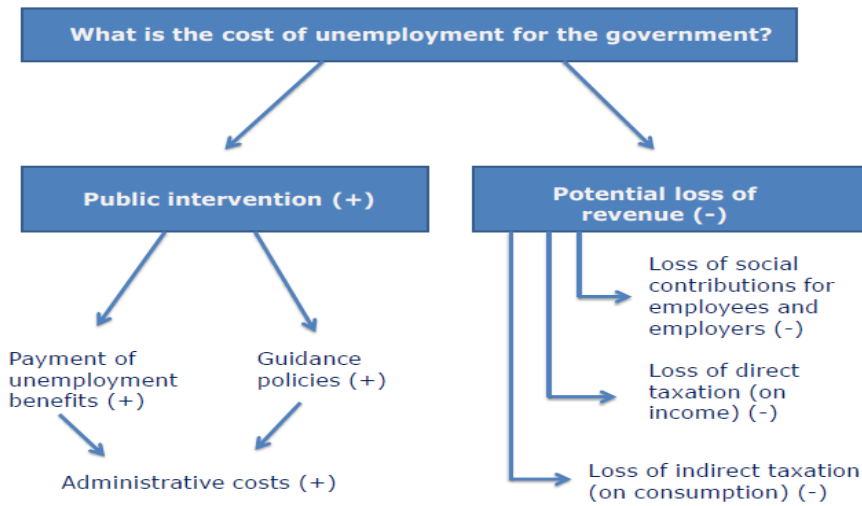
Fig. 1: Financial cost of unemployment. Gerard *et al.* (2012). Why invest in employment? A study on the cost of unemployment", On behalf of: European Federation for Services to Individuals (EFSI), IDEA Consult nv , Kunstlaan, Brussels. (+) represents a public intervention; (-) a potential loss of revenue for the government
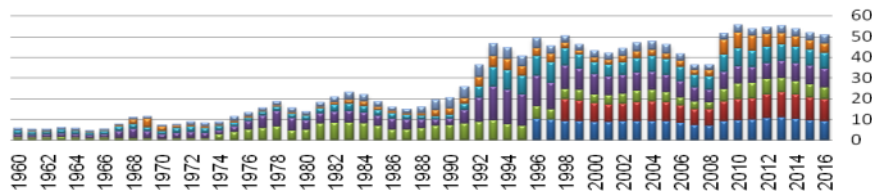

Fig.2: Unemployment rate by sex and age groups annual % Average(1960-2016). AMECO(2015),"Unemployment rate by sex and age groups annual % Average(1960-2016).",Statistical Data, Available at http://ec.europa. eu/economy_finance/ameco/user/serie/SelectSerie.cfm ,Visit date 18/4/2015

Iceland). For research purpose, annual panel data is collected from 1960-2015 as sample. Variables considered include income distribution, government expenditure, long run nominal interest rate, import, Country dummies and unemployment rate. This selection is done keeping in consideration the importance of each variable and the past studies conducted in this respect (Fig. 3).

Literature review: In the literature, there are various factors that have effect on unemployment: Gordon and Clark (1984) starts from an identity between the real GNP and the unemployment rate together with a few other variables, like productivity or the labor force participation rate. The point of departure for this study was the surprisingly rapid, 3.1 point decline in the aggregate unemployment rate during the first seven quarters of the 1983-84 recovery. Analysis of potential output growth over this period and the Okun's law relationship between unemployment and output indicates that a 2.4 point decline in unemployment could have been expected given the rapid rise in GNP and the modest growth of potential GNP in this period.

The OECD (1994) jobs study an ensemble of factors-macroeconomic policies, trade and foreign direct investment, technology and innovation interact with labour and product market policies and institutions, such as education and training, wage and price determination processes and welfare benefits, to determine the levels and dynamic behavior of employment and unemployment rates across countries. The OECD research on the jobs study indicates that a number of these policy and institutional factors have played an important role in determining unemployment rates. This study tries to assess the role of some of these factors.

