

## **'Voting With Their Feet' in Times of Crisis: The Case of Southern Europe**

**Christos Kallandranis**

Regent's University London, Inner Circle, Regent's Park, London, NW1 4NS, UK.  
[kallandrac@regents.ac.uk](mailto:kallandrac@regents.ac.uk)

**Socrates Karidis**

University of Bedfordshire Business School, Park Square, Luton, LU1 3JU, UK.  
[socrates.karidis@beds.ac.uk](mailto:socrates.karidis@beds.ac.uk)

**Abstract:** The paper assesses the effect of economic sentiment when combined with the fiscal surplus offered on a Tiebout like migration process taking place among potential southern European migrants in times of crisis. With an extended sample to incorporate the latest data available and by focusing on the region that was, and still is most heavily affected by the economic crisis, we employ a conditional logit model to find that locational choices are affected by public policies as those are offered to potential migrant's in the form of public spending and taxes, the perception of economic opportunities as they are expressed through economic sentiment indicators, while the effect of labor market conditions is consistent and highly relevant. As most of the countries of Southern Europe have entered fiscal adjustment programmes, the discussion becomes particularly relevant as it adds a new dimension to the on-going and heated debate of a significant brain drain from the south to the north of Europe.

**Keywords:** Migration, fiscal surplus, economic sentiment, Tiebout-Tullock hypothesis, conditional logit.

## I. Introduction

The effect of government policies on the locational choice of potential migrants as these are expressed through public spending and tax rates has been of interest for more than half a century. Tiebout's (1956) seminal paper attempts to address the issue of identifying consumer preferences, as this was expressed by Musgrave (1939) and Samuelson (1954), by proposing that those preferences are revealed by the choice. Individuals act as voters and choose to locate in areas or communities that best satisfy their preferences for public goods. Tullock (1971) extended the Tiebout thesis by including the individual's assessment of the tax burden associated with the relevant locational choice. The concept of fiscally induced migration has been present in the literature of public choice with most studies concentrating on state to state migration cases in the US and Canada (e.g. Islam, 1989, Clark et.al. 2002, Hunt and Mueller, 2004). Over the years and as the relevant literature grows, Tiebout's notion of local becomes national and the national becomes international. Nevertheless, little work has been done regarding the fiscally induced international locational choice in the context of the European Union. Although country members cannot restrict the flows of intra Union migration they do still control their taxes and social spending in most cases. Still, most studies concentrate on a specific country and mainly Germany and the UK (Fertig, 2001, Brucker and Schroder, 2007) and usually of main concern are the implications of the significant European enlargement in the previous decade.

Interestingly, the notion that people vote with their feet has not been empirically studied for the European Union for the period of the economic crisis and the years immediately prior to and following the crisis. A limited number of studies for the U.S. have regionally addressed the issue as a response to a major recession (Connaughton & Madsen, 2012; Walden, 2012, Cebula et.al., 2014). The present study seeks to fill the gap by empirically investigating this hypothesis using the most up to date migration data for the European Union. It first identifies the determinants of migration during the unprecedented economic crisis following the starting year of 2009. The effect of the crisis on migration patterns from southern to northern Europe is now coming into view.

Especially, one should expect that the economic disorder in the heavily hit southern countries of Europe has dramatically increased the number of people from Mediterranean countries migrating to the wealthier countries of the north in search of work. Indeed, according to OECD (2013), only between 2009 and 2011, the number of migrants from southern Europe moving to other EU countries increased by roughly 45%.

However, this is not an unprecedented phenomenon. The same occurred in the 1960s, when a previous generation of southern Europeans moved to the north and especially to Germany as guest workers during the post-war project to rebuild the destroyed German economy and in general the European continent. The difference is that in the previous wave, most migrants were guest low-skilled workers, while currently many of the new migrants from southern Europe are highly skilled workers who are pushed to leave due to the brutal recession, severe government spending cutbacks, and continuously deteriorating economic conditions.

We consider the Tiebout-Tullock framework to be the appropriate approach for this study. By employing the notion of fiscal surplus, a variable that has been used in the literature in an effort to incorporate Tullock's extension, we overcome what Oates (2006) refers to as a "puzzling failure" of the original Tiebout model where there is no real treatment of taxes. Moreover, we extend the Tiebout-Tullock hypothesis a step further by amplifying the usual question of whether fiscal factors, while controlling for other macroeconomic variables, are meaningful determinants of one's locational choice, by incorporating a new measure of potential economic opportunities offered to migrants.

Following our previous study (Kallandranis and Karidis, 2014), we empirically examine the notion that although fiscal policies are primarily assessed by the potential migrant looking for a destination that offers higher but cheaper benefits, people's expectations about the economic performance at home and abroad have a significant share in the decision making process. In particular, we empirically

test the existence of a positive and significant impact of Economic Sentiment, as a leading indicator, on people's motivation to relocate.

Economic Sentiment, as a measurement of the uncertainty or risk, is associated with the likelihood of job loss and/or severe income loss and attendant financial distress. Thus, in line with the Tiebout-Tullock interpretation of consumer-voter, we try to explore the possibility of an asymmetry in one's decision to migrate, not only *ex post*, i.e. after facing the tight conditions in his/her country of origin, but also *ex ante* via peoples' expectations regarding future economic conditions. In other words, people will discount the future, while employing efficiently any relevant information regarding the probability to migrate. This broadened interpretation of the Tiebout notion works in parallel with the traditional approach and enriches the range of the hypothesis itself in a way that makes it more comprehensive.

Besides the introduction of Economic sentiment as a leading determinant in the locational decision making process, this paper contributes to the existing literature by focusing on the European South, a region that was most heavily affected by the economic crisis. Even if the ongoing and heated discussion that is taking place regarding the potential brain drain from south of Europe to the north can be considered premature, a 33% country average annual increase in migration outflows from southern Europe has been recorded in the post 2009 period (OECD, 2014). This by itself signals potential changes in patterns and priorities and it is our intention to explore how the impact of the determinants of locational choice changes in this period. Finally, and in an effort to address an existing puzzle in the literature relating to the impact of unemployment differences between origin and destination (Davies et.al, 2001), we employ a different measure of labor market conditions, and instead of the traditionally used employment growth and unemployment rates we use the youth unemployment rate which to our knowledge is used in this context for the first time.

