

The Propensity to Emigrate from the Perspective of the Household – a Comparison over Time between two Kosovan Data Sets

Abstract

The aim in this paper is to analyse the stability over time of a household planning to send at least one additional member abroad due to dissatisfaction with the national economic situation by replicating the model in Kotorri (2010). The empirical analysis is based on the 2007 data set and a 2008 data set. Both data sets are based on the same random sampling framework. An important political change occurred during this period, but the time difference between the two samples is very short, only 1 year. The independence of Kosova was declared in February 2008 just before the second survey was conducted. The performance of the economic fundamentals in Kosova was mixed during the period under investigation. Given that the model is non-linear, the overall time stability is analysed by deploying an analog to the Chow test used in linear models. Later results from probit estimations of the two years are analysed by variable. An extension of the Blinder-Oaxaca decomposition for non-linear models is applied as a robustness check for the overall time stability and to decompose it into several components. A detailed decomposition by variable contributions for non-linear models has not yet been developed. Therefore, the samples were pooled and the variables interacted with the year dummy to analyse the statistical significance of the stability of the slope coefficients separately. These results are compared with those from the statistical difference of the mean value of variables and the comparison of the statistical significance of the estimated coefficients between the two samples. The results provide mixed support for the time stability of the structural relationship. While the results of the techniques deployed indicate that overall the structural relationship is not stable over time, the modified Blinder-Oaxaca decomposition results suggest that the overall differential is relatively small and statistically insignificant. The rest of this research is structured as follows: section 2 examines the argument that there is an a priori case that the model in Kotorri (2010) may be appropriate in examining the stability over time of the propensity to emigrate, given the change in the political situation during the period 2007-2008. Section 3 provides a summary of the sampling technique and is followed by a section which provides a descriptive analysis of migration characteristics of the households for the two data sets. The empirical analysis of time stability is elaborated in section 5. The following sections further investigate the time stability by respecifying the model and using different techniques. The last section concludes.

1. Introduction

The aim of this research is to analyse the stability over time of migration behaviour as modelled in Kotorri (2010). For this purpose, this paper replicates the analysis in that paper by estimating the model of the propensity to emigrate using a 2008 data set. Both of these data sets, the 2007 and the 2008, were based on the same sampling framework (see Kotorri, 2010 for details). An important political change occurred during this period, but the time difference between the two samples is very short, only 1 year. The independence of Kosova was declared in February 2008 just before the second survey was conducted, thus the 2007 sample is from the period before the

Declaration of the Independence, while the 2008 sample is from the period after. Therefore, some differences between the two years may be anticipated in households' attitudes towards the future economic situation resulting from the resolving of the political status of Kosova. However, as will be explained in the following paragraphs, a variable that captures the effect of households' expectations was included in the model for the propensity to emigrate developed in the paper.

The model in Kotorri (2010) deploys an expected utility maximisation framework to model household decision-making behaviour regarding migration using the same broad assumptions. There, the households are modelled as maximising utility from current and future consumption, including in their choices the possibility of a) sending at least one or one additional member abroad, or b) not sending any or any further members abroad. This is conditional on the household income constraint. The households as the decision-making unit are assumed only to choose to send members abroad if the resulting positive effects offset the negative effects.

Households are considered to be forward-looking and to discount future utility. Given this assumption, the model included an attitudinal variable, modelled as a series of dummies, based on a question that asked the household's current view of its economic situation compared to one year ago. The answer to this question may be considered to be a forward-looking opinion (of the near future) if expectations are adaptive. The dummy variable for whether the household head perceived the household economic situation to have worsened compared to the previous year was significant in the estimations presented there. Given that any changes in households' perceptions regarding their economic situation, measured in this way, are controlled for in the relationship, I test the hypothesis of stability of the model.

As will be elaborated in Section 2, it is important to note that the performance of the economic fundamentals in Kosova was mixed during the period under investigation. Real economic GDP increased, mostly following an increase in public investment. This, however, was accompanied by an increase in inflation and in the trade deficit given the strong reliance on imports. Remittances and foreign assistance, though, have remained stable.