Scarpetta (1996) study investigate the effects of number of explanations for the differences in labour market performance across OECD countries over the past two decades. they estimated the relative importance of various labour market policy and institutional factors on both the level and dynamic behaviour of unemployment It will always remain impossible to measure and model, in an entirely satisfactory manner, the wide variety of institutional, cultural and historical factors that influence
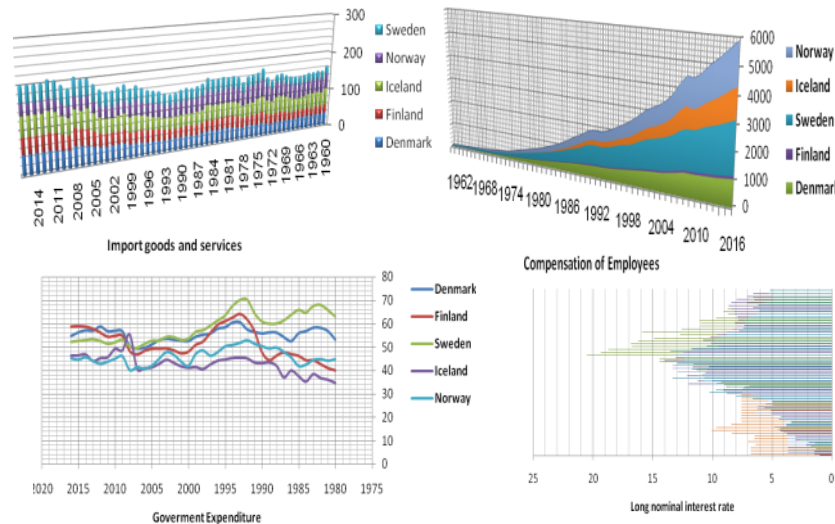
Fig. 3: Import goods and services, long nominal interest rate and government Expenditure annual % GDP (1960-2016),Compensation of employees, annual (Lcu) (1960-2016). AMECO(2015), "different statistic", statistical data, available at http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm , visit date 18/4/2015

labour market performances, unexplained differences and country-specific measurement errors are identified through a country-specific error term, making the estimated impact of observable variables on unemployment more accurate and thus offering a better guidance for the assessment of policy reform.

Nickell (1997) studies this relation between unemployment and measures of labor supply and labor market institutions by running three regressions based on two cross-sections: one from 1983-1988 and one from 1989-1994. Find that the European job market is rigid and inflexible and The North American job market is dynamic and flexible, There are features of the labor markets in some European countries that help sustain high levels of unemployment.

Blanchard and Wolfers (2000) use average unemployment rates over 5year intervals, starting in 1960 to concentrate on long-run effects. The shocks or baseline variables consist of the level of TFP growth, the real interest rate, the change in inflation and labour demand shifts. Based on a panel of institutions and shocks for 20 OECD nations since 1960, they find that the interaction between shocks and institutions is crucial to explaining both stylized facts, they test two specifications. The first speculation assumes that there are common but unobservable shocks across countries, The second constructs series for the macro shocks, with the exception of the change in inflation, these"shocks" are not mean reverting which is why we prefer the term baseline variables.

Bertola *et al.* (2002) Using data from 17 OECD countries over the 1960-96 period, we investigate the impact of institutions on the relative employment of youth, women and older individuals find that, for both men and women more extensive involvement of unions in wage-setting significantly decreases the employment rate of young and older individuals relative to the prime-aged, with no significant effects on the relative unemployment of these groups, the interaction between economic (and demographic) shocks and labour market institutions are more relevant for the composition of employment and the incidence of unemployment in the working-age population, rather than on the overall level. They also show that demographic shocks interacted with some labour market institutions can explain much of the differences in unemployment rates of young and female workers between the US and EU countries.

Biagi and Lucifora (2005) the study analyse the effects of demographic and education changes on unemployment rates in Europe. Using a panel of European countries for the 1980-2000 period-disaggregated by cohort, gender and education. results show that demographic and education shocks are qualitatively different for young (adult) workers as well as for more (less) educated people. Labour market institutions also influence unemployment rates in different ways. Unemployment benefits are found to have a positive impact on unemployment, while bargaining coordination and employment protection reduce it.

Berument *et al.* (2008) This study investigates how macroeconomic policy shocks in Turkey affect the total unemployment and provides evidence on the differential responses of the unemployment by sectors of economic activity. The quarterly data used which covers the period 1988-2004 from Turkey. The results indicate that the positive income shock is followed by a decrease in unemployment in all economic activity groups during the initial periods except the unemployment in the electricity sector and the community services sector. A positive money shock decreases unemployment, opposite results are obtained with the interbank interest rate shocks. Even if, they are not statistically significant, a positive interbank interest rate shock increases the unemployment in all economic activities at the initial levels but derives down the unemployment in the Agriculture and the Community Services sectors at the initial level. Moreover, a positive price shock increases unemployment in all economic sectors in the long run except the Mining and the Community Services. Thus, unemployment in different sectors of economic activity responds differently to various macroeconomic policy shocks.

Aktar and Ozturk (2009) Study investigate various interrelationships among Foreign Direct Investment (FDI), Exports (EX), Unemployment (UR) and Gross Domestic Product (GDP) for the period 2000-2007 in Turkey , find that FDI did not have any contribution to reduce the unemployment rate in Turkey. They, also, find that export is not statistically significant influence on unemployment. Therefore, this study does not support the export led economic growth model. Variation in GDP does not reduce the unemployment rate either

Ball (2009) The study argues that hysteresis helps explain the long-run behavior of unemployment ,ascribes a large portion of the evolution of the NAWRU since the 80s evidence for 20 developed countries to such hysteresis phenomena. Indeed, it can be noted that countries that have witnessed important economic shocks typically tend to have experienced large corresponding variation in their NAWRU. A case in point is the large increase in structural unemployment observed in Sweden and Finland in the 90s at the time of their financial crises. A central finding is that large increases in the natural rate are associated with disinflations and large decreases with run-ups in inflation. These facts are consistent with hysteresis theories and inconsistent with theories in which the natural rate is independent of aggregate demand.