This paper is organized as follows: Section 2 revisits, in short, the recent literature on the empirical investigations of the Tiebout-Tullock hypothesis. In Section 3 we discuss our model, methodology and data. Section 4 presents our empirical results while Section 5 concludes.

## **2. Empirical Literature**

Although the empirical literature on the Tiebout-Tullock hypothesis is extensive, it predominately provides indirect tests on the deductive implications of the model. A major direction in the relevant literature has been the capitalization of local tax and service levels in house values (e.g. Oates, 1969, Edel and Sclar, 1974) and according to Farnham and Sevak (2006) these studies tend to find evidence of capitalization (negative for property taxes and positive for public services). A number of scholars have criticized capitalization studies with the argument being that they don't take into account housing supply or changes of community boundaries.

Similar to the focus of this paper, a smaller number of studies examine the direct effect of fiscal variables on migration, which is the main Tiebout-Tullock argument. The vast majority of these studies attest to the effect of public policy variables on migration within the borders of a nation. For example, recent papers by Cebula et.al. (2014) and Cebula and Nair-Reichert (2012) use US state level data and find that higher fiscal spending and income taxes will have a positive effect on state to state migration. In an attempt that is similar to ours the 2014 paper examines the relevant argument in the pre (2004-2006) and post (2009-2011) era of the 'Great Recession' (2007-2009) in the United States.

Day and Winer (2012) analyse the empirical relationship between internal migration and public policy in Canada. Sasser (2010) attests to the direct effects of public spending on the decision to migrate from one US state to another as those are revealed through economic conditions. She concludes that since the late 1980s the importance of housing affordability has increased while that of labor market conditions and per capita income has fallen.

Ashby (2007) investigates the impact of economic freedom on state to state migration and finds that relatively higher government expenditure and lower tax rates will have a positive impact on the choice of a potential migrant's destination. Finally, Davies et.al. (2001) employ a conditional logit model in order to estimate the impact of economic opportunities on state to state migration in the United States. They find that better economic opportunities, measured and unmeasured costs, and amenities, all affect the decision to relocate. Interesting extensions of Tiebout's notion have been provided by Munch (2011) who tries to identify the role of biodiversity on the migration decision within the Bavarian region and by Banzhaf and Walsh (2006) who argue that people vote with their feet in response to changes in environmental quality.

Examining the Tiebout-Tullock hypothesis in the context of international migration has not been that popular among scholars. A recent work by Kallandranis and Karidis (2014) concludes that, in the European Union context, the importance of public policies as they are expressed by public spending and tax policies, on the locational choice of a potential migrant, is followed by a significant impact of the, newly introduced, in the relevant literature notion, of consumer confidence.

Jackson et.al. (2013) examine the effect of specific spending priorities and social programmes on international migration flows and find that governments that wish to attract highly educated immigrants should focus on policies targeting spending on health and education. Liebig and Sousa-Poza (2006) argue that only tax competition in a country with a decentralized tax structure can possibly have an impact on international migration and find that it is highly improbable that decentralized tax systems (such as in the European Union) are likely to have a large impact on international migration. Finally, Peridy (2006) tries to explain recent trends in international migration into the European Union from 67 other origin countries based on the theory of welfare magnets and he finds public spending and educational levels to be of particular importance.

The issue of how people's relocation choice is affected in times of crisis has received little attention so far and is mainly focused on inter-state migration in the U.S. Besides Cebula et.al. (2014), Connaughton and Madsen (2012), using a sample of US states that suffered high unemployment rates during the recession (2007-2009), find significant differences between states in terms of the negative consequences on migration flows. Walden (2012) on the other hand, finds that migrants who moved to states with lower unemployment rates were already unemployed concluding thus that their decision was driven by the unemployment factor, rather than fiscal surpluses as it was the case traditionally.

### 3. Data and Modelling

We model the decision to migrate by incorporating Nakosteen and Zimmer's (1980) assumption that potential migrants seek to maximize the present value of net gains arising from their locational choice. Similar theoretical models developed by Houtenville and Conway (2001) examining the context of elderly migration, and Farnham and Sevak (2006) estimating a lifetime model of Tiebout sorting, are taken into consideration as we follow Kallandranis and Karidis (2014) in order to provide a theoretical background. We incorporate a random utility model with the individual utility function given by:

$$U_j^i = U^i(X_j, G_j) \quad (1)$$

where  $X_j$  and  $G_j$  are the vectors of private and public goods in country  $j$ , respectively. The variable  $j$  is defined as  $j=A,B$  with  $A$  being the country of origin and  $B$  the destination. For the full version of the model, see Kallandranis and Karidis (2014) and Karidis and Quinn (2006).

Individuals seek to maximize their utility assuming that their decision to migrate will not affect the distribution of public goods consumption or the distribution of tax burdens neither in the origin country nor at destination. The utility maximization process, as it is incorporated in the decision making process over the choice of a potential destination, will result in a situation where individual  $i$

will choose to migrate from country A to country B only if the indirect utility derived is higher by doing so than staying at home:

$$V_A^i \left( \rho_A, \frac{w_A}{P_A}, t_A, \frac{G_A}{P_A} \right) < V_B^i \left( \rho_B, \frac{w_B}{P_B}, t_B, \frac{G_B}{P_B} \right) \quad (2)$$

where  $P_j$  is the aggregate price level in country  $j$ ,  $w_j$  is the average wage,  $t_j$  is the tax rate, and  $p_j$  expresses the probability of being unemployed in country  $j$ , representing our effort to capture income uncertainty at home and abroad. We can assume that  $V_p < 0$ ,  $V_w > 0$ ,  $V_t < 0$ ,  $V_G > 0$ , implying that a person's utility increases with the wage rate, and the level of public goods provided while it decreases with higher uncertainty, and higher prices of private and public goods. The inclusion of fiscal policy arguments in the model implies that any relocation choice involves a Tiebout-Tullock process. The  $i$ th migrant derives utility by moving from country A to country B according to:

$$V_j^i = \beta_j' \mathbf{z} + e_j \text{ where } j = A, B \text{ and only if } V_B^i > V_A^i \quad (3)$$