In the literature reviewed in Kotorri (2010) and to the best of my knowledge, the stability of this aspect of migration behaviour has not previously been considered for any country. Therefore, the analysis presented in this research is the first to examine the stability over time of this relationship.

Although admittedly a period of some political and economic change in Kosova, the time between the data collection was very short and if the structural relationship is not found to be stable this raises the question of whether such instability in the determinants of emigration behaviour are also a feature in other countries.

The rest of this research is structured as follows: section 2 examines the argument that there is an a priori case that the model in Kotorri (2010) may be appropriate in examining the stability over time of the propensity to emigrate, given the change in the political situation during the period 2007-2008. Section 3 provides a summary of the sampling technique and is followed by a section which provides a descriptive analysis of migration characteristics of the households for the two data sets. The empirical analysis of time stability is elaborated in section 5. The following sections further investigate the time stability by respecifying the model and using different techniques. The last section concludes.

2. The Context of Comparison

According to the analysis in Kotorri (2010), the propensity to emigrate is higher among households that perceive the current economic situation of the household to have worsened compared to the previous year. This variable is significant throughout all model specifications. This provides support for the view that expectations of their economic situation are important for the decision making of Kosovan households on migration and these do not simply reflect current income (which is included in the model separately). These variables may be seen as forward looking if expectations are adaptive, or indeed may be a proxy for rational forward-looking expectations in a situation of a unique political change. Under such circumstances, households may have no prior knowledge on which to draw to form rational expectations.

Recently Kosova has undergone an important political change; it declared as an independent state. This Declaration of Independence may have affected households' perceptions on their future economic situation given that important investment projects, attractiveness to FDI, World Bank Support Programmes etc. were conditioned by the resolution of Kosova's final political status. Consequently, the population may have perceived that independence would mean the start of a new and more prosperous economic phase. As the descriptives in Section 4 show, the distribution of households by this variable is dissimilar between the two years, with the proportion of households

that perceive their economic situation to have improved being larger in 2008, but the proportion of households that perceive the economic situation to have remained the same has decreased. However, the proportion of households that perceive the economic situation to have worsened is similar.

As shown in Table 1, despite the political change, the economic performance during the period of investigation was mixed. The economy expanded in real terms at 5.4 per cent in 2008 from the 3.9 per cent level in 2007 mainly based on large public investments. This amounted to €500 million, which is approximately three times the level in 2007 (IMF, 2008). The GDP deflator increased from 3.3 per cent to 5.4 per cent in 2008. This increase was in part the result of increases in international food prices. The trade deficit was still immense and increased by €300 million in 2008, probably reflecting the increase in imports induced by the additional investment in public infrastructure. The unemployment rate remains high at above 40 per cent and the labour market requires approximately 30,000 new jobs each year in order for this to stabilise, given the natural growth of population in Kosova (MTEF 2008). According to the IMF's medium-term macroeconomic projections, real economic growth is expected to continue at its five per cent level throughout the period 2008-2011 (IMF, 2008). If the public infrastructure investments prove to contribute to cost reductions and hence enhanced competitiveness for businesses, this will stimulate import substitution and increased export. So, the current account deficit will be reduced. Improvements of the economic performance projected by IMF (2008) are supported by a Riinvest study with 500 small and medium enterprises conducted in 2008. Results from this study suggest that 59 per cent of the businesses expect better business conditions in the future.