Karanassou and Sala (2010) investigate driving forces behind unemployment for Australia over time, they estimating a multi-equation labour market model comprising labour demand, wage setting and labour supply equations. The model is used to examine the causes of the unemployment upturn in 1973-1983 and the subsequent decline in 1993-2006. the results show that

the main determinants of the unemployment rise in the 1970s and early 1980s were wage-push factors, the two oil price shocks and the increase in interest rates and the acceleration in capital accumulation was the crucial driving force of unemployment in the 1990s and 2000s. Furthermore, although the most influential factor is the tight foreign demand due to global crisis.

Balcerzak and Zurek (2011) The study is devoted to the influence of foreign direct investment on labour markets. The interdependencies between FDI and unemployment were econometrically analyzed in Poland. In the research the VAR methodology was utilized based on aggregate quarterly data. The VAR analysis for the period 1995-2009 have proved interdependencies between FDI and employment in Poland. The analysis of impulse response function shows that the FDIimpulse indicates decrease of unemployment rate but then slowly growth to initialstate of this rate takes a place. It means that even if generally FDI have some potential to deteriorate the unemployment in the short-run, the government should still implement policies that attract investments fulfilling above mentioned criteria,which would result in positive long term results of foreign capital inflow.

Peker and Bolukbas (2012) study investigated the determinants of unemployment for Turkey for the period 2000:Q1-2011Q1. According to the findings, a co-integration relation has been founded between variables; increases in confidence index of real sector decrease unemployment rate as expected but increases in the number of collective bargaining agreements for private sector have an increasing impact on unemployment. And according to Error Correction Model's result; the error correction term coefficient (ECt-1) is negative and statistically significant as expected. Eventually approximately 23% deviations from the long-run equilibrium value eliminate in each period, According to the results of this study; unemployment is effected by the future expectations of real sector and the attitude of the union about worker's wage in Turkey.

Hanclova *et al.* (2012) study deals with the factors influencing (GDP growth, inflation, tax wedge, net replacement ratio fixed term contracts, part-time contracts) the long-term unemployment rate in the European Union countries in 2001-2010. The results show that the labour market flexibility influences the long-term unemployment rate in the strongest negative way, then there is evident a positive impact of the tax wedge followed by the macroeconomic environment impact. The negative. impact of economic growth operates in these groups with the same intensity, the same positive economic growth will contribute to a deeper decrease of long-term unemployment. In the crisis period the positive impact of tax burden is reduced and we also monitor the increasing impact of the proportion of part-time jobs.

Touny (2013) The main objective of this study is to investigate the long run trade-off between unemployment and inflation in Egypt through the period (1974-2011) the co integration analysis confirm a positive relationship between changes in inflation rate and unemployment gap in the long run, results of the ECM have illustrated that the error-correction term is negative and significant with an adjustment coefficient of - 0.280, pointing out that changes in inflation rate adjust to its equilibrium level in the long run with 28% of the adjustment taking place within the first year.

MATERIALS AND METHODS

Data and methodological frame work
Analytical framework: Keynes (1936) (Veblen (1904:1921) points out that the volume of output is set to attain a satisfactory profit and is a manifestation of the predatory instinct of the vested interests which aim at domestic and international dominance. Interests determine the volume of output after taking into consideration the aggregate demand. The level of aggregate demand will provide the necessary increases in total revenues. On the other side, the cost of production has to decline. If revenue rises and cost declines then, the reasonable) considers unemployment as an involuntary phenomenon. He thinks that employment is cyclical, generated by the deficiency of aggregate demand. Capitalists hire workers and invest to produce output when the expectations about the economy and profits are favorable. If expectations about the future are supported by reality, investments and employment continue rising until equilibrium is reached. This equilibrium is attained by the intersection of the aggregate demand and supply the point of the effective demand which may be less than the full employment equilibrium.

If expectations about the future of the economy are not favorable, capitalists invest less and employ less number of workers. a representative of Post Keynesian economics, argues that involuntary unemployment is explained by insufficiency of effective demand, instability of exchange rates and international mobility of finances which create uncertainty that weakens entrepreneurial confidence to make investments to reduce unemployment (Mouhammed, 2012). Following Keynes, here is how this problem should be analyzed: Let D aggregate demand (or planned expenditures) in money units, w the pre-tax money wage rate and N the number of workers. The aggregate demand function is:

$$D = fd(w,N) \qquad (1)$$

Keynes split aggregate demand into two categories, D_1 and D_2, i.e.,

$$D = D_1 + D_2 = f_d(W,N) \qquad (2)$$

Keynes' D_1 demand category represented all expenditures which "depend on the level of aggregate income and, therefore, on the level of employment N," i.e.,