Individual utilities cannot be observed but individual choices on migration ( $Y=0,1$ ) can and they reveal that if  $V_B^i > V_A^i$ , then  $Y=1$  (migrate), otherwise  $Y=0$  (non-migrate, in which case  $V_A^i > V_B^i$ ). If country B is chosen as the migration destination, then

$$Prob[Y = 1 | \mathbf{z}] = Prob[V_B^i > V_A^i | \mathbf{z}] \quad (4)$$

$\mathbf{z}$  is a vector of characteristics specific to the region. The conditional choice model will provide information on which characteristics in vector  $\mathbf{z}$  played a significant role in the individual's decision.  $Y$  will take the value of 1 for the chosen country and 0 for the ones he/she rejects. If we assume that  $Y^i$  is a random variable indicating the choice made, McFadden (1974) has proven, that under certain assumptions

$$Prob(Y_j^i = 1) = \frac{e^{\beta_j' \mathbf{z}_{ij}}}{\sum_{j=1}^J e^{\beta_j' \mathbf{z}_{ij}}} \quad (5)$$

By using the observed revealed choice as to which destination has been selected by the potential migrant, the McFadden model captures the unobserved attributes of the choice. It is a fixed effects model allowing us to identify the unobserved country specific factors that induced the migrant to choose a destination

When denoting by  $Y=1$  the individual's choice to move from country A to country B, equation 4 is proven to be equal to:

$$Prob[Y = 1 | \mathbf{z}] = Prob[\beta' \mathbf{z} + \varepsilon > 0 | \mathbf{z}] \quad (6)$$

where  $\beta$  is a vector of coefficients equal to  $\beta_B - \beta_A$

The main purpose of our paper is to examine the migration choice made by individuals in heavily affected by the recession countries of the European south: Cyprus, Greece, Italy, Spain and Portugal. As we consider all European Union potential destinations for the residents of these countries and taking into consideration that all moving restrictions are lifted when a country enters the Union, Cyprus enters the sample in 2004, while potential destination countries become an available choice the year they joined the Union. We use the period 2000-2012 as benchmark before we concentrate on the years of the crisis (2009-2012). This process results in a total of 765 available country pairs of origins and chosen destinations for the base model. The structure of the conditional choice model implies that it is irrelevant if we choose to include nonexistent country pairs and therefore the model is tested based on the availability of migration and explanatory data. The ability of the McFadden

model to weight observations is important as our dependent variable (Choice) is dichotomous representing the migration choice of a specific destination (where it takes the value of 1 for the chosen destination and 0 for the potential alternatives).

Migration flows are obtained from the International Migration Database of OECD as this is a source containing complete information on bilateral migration data for EU countries. Eurostat is our source for the explanatory variables explained below. Total general government expenditure and revenue, both as percentage of GDP, are used as fiscal policy variables. Spending and revenue variables enter our model as ratios. Papers by Buchanan and Goetz (1972), and Ott and Shadbegian (1993), Karidis and Quinn (2006) and Kallandranis and Karidis (2014), utilize similar “fiscal surplus” variables. Fiscal surplus variables are constructed for origin and destination countries and their difference (destination – origin). Results produced in this paper are consistent with the use of tax and spending separately as suggested by Fox et al. (1989). Based on the way our fiscal policy variable is constructed, we expect an increase in the difference of fiscal surpluses between the destination and home to increase the probability of migrating to that particular country and therefore to have a positive sign.

Different job opportunities in alternative destinations are also considered by potential migrants. The basic hypothesis is that with everything else constant people will chose to relocate to a destination where the unemployment difference between home and abroad will allow for better chances in securing a job. Prior empirical studies, regardless of whether the choice is made at the regional, state or country levels use the unemployment rate to capture that effect (e.g. Davies et.al., 2001, Peridy, 2006, Cebula et.al., 2014). We move a step further in our model and instead of using the traditional unemployment rate we adopt a different measure, the youth unemployment rate as it is provided by Eurostat. This is an effort to approach the ongoing and heated debate within the European Union about youth unemployment and alleged brain drain from the south to the north and to provide an alternative view on the issues that the use of the traditional measure has created in the empirical literature of international migration as it is explained in the results discussion of this paper.

Annual net earnings in Euros are used to capture the effect of income differences between home and abroad on the decision to migrate (Earnings). We choose to employ this variable instead of the traditionally used GDP per capita since using a proxy to labor income is more consistent with our theoretical model and it is supported by the Tiebout literature (e.g. Cebula 2012 and 2014, Kallandranis and Karidis, 2014). As we believe that the part of a person’s decision to migrate which is induced by the income factor is closely related to the labor income earned at home compared to what can potentially be earned abroad we expect this variable to have a positive sign.

We consider the inclusion of The Economic Sentiment Indicator (ESI), capturing the state of the economy, as it is produced by the Business and Consumer Surveys of the Economic and Financial Affairs of the European Union (The economic sentiment indicator is a composite indicator made up of the individual opinion balances of the five confidence indicators assuming different weights (Industrial Confidence Indicator 40%, Service Confidence Indicator 30%, Consumer Confidence Indicator 20%, Retail Trade Indicator 5%, and Construction Confidence Indicator 5%) as reported by the Directorate General for Economic and Financial Affairs DG ECFIN). However, as sentiment indicators are not part of the traditional Tiebout literature, we believe that including economic sentiment in a model that tries to explain a decision making process regarding migration requires further explanation.

The Directorate General for Economic and Financial Affairs (DG ECFIN) conducts regularly harmonized surveys for different sectors of the economies in the European Union (EU) and in the applicant countries. The data are derived from monthly surveys, addressed to representatives of the industry (manufacturing), the services, retail trade and construction sectors, as well as to consumers, which are conducted on behalf of the European Commission by various national institutes during the first ten working days of the month. The survey results are published in the first half of the following month and are seasonally adjusted. These surveys allow for comparisons among different countries’ business cycles and have become an indispensable tool for monitoring the evolution of the EU and the euro area economies, as well as developments in the applicant countries

The present study, following Kallandranis and Karidis (2014), explores how people's expectations, in the most hit by the crisis economies in Europe, regarding the difference in economic performances between the origin and the destination countries, are related to the formation of a migration trend. We call this the indirect effect on migration, and we believe that it goes beyond the traditional direct tests of how economic factors affect migration patterns. We circumvent the obstacle of measuring expectations, by utilising the Economic Sentiment Indicator (ESI), which relieves us from having to rely on ad hoc assumptions regarding the expectations' formation mechanism. We expect a positive and significant effect especially during periods of abnormal economic situation.