$$D_1 = f_1(W,N) \qquad (3)$$

D_2, therefore, represented all expenditures not related to income and employment, i.e.,

$$D_2 = f(W,N) \qquad (4)$$

These two categories make up an exhaustive list of all possible classes of spending. In terms of NIPA, D_1 is Consumption expenditures on domestically produced goods and D_2 is three sum of gross domestic investment, government and export spending on products of domestic industry (Davidson, 1998):

$$y^d = C + I + G + NX \qquad (5)$$

$$C = C + I[(1-K)(WN/PY)] \qquad (6)$$

$$I = (\theta, r) \qquad (7)$$

$$NX = NX(\xi) \qquad (8)$$

The existing relationships between the components of aggregate demand are given explicitly by the above set of four equations, the combination of which when linearized (Fig. 4) (The three key independent elements of Keynes's principle of effective demand are; the propensity to consume of less than unity; the expected normal rate of interest behind which lies liquidity reference and banking policy and the marginal efficiency of capital. All of these variables are psychological or behavioral and forward looking. Figure 3, firms earn normal profits along the Z or aggregate supply curve and the D curve reflects that the propensity to consume is less than unity given the expected normal rate of interest and a marginal efficiency of capital). Give the goods market equilibrium equation given below :

$$(x_0 + x_1\theta - x_2i) + \sigma + (c_0 - c_1\xi) = \lambda_1\theta + \lambda_2(WN / PY) \qquad (9)$$

Equation (9) is the goods market equilibrium. It equates the aggregate demand injections to national savings. The left hand-side comprises investment which depends positively on the profit rate θ and negatively on interest rates I; net government expenditure σ; and net
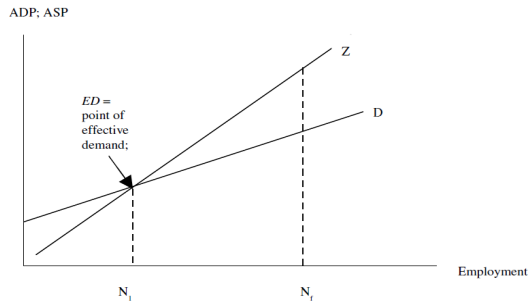
Fig. 4: Keynes's principle of effective demand (Rogers, 2008), "The principle of effective demand and the State of post keynesian monetary economics", research study No.2008-04, School of Economics University of Adelaide, Australia. P8

exports which depend negatively on exchange rates ξ. The right hand-side represents the total national savings from profits and wage income. The following equation relates unemployment to a number of demand-side variables (Alexiou, 2000):

$$U = f(\theta, \sigma, i, \lambda) \qquad (10)$$

$$\theta, \sigma < 0; i, \lambda > 0 \qquad (11)$$

Equation (10) states that the unemployment rate (U) depends negatively on income which is measured by the Compensation of employees (θ); negatively on government expenditure (σ); positively on the interest rate (i):positively on imports (λ) (net government expenditure σ and net exports which depend negatively on exchange rates ξ) (The three key independent elements of Keynes's principle of effective demand are; the propensity to consume of less than unity; the expected normal rate of interest behind which lies liquidity reference and banking policy and the marginal efficiency of capital. All of these variables are psychological or behavioral and forward looking. Figure 3, firms earn normal profits along the Z or aggregate supply curve and the D curve reflects that the propensity to consume is less than unity given the expected normal rate of interest and a marginal efficiency of capital). In this particular model, the interest rate i, rather than money supply, as in mainstream economics, has been used as the monetary instrument. What follows next, is the introduction of a dummy (country-specific effect) variable (μ), the fact that the sign of the country dummy variable is expected to be of a positive nature suggests that the convergence criteria have had an adverse effect on European employment. Taking this into account, the revised version of Eq. 7 takes the following form:

$$U = \beta_0 - \beta_1(\theta) - \beta_2(\sigma) + \beta_3(i) + \beta_4(\lambda) + \beta_5(D_1) \qquad (12)$$

Methodology and data: This study uses annual data that consist of the period over 1960-2015 in order to investigate the effects of macroeconomic Policy on unemployment for Nordic countries, Sweden, Finland, Denmark, Norway, Iceland by using the panel data analysis, Data are gathered from AMECO data Base, World bank Data Base, Based on theoretical concept of the model we proceed to the econometric formulation of the stochastic model. First of all we introduce the indications of Number variables for cross-sectional units countries (Sweden, Finland, Denmark, Norway, Iceland) i =1,2,.....,N monitored in period (year) t =1,2,.....,T : There are a total of TN observations where y is a (TN x 1) vector of endogenous variables and X is a (TN xk) matrix of exogenous variables which does not include a column of units for the constant term The generalized regression model provides the basic framework (Alexiou, 2000):

$$y_{it} = a_i + \beta_i x_{it}^j + \mu_t + \bar{\omega}_{it} \qquad (13)$$

$$\bar{\omega}_{it} \sim i.i.d. (o.\sigma_i^2) \qquad (14)$$

Where:

a_i = Is a scalar and

B_i = Is a (k×1) vector of slope coefficients

Similar variances between countries, i.e. $\sigma_i^2 = \sigma \bar{\omega}^2 \forall I$ have been assumed, together with zero covariance's between countries i.e. $Cov(\bar{\omega}_{it}, \bar{\omega}_{js}) = 0$ for $i \neq j$.

Where:

y = represents the unemployment rate

$x_{it}^j, j = 1,2$ is a vector of control variables

μ_t = respectively, the country-specific effect

$\bar{\omega}_{it}$ = is an unobserved zero mean white noise-type column vector satisfying the standard assumptions

Moreover, we will add the Other control variables that we use in the estimation of the unemployment include: fiscal indicators (i.e., government Expenditure) to allow more extensively for the possibility of fiscal policy affecting unemployment) the long-term interest rate, capturing the impact the fiscal-monetary policy mix; indicators for the openness of the economy (such as the sum of import shares in GDP) to expand the model beyond a closed-economy form.

Given the relatively small dimension of the country cross section and the need to control for country specific characteristics, the equation also contains country-fixed effects. The country dummies capture economic and social characteristics specific for each country that remain broadly unchanged over time. such as the creation of the monetary union(Maastricht Criteria). in order to determine the effect of aggregate demand in unemployment while interacting with the mentioned variables. the revised version of equation (a) takes the following form:

Table 1: Data description and sources

Variable abbrev	Variable name description	Sources
Unemployment. rate	Unemployment rate: total :- Member States: definition EUROSTAT (ZUTN)	AMECO
Com. employees	Compensation of employees: total economy (UWCD)/GDP	AMECO
Import.G and S	Imports of goods and services (% of GDP)	World bank
L.n.interset. rate	Nominal long-term interest rates (ILN)	AMECO
Government.Exp	Total expenditure of general government, (Percentage of GDP at current prices (excessive deficit procedure)	AMECO

Sources of basic data are the European Commission's AMECO database and the World Bank's World Development Indicators (WDI).

Table 2: Summary of descriptive statistics

Statistics	Unemployment rate	Com. employees	Import. G and S	L.n.interset. rate	Government.Exp
Mean	4.187143	0.490926	32.900740	7.476009	50.188400
Median	3.300000	0.491684	32.453550	7.090000	49.615880
Maximum	16.600000	0.568206	50.571700	20.500000	70.082510
Minimum	0.200000	0.401578	19.407630	1.320000	38.514930
Std. Dev.	3.054120	0.031390	6.567008	3.750192	6.708453
Skewness	1.110829	-0.049329	0.220335	0.720554	0.373207
Kurtosis	4.527076	2.629448	2.800239	3.282109	2.611553
Jarque-Bera	84.790170	1.715495	2.633557	20.036330	3.599130
Probability	0.000000	0.424116	0.267997	0.000045	0.165371
Sum	1172.400000	137.459200	8883.199000	1667.150000	6122.984000
Sum Sq. Dev.	2602.414000	0.274916	11600.780000	3122.194000	5445.404000
Observations	280.000000	280.000000	270.000000	223.000000	122.000000

$\text{Unemployment. rate}_{it} = \delta_0 + \varphi_1. \text{Com. employees}_{it} + \lambda_2 \text{Import.G andS} + \xi_3 \text{L.n.interset. rate} + \mu_4 \text{Government.Exp}_{it} + \sigma_5 \mu_t + \bar{\omega}_{it}$

Where: Unemployment. rate = the annual unemployment rate Com. employees = Compensation of employees import_{it} = the import as a share of GDP $\text{L.r.interest.rate}_{it}$ = Long real interest rate G.exp_{it} = gross government expenditure as a share of GDP μ_t = country fixed effects $\bar{\omega}_{it}$ = the error term. The ARDL approach of above model can be written as:

- $\Delta (\text{Unemployment.Rate}) = a_o \sum_{i=1}^{n}(a_{1i})$
- $\Delta (\text{Unemployment.Rate}) \ T - I + \sum_{i}^{2} = o(a_{2i})$
- $\Delta (\text{Com.employees}) \ T - I + \sum_{i}^{2} = o(a_{2i})$
- $(\text{Import.G and S})_{t-i} + \sum_{i}^{n} = o(a_{5i}) + \Delta (\text{L.n.interset. rate})_{t-i}$
  $\sum_{i}^{n} = o(a_{5i}) + (\text{Government.Exp})$
- $_{t-i} + \lambda_1 (\text{Unemployment.rate})_{t-1} + \lambda_2 (\text{Com.employees})_{t-1} + \lambda_3 (\text{Import .G and S})_{t-1} + \lambda_4 (\text{L.n.interset. rate})_{t-1} + \lambda_5 (C)$

Where Δ is the first difference operator and n is the optimal lag length. The coefficients $\alpha_{1i}, \alpha_{2i}, \alpha_{3i}, \alpha_{4i}$ and α_{5i} represent the short run dynamics of the model whereas the parameters $\lambda_1, \lambda_2, \lambda_3, \lambda_4$ and λ_5 represent the long run relationship, The null hypotheses of the model is H_0: $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = 0$ (There is no long run relationship among variables). H_1: $\lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq \lambda_5 \neq 0$.