Standard economic theory does not assign particular significance to confidence per se, unless the latter is taken as a proxy for forward looking expectations of individuals. On the other hand, there is ample evidence indicating that markets and economic activity are subject to sentiment, i.e. the general attitude towards the wider prospects of an economy (e.g. Loewenstein, 2000; Lucey and Dowling, 2005 etc.). Sentiment normally may be just a current reflection of economic conditions that generally lead or concur with a recession, without necessarily being an independent cause of downturns. As a result, sentiment usually is just the mirror image of economic difficulty or prosperity, reinforcing rather than initiating business cycles.

According to Throop (1992), one of the most useful aspects of the index of sentiment is a measurement of the uncertainty or risk, associated with the likelihood of job loss and/or severe income loss, and attendant financial distress. Although this probability is likely to be correlated to some extent with current or expected economic conditions, it affects economic agents through different channels (e.g. save more, invest less). A higher probability of financial distress would probably lead individuals to relocate now in order to cover a possible future short fall in future income or personal opportunities. In this view, the most important dimension of the index of sentiment is its measurement of confidence or mistrust, rather than optimism or pessimism.

In this respect, following Kallandranis and Karidis (2014), a "less confident" agent would be keener to migrate, if he/she expects a lower quality of life either in terms of income/employment or in terms of public provisions in his/her home country as a consequence of a worsening economic environment and future policies. Hence, it might be assumed that the decision-maker is influenced by the effect of anticipated emotions on decision-making if they experience a negative outcome (Lucey and Dowling, 2005).

However we should note that the role of sentiment in the analysis of economic activity is rather controversial (see Drakos & Kallandranis, 2015). For instance, many authors have successfully incorporated sentiment in a consumption function (e.g. Katona, 1975; Cote and Johnson, 1998; Eppright et.al., 1998), while others are quite critical about its usefulness (e.g. Hymans et.al, 1970; Acemoglu and Scott, 1994; Carroll et.al., 1994; Fan and Wong, 1998).

Focusing on the first group, Howrey (2001) and Slacalek (2004) both recognize the benefit of consumer confidence data when real-time forecasters are trying to predict the actual releases of spending data. In this line, Souleles (2004) finds that consumer confidence, an integral part of ESI, is useful in forecasting the one-quarter-ahead consumption of individual households, even when controlling for other variables. The importance of consumer confidence is also indicated by Ludvigson (2004) and Vuchelen (2004), both suggesting that it has significant predictive power for future labour income growth and economic growth respectively.

However, it has been found that the forecasting power of sentiment indicator tends to be shadowed by other indicators during normal times, but it increases significantly in the presence of non-normal events like for instance in cases of big drops in economic activity due to a war (e.g. Troop, 1992, Fuhrer, 1993;). Allowing for the dramatic financial crisis to play the role of a non-normal period, we examine the choice to move relative to people's emotions and feelings regarding the future prospects of the economy. Due to the fact that economic sentiment indices may go beyond consumer sentiment indicators in predicting business cycle fluctuations we choose to incorporate the

composite Economic Sentiment Indicator instead of the Consumer Confidence Indicator as the former might foreshadow the overall outlook of the economy.

The overall cost of living in country  $j$  is also used in our model. Price level differences between home and abroad are captured by the inclusion of a Price Level Index (PLI) derived from Purchasing Power Parities against the European average. Cost variables have often been included in migration studies (e.g. Kallandranis and Karidis, 2014, Cebula and Nair-Reichert, 2012, Cebula and Alexander, 2006, Conway and Houtenville, 2001, Gale and Heath, 2000). As a higher cost of living decreases *ceteris paribus* the standards of living, we expect this variable to carry a negative sign.

Finally, the total number of tertiary education graduates per 1000 of population aged between 20 and 29 years of age gives us a good proxy of how tough the competition can be for people who will try to establish themselves in a new market. This is our Education variable. We argue that high skills in the destination country's labor market, will be interpreted as lowering the probability of being competitive for people who exhibit a moderately risk neutral or risk averse behavior. Therefore, we expect a higher percentage of University graduates abroad to be a discouraging factor for a potential migrant and therefore the expected sign for this variable is negative.

Given the framework provided, the migration decision is shown as:

$$Choice_{AB} = b_0 + b_1 Fiscal\ Surplus + b_2 Youth\ Unemployment + b_3 Earnings + b_4 ESI + b_5 PLI + b_6 Education + \varepsilon$$

Descriptives are shown in Table 1.

**Table 1 Descriptive Statistics**

Variable	Mean	Std. Dev.	Min	Max
<b>Fiscal Surplus Origin</b>	1.12	0.10	0.92	1.39
<b>Fiscal Surplus Destination</b>	1.05	0.08	0.86	1.32
<b>Fiscal Surplus Difference</b>	-0.07	0.11	-0.38	0.28
<b>Unemployment Origin</b>	25.27	9.38	9.00	55.30
<b>Unemployment Destination</b>	18.03	8.13	5.60	52.90
<b>Unemployment Difference</b>	-7.24	11.11	-47.30	29.40
<b>Earnings Origin</b>	15.48	3.56	8.03	20.43
<b>Earnings Destination</b>	21.12	8.65	4.29	37.35
<b>Earnings Difference</b>	5.64	9.45	-15.18	24.19
<b>Price Level Index Origin</b>	90.42	7.44	77.10	103.50
<b>Price Level Index Destination</b>	100.29	22.46	48.70	139.60
<b>Price Level Index Difference</b>	9.87	24.44	-54.80	55.90
<b>Economic Sentiment Origin</b>	98.56	9.67	79.91	117.09
<b>Economic Sentiment Destination</b>	100.16	9.09	74.75	117.09
<b>Economic Sentiment Difference</b>	46.88	8.22	-22.32	31.15
<b>Education Origin</b>	46.88	12.60	22.4	77.4
<b>Education Destination</b>	58.55	18.74	12.1	106.2
<b>Education Difference</b>	11.56	19.05	-58.7	64.2