In order to check the long run relationship as given in equation we applied bound test of equation using F statistics with two bounds, After finding the long run relationship then we estimated error correction model (ECM) which shows the speed of adjustment back to long run equilibrium after short run disturbance. Therefore ECM of Eq. 3:

$\Delta(\text{Unemployment.Rate}) \sum_{i}^{n} = o(a_{2i}) \Delta(\text{Com.employees})_{t-i} + \sum_{i}^{n} = o(a_{2i}) (\text{Import.G and S})_{t-i} \sum_{i}^{n} = o(a_{3i}) \Delta (\text{L.n.interset.rate})_{t-i} \sum_{i}^{n} = o(a_{3i}) \Delta(\text{Government.Exp})_{t-i} + \sigma_1 \mu_t + \varphi \ \text{ECM} \ t-i + \bar{\omega}it$

ECM_{t-i} indicate the error correction term and ω shows speed of adjustment that is related to cointegration equation. ECM also checked the performance of coefficient that are significant or insignificant with negative or positive sign according to theory.

RESULTS AND DISCUSSION

Empirical results: As in the time series analysis, variables are needed to be stationary in order to prevent spurious regressions between variables in the panel data analysis which performs both time and cross section analysis together. LLC, Breitung ,IPS, ADF , PP and Hadri ,were used among panel unit root tests for the stationarity testing. The findings about unit root test are demonstrated as shown in Table 1. Since all the variables are either integrated of order 0 or 1 and none of the variable is I (2) in the model, therefore, ARDL approach to co-integration is the most appropriate technique of estimation. The value of F statistics lies above the upper bound value of F statistics. Therefore, null hypothesis of no long run relationship is rejected and concluded that there is long run relationship among variables as shown in Table 2.

The F-statistics on a tow lag show that there is co-integration and existence of the long run relationship between dependent and independent variables calculated F-statistic is 2.965043 is >90% lower bound critical values 2.17 and >90% upper bound critical values 3.19, calculated F-statistic is 2.965043 is <95% lower bound critical values 2.72 and <95% upper bound critical values 3.83 that mean

Table 3: Results of Panel Unit Tests

Methods

Level

Variables	Individual intercept					Individual intercept and trend						None		
	LLC	IPS	ADF	PP	Hadri	LLC	Breitung	IPS	ADF	PP	H	LLC	ADF	PP
Unemployment.rate	-1.29720*	-1.11886	12.7088	7.86003	7.90919*	-12.3324*	-10.0341*	105.349*	71.2952*	-1.25790	-12.2330*	-0.69120*	6.99985*	5.35702*
Com. employees	-2.88799*	-2.90058*	24.9191*	22.1966**	3.29989*	-3.47628*	-2.25362*	-2.83196*	24.2126*	15.3196*	3.48100*	0.62904	3.10034	2.08294
Import. G and S	0.27986	0.89178	5.53539	4.76612	8.42614*	-3.33402*	-1.04424	-1.48706**	15.2950	14.4547	6.46034*	0.55848	3.76434	3.18968
L.n.interset. rate	0.30890	2.12652	2.30950	5.40152	4.75218*	-1.51424***	0.95456	0.37666	9.13096	3.38733	7.70519*	-2.84320*	20.7802*	77.8877*
Government.Exp	-4.06542*	-3.06615*	27.8166*	64.2320*	3.69804*	-2.04665*	0.11082	-0.94056	12.3738	23.8767*	3.15244*	-1.84035**	13.9790	12.7447
1st difference														
Unemployment. rate	-12.3324*	-10.0341*	105.349*	71.2952*	-1.25790	-12.2330*	-10.3102*	-9.04176*	84.2568*	52.7830*	-0.06144	-12.1088*	148.490*	106.176*
Com. employees	-12.4734*	-11.6077*	126.967*	161.899*	0.48647	-12.4925*	-8.96412*	-10.8158*	105.718*	150.227*	3.95844	-13.6341*	194.365*	387.197*
Import. G and S	-15.9171*	-15.3879*	172.442*	190.097*	1.15268	-14.1127*	-7.93853*	-13.9645*	139.396*	187.169*	2.36266*	-16.5485*	313.795*	352.013*
L.n.interset. rate	-14.1970*	-12.1457*	129.663*	140.982*	4.04014*	-14.6210*	-10.7167*	-12.1931*	119.105*	174.882*	2.18242**	-13.7936*	214.972*	213.191*
Government.Exp	-6.81070*	-5.88560*	49.1064*	49.9304*	0.40847	-5.89708*	-6.47427*	-5.16013*	41.0073*	47.9209*	1.41907***	-7.48172*	73.0301*	77.1141*