#### 4. Empirical Results

As it is mentioned in the previous section migration patterns are analysed for the period 2000-2012 for five southern European countries: Cyprus, Greece, Italy, Portugal and Spain. We provide three sets of estimates: Firstly, the conditional logit model is estimated for the whole period and this establishes our baseline case. Then, we concentrate on the economic crisis effects focusing on the post-2009 period since 2009 is the year when all five countries entered a recessionary period following two consecutive quarters of negative real GDP growth. Finally, we try to investigate



changes in the importance of the different determinants as this is reflected on the size of the relevant coefficients as the crisis deepens i.e. for each of the 4 years following the beginning of the economic crisis. As it is mentioned above, the purpose of this analysis is twofold: Besides identifying those determinants that will affect the probability of a potential migrant to choose a specific destination instead of another, we want to examine the way that this decision process is being transformed when the origin country enters an era of economic uncertainty as this is expressed through a severe recession.

Table 2 presents the conditional logit regression results based on the whole sample period (2000-2012) where estimated coefficients, standard errors and marginal effects are reported. The model is well specified, while diagnostic tests confirm its overall significance. Overall, our estimation results are largely consistent with our expectations. All variables are statistically significant. As explained in the empirical formulation of our model, people will take into account potential competition in the labor market when they are considering probable destinations. A high level of University graduates, as it is expressed by the number of higher education graduates in the population, would be a discouraging factor in the process of choosing one's destination and therefore we anticipate the relevant variable to have a significantly negative impact on the probability of choosing the specific country. In line with prior literature (e.g. Peridy, 2006, Kallandranis and Karidis, 2014), this is confirmed in our results as an increase in the difference in higher education graduates between the destination and the origin country will decrease the probability of migrating to that particular country.

**Table 2 The Decision to Migrate, Dependent Variable is Choice**

Variable	2000-2012		
	Estimated coefficient	S.E	Odds Ratio
<b>Fiscal Surplus</b>	<b>0.052</b>	0.0002	<b>1.05</b>
Youth Unemployment	-0.028	0.0001	0.97
Price Level Index	-0.002	0.0001	0.99
Earnings	0.040	0.0002	1.04
Education	-0.028	0.0001	0.97
<b>Economic Sentiment</b>	<b>-0.021</b>	0.0002	<b>0.98</b>
Pseudo R-squared	0.09		
LR chi <sup>2</sup> (6)	664.82		
Log Likelihood	-3.61		

**Notes:** All variables are significant at the 1 percent level. LRs are expressed in thousands and LogLs in millions.

The difference in annual earnings between home and abroad carries the expected positive sign indicating that potential migrants are inclined to opt for destinations with higher annual earning and therefore greater assumed economic opportunities. The opposite is true for the cost of living as this is measured by the Price level index variable. An increase in the price level differential between home and abroad will discourage people from migrating to that particular destination as it is shown by the negative and significant result of the relevant variable. This is also consistent with prior findings at the state to state migration level (e.g. Cebula et.al., 2014, Cebula and Nair-Reichert, 2012).

Results are mixed in the literature when the role of unemployment is considered in models of place to place migration. There are studies where the unemployment rate comes out insignificant and/or with the unexpected sign (e.g. Greenwood, 1975, 1997, Kallandranis and Karidis, 2014) and others where the unemployment variable is of the expected sign (e.g. Davies et. al., 2001, Peridy 2006) indicating that higher unemployment in a potential destination is a discouraging factor when choosing. The result is puzzling and it is usually attributed to the fact that potential migrants do not value the

unemployment rate in a destination country as highly either because they are confident in their skills (in cases of skilled migration) or because they try to secure income through other means such as attractive fiscal surpluses.

We took a slightly different approach in this study. Instead of using the traditionally employed unemployment rate as a proxy of labor market conditions and in consistence with the ongoing and heated debate within the European Union about youth unemployment and alleged brain drain from the south to the north, we are using the youth unemployment rate differential between the origin and the destination. The result is consistent with our expectations in terms of sign, statistically significant, and shows an overall robust behaviour of our unemployment variable regardless of the period considered. An increased in the unemployment difference between a potential destination and the origin country will discourage potential migrants and will divert them to other destinations where labor market conditions are more favourable, a result that is stronger during the period 2009-2012 as it shown in the next section.

The variable of main interest in this study, and according to the Tiebout-Tullock migration literature, is fiscal surplus. As explained earlier, we expect it to have a positive sign, indicating that an increase in the fiscal surplus differential in favour of a specific potential destination will increase the probability of migrating to that particular country. In an international setting, the consumer-voter will compare the fiscal packages offered in alternative destinations, and will choose a destination that offers a better combination of government spending and taxes voting therefore by his/her feet. Our fiscal surplus variable is both significant and, with an odds ratio of 1.05, the largest in size and carries a positive sign confirming thus the existing literature where government spending and revenue are used to construct a surplus variable (e.g. Ott and Shadbegian, 1993, Kallandranis and Karidis, 2014) on people decision to migrate.

Focusing on the economic sentiment indicator, we would expect a positive sign in our basic model which does not turn out to be the case. However, it has been found in different studies that the forecasting power of this indicator tends to be shadowed by other indicators during normal times (Throop, 1992, Fuhrer, 1993). Therefore, we consider that, when the whole period is considered, the economic sentiment indicator effect on the probability of choosing a specific destination is outweighed by other variables such as fiscal surplus and unemployment. In the examined period the abnormal economic conditions cover only 30% of the distribution.

#### **4.1 The crisis: 2009-2012**

Next, we turn our attention to the elevated migration outflows from southern European countries to Northern ones in the post 2009 period. According to OECD's International Migration Outlook (2014) there is a 33% average annual increase in migration outflows from southern Europe with Greece and Spain topping the list (67% and 47% respectively). We therefore, estimate our model in the post-2009 period in an effort to isolate the patterns through which the migration choice is made in times of crisis. Although we do not expect the determinants of the decision to migrate to change, we anticipate a change in magnitude on the way potential migrants perceive economic opportunities. Regression estimates are presented in Table 3.

Our results are in line with our initial estimates in terms of signs and significance with the anticipated exception of the Economic Sentiment variable. Our fiscal surplus variable remains significant, substantiating once again the notion of people voting with their feet even in times of crisis. Its size more than doubles compared to the 2000-2012 period indicating that potential migrants will take into even greater consideration the fiscal package offered by potential destinations.

It is worth noticing that during the period under consideration most of the countries in our sample, one after the other, entered the era of fiscal adjustments, which are reflected in our fiscal surplus variable (there is an average decrease of about 8% in fiscal surpluses in southern European countries between 2009 and 2012 with Greece being on top with an adjustment of about 15%) and this leads to a potential conclusion that lowering fiscal surpluses can be an important point of consideration and a pushing factor for potential migrants.

**Table 3 The Decision to Migrate, Dependent Variable is Choice**

<b>2009-2012</b>				
Variable	Estimated Coefficient	S.E.	Odds ratio	
<b>Fiscal Surplus</b>	<b>0.128</b>	0.0003	<b>1.14</b>	
Youth Unemployment	-0.058	0.0002	0.94	
Price Level Index	-0.025	0.0002	0.97	
Earnings	0.066	0.0005	1.07	
Education	-0.033	0.0001	0.97	
<b>Economic Sentiment</b>	<b>0.148</b>	0.0004	<b>1.16</b>	
Pseudo R-squared	0.16			
LR chi <sup>2</sup> (6)	550.07			
Log Likelihood	-1.452			

**Notes:** All variables are significant at the 1 percent level. LRs are expressed in thousands and LogLs in millions

We argued in the previous section that our Economic Sentiment variable does not carry the expected sign because, as prior literature indicates, in normal times it is shadowed by other indicators. A closer look on how this indicator is constructed might shed light on both the initial outcome as well as its adjustment to our expectations in the second period considered. When economic conditions are worsening, the importance of a sentiment indicator comes into place as it encapsulates the impression of individuals regarding the general economic condition regardless of whether they are active in the supply or the demand side of the economy or both. Our economic sentiment indicator turns positive and significant during the crisis period, reflecting the fact that a potential migrant will compare the overall economic conditions in potential destinations with those of the origin country and will base the decision to migrate on that comparison. A better economic sentiment in a specific country will increase the probability of migrating to that destination.

The effect of the unemployment difference strengthens as we enter the economic crisis and this is consistent with our expectations since labor markets in the European south were the first ones to be hit by the recession and additional labor market reforms were imposed during the memorandum era. The relevant coefficient doubles in size indicating that potential migrants will consider, even more actively during the crisis, destinations where better employment opportunities are present. This is consistent with prior literature findings on migrants' response to labor market conditions in times of crisis (Walden, 2012).

Our education variable maintains its significance and negative sign confirming the initial finding that potential migrants take into account labor market competition in the destination country. Higher annual net earnings are still very attractive to potential migrants while the negative sign of the price level variable indicates that cost of living will be taken into serious consideration when choosing a destination during the post 2009 period. Estimates for both variables are larger in size in the post 2009 period strengthening thus their influence in the decision making process.

#### **4.2 The crisis: Annual Estimations**

We then identify the determinants of international migration originating in the countries of the European South by decomposing the 4 years following the beginning of the economic crisis in these countries. 2012 is the last year for which bilateral migration data exist in the OECD database so we try to examine our hypothesis regarding potential migrants' behavior for the years 2009, 2010, 2011, and 2012. Following Davies et.al. (2001) we employ the conditional logit model in each of these years and try to identify migration responses to economic conditions as those have been worsening and as

almost all the countries in our sample were, one after another, entering programmes of economic reforms, austerity, and fiscal adjustments. Results are presented in Table 4.

**Table 4 The Decision to Migrate, Dependent Variable is Choice**

The Decision to Migrate, Dependent Variable is Choice

Variable	2009			2010			2011			2012		
	Estimated coefficient	S.E	Odds Ratio	Estimated Coefficient	S.E.	Odds Ratio	Estimated Coefficient	S.E.	Odds Ratio	Estimated Coefficient	S.E.	Odds Ratio
surplus	<b>0.080</b>	0.0005	<b>1.08</b>	<b>0.205</b>	0.0009	<b>1.23</b>	<b>0.339</b>	0.0013	<b>1.40</b>	<b>0.133</b>	0.0010	<b>1.15</b>
Unemployment	-0.278	0.0006	0.97	-0.004	0.0005	0.99	-0.035	-0.0007	0.97	-0.043	0.0006	0.96
Level Index	0.002	0.0005	1.01	-0.059	0.0007	0.94	-0.068	0.0008	0.93	-0.083	0.0006	0.92
Prices	0.065	0.0011	1.07	0.156	0.0015	1.17	0.184	0.0017	1.20	0.153	0.0015	1.17
Economic Sentiment	-0.044	0.0003	0.96	-0.077	0.0003	0.93	-0.030	0.0003	0.97	-0.040	0.0003	0.96
Economic Sentiment	<b>0.031</b>	0.0015	<b>1.03</b>	<b>0.254</b>	0.0014	<b>1.29</b>	<b>0.408</b>	0.0011	<b>1.50</b>	<b>0.295</b>	0.0008	<b>1.34</b>
R-squared	0.14			0.21			0.30			0.26		
(6)	91.24			140.95			281.47			298.77		
Reliability	-0.286			-0.270			-0.331			-0.435		

All variables are significant at the 1 percent level. LRs are expressed in thousands and LogLs in millions

Exploring the effect of our main variables of interest, fiscal surplus and Economic sentiment proves to be quite revealing. The effect of a better fiscal surplus on the decision to migrate not only remains positive and significant but it is also strengthening substantially in size as the countries of the south go deeper into the economic crisis. It is very apparent from those results that regardless of whether public spending works as a pull factor or higher taxes are pushing people to different countries, the overall fiscal surplus offered by a potential destination is a very important determinant of the choice. As the crisis evolves, the probability of choosing a country where fiscal surpluses are more attractive than they are at home strengthens.