Levin, Lin and Chu t*,IPS Im, Pesaran and Shin W-stat , Breitung t-stat, ADF - Fisher Chi-square, PP - Fisher Chi-square, Hardi -Hadri Z-stat, The statistics are asymptotically distributed as standard normal with a left hand side rejection area,except on the Hadri test, which is right sided. A * indicates the rejection of the nullhypothesis of nonstationarity (LLC, Breitung, IPS,ADF,PP) or stationarity (Hadri) at least at he 5 percent level of significance. *Implies that coefficient is significant at 1% significance level , **Implies that coefficient is significant at 5% significance level,*** **Implies that coefficient is significant at 10% significance level , Automatic lag length selection based on Modified Schwarz Criteria and Bartlett kernel. Total number of observations ranged between 111 and 270. Estimations undertaken with EViews 8.0-64bit.

Table 4: Result of ARDL Approach lag(2)

Variable	Coefficient	t-Statistic
C	-3.379447**, 1.351369	-2.500757
D(Unemployment. rate (-1))	0.355083*, 0.106994	3.318729
D(Unemployment. rate (-2))	-0.191357**, 0.085444	-2.239553
D(Com. employees (-1))	-9.776232, 5.997409	-1.630076
D(Com. employees (-2))	1.894077, 5.353344	0.353812
D(Import. G and S (-1))	0.057308***, 0.033435	1.714030
D(Import. G and S (-2))	-0.003875, 0.033733	-0.114881
D(L.n.interset. rate (-1))	0.291213*, 0.104123	2.796814
observations	104	
D(L.n.interset. rate (-2))	0.288756*, 0.105644	2.733306
R-squared	0.712511	
D(Government.Exp (-1))	0.196671*, 0.036849	5.337160
F-statistic	13.47628	
D(Government.Exp (-2))	-0.000694, 0.042887	-0.016174
Durbin-Watson stat	2.190225	
Unemployment. rate (-1)	-0.103794*, 0.035476	-2.925731
Akaike info criterion	2.177470	
Com. employees (-1)	0.928892, 2.832649	0.327923
Schwarz criterion	2.609726	
Import. G and S (-1)	-0.000922, 0.020686	-0.044573
Test normality		
L.n.interset. rate (-1)	0.124925*, 0.061188	2.041654
Jarque-Bera Probability	5.920008 (.051819)	
Government.Exp (-1)	0.041162**, 0.019932	2.065127
Dummies country included(55)	1.195251*, 0.414696	2.882238

*, ** and *** represent statistical significance at 1, 5 and 10 percent level respectively. Akaike info criterion Lag(6) 2.603668 and lag(4) 2.463792, Schwarz criterion lag(6) 3.645447 and lag(4) 3.167257 . CUSUM test for parameter stability, Bresusch-Godfrey LM test for Serial Correlation. Jarque-Bera test for normality

we can't accept or reject the null hypothesis and a long-term relationship can be ascertained through analysis.

Table 3 shows the result of long run coefficients, the compensation employees , import and long nominal interest rate has negative and significant impact on unemployment. Government expenditure has a positive and statistically significant impact on unemployment rate The sign of the dummy variable as we expected positive and significant impact on unemployment in long and short run,result of import and long nominal interest rate, Government Expenditure in opposition to economic theory. This may be due to long run relation ,but in short run (lag 1) All the variable related to economic theory, income distribution (Comp.Employee) has negative and significant impact on unemployment, the estimates of the fiscal (G.exp) parameters negative and significant as well as the monetary (i) parameters positive and significant, The next estimated parameter (M) is a measure of international competitiveness which in this model is reflected by the volume of imports. The estimated coefficient corresponding to this particular proxy suggests that an increase in the volume of imports will cause unemployment to follow suit as shown in Table 3.

The coefficient of error correction is significant at 1 % significance level with correct or negative sign. The coefficient of ECM is (-0.623495) which shows high speed of adjustment from short run fluctuations to long run equilibrium (62.3%) discrepancy is corrected each year) approximately 62.3% of disequilibrium from the previous year's shock convergence back to the long run equilibrium in the current year. Finally, the fact that the dummy variable was consistently positive and significant throughout all estimated models, indicates the extent to which variations in unemployment can be justified after the signing of the Maastricht Treaty (Table 4-6).