A similar conclusion is drawn when we look at the effect of Economic sentiment which assumes a new role during this period and its dynamic as a forward looking indicator becomes more apparent. With the exception of a small adjustment in 2012, the effect of Economic sentiment as a determinant of migration grows drastically every single year, showing thus a high level of persistence. The unemployment difference remains negative and significant while the rest of our control variables maintain their significance and anticipated signs with the effect of higher earnings and prices rising year after year until they adjust in 2012.

## 5. Concluding Remarks

A conditional logit model has been used in order to explore the determinants of intra EU migration from the European south in times of crisis. Our results show that a better fiscal surplus offered to potential migrants will play a decisive role in the locational choice. However, this result becomes even stronger when we isolate the effects of the economic crisis and the implementation of austerity plans in the countries under examination. In addition, we deviated from the traditional Tiebout literature by incorporating an overall economic sentiment indicator and an alternative unemployment measure. Economic opportunities, as expressed through the forward looking economic sentiment indicator, along with youth unemployment seem to have a significant impact on the probability of selecting a country as destination. Other factors like the cost of living, labor market competition through education and potential earnings are also important.

Our results might prove particularly useful, especially in a year where most of the countries of the European south are holding general elections in which existing austerity and fiscal adjustment programmes are highly challenged. In addition, the case of free movement within the European countries has been put under criticism due to the worsening situation around the globe and following the dramatically increasing waves of refugees from selected war zones close to the European periphery.

We consider the ongoing and heated discussion about the application of memorandums of agreement, austerity and fiscal adjustment programmes to be of particular importance, not only in terms of shaping a country's economic future but also in the context of affecting migration choices.

Thus, a more extended and informative database of bilateral migration flows will allow researchers to assess the importance of all economic adjustments undertaken by the countries of the European south. It will help to shed light to the question of whether these reforms are part of an adjustment process aiming at improving the overall economic conditions and creating further opportunities or are instead contributing to the weakening of the South's labor force by inducing outgoing migration of highly skilled individuals to northern Europe, where economic opportunities are considered to be more attractive.

## References

Acemoglu, Daron, and Andrew Scott. 1994. "Consumer Confidence and Rational Expectations: Are Agents' Beliefs Consistent with the Theory?" *The Economic Journal* 104:1-19.

Ashby, Nathan J. 2007. "Economic Freedom and Migration Flows Between U.S. States." *Southern Economic Journal* 73:677-697.

Banzhaf, Spencer H. and Randall P. Walsh. 2008. "Do People Vote with their Feet? An Empirical Test of Tiebout's Mechanism." *American Economic Review* 98:843-863.

Brucker, Herbert, and Philipp J. H. Schroder. 2007. "International migration with Heterogeneous Agents: Theory and Evidence." *Institute for Employment Research Discussion Paper* 2007:27.

Buchanan, James M., and Charles J. Goetz. 1972. "Efficiency limits of fiscal mobility: an assessment of the Tiebout model." *Journal of Public Economics* 1:25-43.

Carroll, Christopher D., Jeffrey C. Fuhrer, and David W. Wilcox. 1994. "Does Consumer Sentiment Forecast Household Spending? If so, why?" *The American Economic Review* 84:1397-1408.

Cebula, Richard J., and Gigi M. Alexander. 2006. "Determinants of Net Interstate Migration, 2000-2004" *Journal of Regional Analysis and Policy* 36:116-123.

Cebula, Richard J., and Usha Nair-Reichert. 2014. "Migration and Public Policies: A Further Empirical Analysis." *Journal of Economics and Finance* 36:238-248.

Cebula, Richard J., Usha Nair-Reichert, and Christopher K. Coombs. 2014. "Total State In-Migration Rates and Public Policy in the United States: A Comparative Analysis of the Great Recession and the pre- and post-Great Recession Years." *Regional Studies, Regional Science* 1:102-115.

Clark, Ximena, Timothy J. Hatton, and Jeffrey G. Williamson. 2002. "Where do US immigrants come from, and why?" *NBER Working Paper* w:8998.

Connaughton, John E., and Ronald A. Madsen. 2012. "U.S. State and Regional Economic Impact of the 2008/2009 Recession." *The Journal of Regional Analysis and Policy* 42: 177-187.

Conway Smith, Karen and Andrew J. Houtenville. 2001. "Elderly migration and state fiscal policy: evidence from the 1990 census migration flows." *National Tax Journal* 54:103-123.

Côté, Denise, and Marianne Johnson. 1998. "Consumer Attitudes, Uncertainty and Consumer Spending." *Bank of Canada, Working paper* 98-16.

Davies, Paul S., Michael J. Greenwood, and Haizheng Li. 2001. "A conditional logit approach to US state to state migration." *Journal of Regional Science* 41:337-360.

Day, Kathleen M., and Stanley Winer. 2012. "Interregional migration and public policy in Canada: an empirical study" Vol. 223. McGill-Queen's Press-MQUP.

- Dowling, Michael M., and Brian M. Lucey. 2005. "The Role of Feelings in Investor Decision-Making." *Journal of Economic Surveys* 19:211-237.
- Drakos, Konstantinos and Christos Kallandranis. 2015. "A Note on the Effect of Terrorism on Economic Sentiment." *Defence and Peace Economics*. DOI:10.1080/10242694.2015.1016295
- Edel, Matthew, and Elliott Sclar. 1974. "Taxes, spending, and property values: Supply adjustment in a Tiebout-Oates model." *The Journal of Political Economy* 82:941-954.
- Eppright, David R., Nestor M. Arguea, and William L. Huth. 1998. "Aggregate Consumer Expectations Indexes as Indicators of Future Consumer Expenditures." *Journal of Economic Psychology* 19:215-235.
- Fan, Chengze Simon, and Phoebe Wong. 1998. "Does Consumer Sentiment Forecast Household Spending? The Hong Kong case." *Economics letters* 58:77-84.
- Farnham, Martin, and Purvi Sevak. 2006. "State fiscal institutions and empty-nest migration: Are Tiebout voters hobbled?" *Journal of Public Economics* 90:407-427.
- Fertig, Michael. 2001. "The economic impact of EU-enlargement: assessing the migration potential." *Empirical Economics* 26:707-720.
- Fox, William F., Henry W. Herzog, and Alan M. Schlottman. 1989. "Metropolitan Fiscal Structure and Migration." *Journal of Regional Science* 29:523-536.
- Fuhrer, Jeffrey C. 1993. "What Role Does Consumer Sentiment Play in the US Macroeconomy?" *New England Economic Review* 02:32-44.
- Gale, Lewis R., and Will C. Heath. 2000. "Elderly Internal Migration in the United States Revisited." *Public Finance Review* 28:153-170.
- Greenwood, Michael J. 1975. "Research on Internal Migration in the United States: A Survey" *Journal of Economic Literature* 13:397-433.
- Greenwood, Michael J. 1997. "Internal Migration in Developed Countries", in M.R. Rosenzweig and O. Stark (eds.), *Handbook of Population and Family Economics*, Elsevier, Amsterdam.
- Howrey, Philip E. 2001. "The Predictive Power of the Index of Consumer Sentiment." *Brookings papers on economic activity* 1:175-216.
- Hunt, Gary L., and Richard E. Mueller. 2004. "North American migration: returns to skill, border effects, and mobility costs." *Review of Economics and Statistics* 86:988-1007.
- Hymans, Saul H., Gardner Ackley, and F. Thomas Juster. 1970. "Consumer Durable Spending: Explanation and Prediction." *Brookings Papers on Economic Activity*, 2:173-206.
- Islam, Mohammed N. 1989. "Tiebout hypothesis and migration-impact of local fiscal policies." *Public Finance* 44:406-18.
- Jackson, Aaron L., David L. Ortmeier, and Michael A. Quinn. 2012. "Are immigrants really attracted to the welfare state? Evidence from OECD countries." *International Economics and Economic Policy* 1-29.
- Kallandranis, Christos and Socrates Karidis. 2014. "Assessing the Effect of the Consumer-Voter Sentiment on Tiebout-Like Migration.", *Global Economy Journal* 14:31-55.

- Karidis, Socrates, and Michael A. Quinn. 2006. "Fiscal harmonization and migration in the European Union." *Brussels Economic Review* 49:333-352.
- Katona, George. 1975. "Psychological Economics." Elsevier Scientific Publishing, New York.
- Liebig, Thomas, and Alfonso Sousa-Poza. 2006. "The influence of taxes on migration: evidence from Switzerland." *Cambridge Journal of Economics* 30:235-252.
- Loewenstein, George. 2000. "Emotions in Economic Theory and Economic Behavior." *American Economic Review* 90:426\_432.
- Ludvigson, Sydney C. 2004. "Consumer Confidence and Consumer Spending." *Journal of Economic Perspectives* 18:29-50.
- McFadden Daniel. 1974. "Conditional Logit Analysis of Qualitative Choice Behavior" in *Frontier in Econometrics*, edited by Paul Zarembka, 105-142. New York and London: Academic Press.
- Münch, Angela. 2011. "In search for Tiebout's Mechanism "Vote with their Feet" in Bavaria." *Jena Economic Research Papers*, No. 2011,023.
- Musgrave, Richard. 1939. "The voluntary exchange theory of public economy." *The Quarterly Journal of Economics* 53:213-237.
- Nakosteen, Robert A., and Michael Zimmer. 1980. "Migration and income: the question of self-selection." *Southern Economic Journal* 46:840-851.
- Oates, Wallace E. 1969. "The effects of property taxes and local public spending on property values: An empirical study of tax capitalization and the Tiebout hypothesis." *The Journal of Political Economy* 77:957-971.
- Oates, Wallace E. 2006. "The many faces of the Tiebout model." In *The Tiebout Model at Fifty: Essays in Public Economics in Honor of Wallace Oates*, edited by William A. Fischel, 21-45. Cambridge MA: Lincoln Institute of Land Policy.
- Organization for Economic Co-operation and Development (OECD). 2015. *International Migration Database*. Last Accessed July 31. <http://stats.oecd.org/>
- Organization for Economic Co-operation and Development (OECD). 2014. "International Migration Outlook", OECD Publishing.
- Organization for Economic Co-operation and Development (OECD). 2013. "International Migration Outlook", OECD Publishing.
- Ott, Attiat. F. and Ronald Shadbegian. 1993. "Fiscally Induced Migration and Public Goods Provision: An Empirical Test of the Buchanan-Goetz Model" *Cahiers d'Economie* 7:36-57.
- Peridy, Nicolas J. 2006. "Welfare magnets, border effects or policy regulations: what determinants drive migration flows into the EU?" *Global Economy Journal* 6:1-35.
- Samuelson, Paul A. 1954. "The pure theory of public expenditure." *The review of economics and statistics* 36:387-389.
- Sasser, Alicia C. 2010. "Voting with their feet: Relative economic conditions and state migration patterns." *Regional Science and Urban Economics* 40:122-135.

Slacalek, Jiri. 2004. "Forecasting Consumption." Working paper, German Institute for Economic Research, DIW.

Souleles, Nicholas S. 2004. "Expectations, Heterogeneous Forecast Errors, and Consumption: Micro Evidence from the Michigan Consumer Sentiment Surveys." *Journal of Money, Credit and Banking*, . 36:39-72.

Throop, Adrian W. 1992. "Consumer Sentiment: Its Causes and Effects." Federal Reserve Bank of San Francisco, *Economic Review* 1:35-59.

Tiebout, Charles M. 1956. "A pure theory of local expenditures." *The Journal of Political Economy* 64:416-424.

Tullock, Gordon. 1971. "Public decisions as public goods." *The Journal of Political Economy* 79:913-918.

Vuchelen, Jef. 2004. "Consumer Sentiment and Macroeconomic Forecasts." *Journal of Economic Psychology* 25:493–506.

Walden, Michael L. 2012. "Explaining Differences in State Unemployment Rates During the Great Recession." *The Journal of Regional Analysis and Policy* 42:251-257.