Table 5: Result of long run coefficients

Variable	Coefficient	t-Statistic
C 10.33163**, 4.112616	2.512181	
Com. employees	-22.12450*, 6.161628	-3.590691
Import. G and S	-0.112118*, 0.035432	-3.164311
L.n.interset. rate	-0.233153**, 0.104208	-2.237387
Government.Exp	0.166260*, 0.037786	4.400051
Dummies country (55) included	4.348370*, 0.926408	4.693796
AR(1)	0.964463*, 0.025571	37.71642
observation	109	
Test long run causality		
R-squared	0.923447	
Wald Test- F-statistic	2.965043**	
F-statistic	205.0684	
Wald Chi- square	14.82522**	
Durbin-Watson stat	1.793694	
Test Normality		
Akaike info criterion	2.752479	
Jarque-Bera Probability	4.808763, (0.090231)	
Schwarz criterion	2.649732	

*, ** and *** represent statistical significance at 1, 5 and 10 percent level respectively,# dummies country insignificant because of that we exclude from model . transferred all variables in the model to logarithmic formula for normality test and to solve heteroscedasticity. CUSUM test for parameter stability, Bresusch-Godfrey LM test for Serial Correlation. Jarque-Bera test for normality .

Table 6: Result of short run coefficients- error correction model

Variable	Coefficient	t-Statistic
C	-0.250188, 0.199863	-1.251798
D(Unemployment. rate (-1))	0.883361*, 0.169195	5.220975
D(Unemployment. rate (-2))	-0.399271*, 0.098215	-4.065292
D(Com. employees (-1))	-10.81424***, 6.141875	-1.760740
D(Com. employees (-2))	4.145081, 5.490605	0.754941
D(Import. G and S (-1))	0.084553**, 0.032336	2.614808
D(Import. G and S (-2))	-0.014081, 0.032023	-0.439722
D(L.n.interset. rate (-1))	0.327759*, 0.094397	3.472119
D(L.n.interset. rate (-2))	0.123189, 0.112078	1.099139
D(Government.Exp (-1))	0.245611*, 0.035960	6.830034
D(Government.Exp (-2))	-0.110144**, 0.053172	-2.071450
Dummies country (55)included	0.401121***, 0.225940	1.775341
ECT(-1)	-0.623495*, 0.195081	-3.196078
Summary statistic		
observations	104	
R-squared	0.691529	
F-statistic	16.06620	
Durbin-Watson stat	1.940919	
Akaike info criterion	2.208609	
Schwarz criterion	2.549382	
Test short run causality		
Wald Test: F-statistic Com. employees- lag(1,2)	1.658921	
Wald Test: F-statistic Import. G and S-lag (1,2)	3.585850**	
Wald Test: F-statistic L.n.interset . rate lag (1,2)	6.622654*	
Wald Test: F-statistic Government .Exp- lag (1,2)	25.67243*	
Test Normality		
Jarque-Bera	6.035062	

*, ** and *** represent statstical significance at 1, 5 and 10 percent level respectively, for normal distribution we drop Dummies country from model Jarque-Bera 3.661473 with probability 0.160295.CUSUM test for parameter stability, Bresusch-Godfrey LM test for Serial Correlation. Jarque-Bera test for normality

CONCLUSION

Over the decades following the oil shocks of the 1970s and 1990s, the in flexibility of the European countries labour market had been widely heralded as a major factor behind higher unemployment rates than that found in the united state. It was argued that strict employment protection, minimum wages and strong unionization kept unemployment high in Europe as it discouraged job creation and resulted in labour market 'hysteresis' as reflected by both higher rates and duration of unemployment. For our empirical investigation has produced some significant results which once interpreted, reinforce the belief that demand side factors can have profound effects on the employed population of a country/region.

From our estimates, it seems that unemployment is most affected by changes in the income distribution , while movements in foreign trade (export and import) expenditure have a significantly lower impact on

movements in unemployment. These estimates of the relative magnitudes of the differential effects also seem intuitively sensible. For example, the high unemployment intensities for consumption capture the labour-intensive nature of the services that represent the bulk of consumers' expenditure. By contrast, goods exports represent about 75% of euro area exports of goods and services, with manufactures comprising most of the goods exports. Manufactures tend to be higher-productivity and relatively less labour intensive, than services there by explaining why exports (and imports) display much lower estimated unemployment intensities than their domestic demand counterparts.

As recognized by the literature, income distribution may be one of the factors influencing unemployment. The findings suggest that a shift in income distribution towards labour leads to lower unemployment. Moreover, evidence regarding the way fiscal as well as monetary policies are conducted, suggests that in the EU region, expansionary type policies should be adopted to alleviate the persistent problem of unemployment. throughout this empirical investigation, the deflationary policies that have been fostered after the ratification of the Maastricht treaty are found to add to the existing problem, exerting further pressure on the EU economies.

If this analysis is correct, the prospects for European unemployment must be pessimistic. There is political and ideological aversion to economic liberalism throughout most of continental Europe, in particular among the bigger countries which influence EU policy. The financial consequences of ever-increasing government expenditure seem likely to restrain further growth of labour market intervention but Europe as a whole appears condemned to high unemployment as the cumulative effect of its past policies weaken market forces and inhibit the functioning of the labour market.

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