Table 1. Main macroeconomic indicators in Kosova (2005 – 2008)

Macroeconomic Indicators	2005	2006	2007	2008
Population (in thousands)	2,070	2,100	2,126	2,162
GDP (in mil. €)	2,977	3,099	3,425	3,739
Real GDP growth (in per cent)	2.0	3.9	3.9	5.4
GDP per capita	1,438	1,476	1,611	1,759
GDP Deflator	0.7	0.2	3.3	5.4
CPI (in per cent)	-1.4	1.5	4.2	9.4
Trade balance (in mil. €)	-1,053	-1,134	-1,129	-1,588

Current account (after foreign assistance)/GDP (in per cent)	-13.4	-14.00	-17.00	-22.2
Remittances/GDP (in per cent)	9.2	11.6	12.6	11.9
Foreign assistance/GDP (in per cent)	12.3	10.3	8.7	8.8

Source: Column 1 and 2 based on IMF (2007); column 3 and 4 based on IMF (2009)

Note: 2006 and 2006 are preliminary estimations, while 2007 and 2008 are projections.

Given the arguments above, it is expected that households' perceptions about their future economic situation may have altered following the political change and the descriptives indeed show a change in current perceptions. The model in Kotorri (2010) controls for such changes. If this variable appropriately captures the change in expectations of the immediate future economic climate then we may argue that we expect that model has been stable over time. So, this estimation explores if this later period indicates whether the model used in Kotorri (2010) shows stability, or whether there are structural changes in the relationship over this period.

3. Sampling Technique

The analysis in Kotorri (2010) is based on a survey conducted by the Riinvest Institute in July 2007 comprising of a sample of 1,384 Kosovar households. The sample used in this research consists of a smaller sample of 400 Kosovar households stemming from a survey conducted in December 2008. This second survey was conducted as part of the research project "*The Impact of Remittances on Educational Attainment in the Home Country - A Comparative Analysis of Kosova and Bosnia*", funded by the Austrian Science and Research Liaison Offices Ljubljana/Slovenia and Sofia/Bulgaria (ASOs). To ensure the compatibility of the data sets for the comparative analyses in this research with that used in Kotorri (2010), the questionnaire used in this latter survey was designed in a manner that it includes identical questions to enable the same variables to be used as in the model in Kotorri (2010).¹ The same sampling technique was used for the second Kosovan survey as for the Riinvest survey in July 2007; the reason for this is that there has been no recent census of population in Kosova.

¹ Ensuring compatibility between the data sets was possible since I was part of the team designing the questionnaires both for the Riinvest survey and the surveys conducted for the purposes of the research project "*The Impact of Remittances on Educational Attainment in the Home Country - A Comparative Analysis of Kosova and Bosnia*".

Thus the second survey provides comparable information with the survey used in Kotorri (2010). It provides demographic information both on the head of the household and other household members and information on the socio-economic status of the household. The key question is again households' plan to send at least one or one additional member abroad for economic reasons.

In the following sections, descriptive and empirical analyses will be provided for the model on the propensity to emigrate using the 2008 data set. The estimates will be compared with those from Kotorri (2010).

4. Descriptive Analysis - Comparison between the Kosova 2007 and Kosova 2008 data set using Simple Descriptive Analysis²

In summary, the two data sets stem from two surveys conducted in Kosova in different years based on the same sampling framework. Given that they are based on random samples, some differences between the two are expected. As expected the two samples are different with regard to the variable controlling for households' perceptions on their future economic situation. However, they are largely similar and they support the view that the desired sampling framework was achieved. These data sets therefore provide a sound basis for investigating the stability over time of the economic model of households' emigration behaviour.

5. Comparison of the Empirical Results between the Kosova 2007 and Kosova 2008 data set Model 1a Including Migrant Members in the Household (Table 3)

This section replicates the empirical analysis of Kotorri (2010) using the 2008 sample and a comparison is then made of these results with those using the 2007 sample. As in Kotorri (2010), the model will take the household view where the household is defined as including migrant members. To illustrate the implication of this definition of household size for other variables an example will be given: the variable TSU16 – total share of those under the age of 16 - is defined as the sum of the number of those under the age of 16 living in Kosova and those living abroad divided by the sum of household members living in Kosova and those living abroad. The focus of this research is to analyse the stability of the emigration behaviour over a short period of time. The estimations from this model will be compared for the two years. To consider if remittances have a different effect from other

² For brevity, only a summary of the descriptive analysis will be provided.

sources of income they are excluded from both household income at home and household income abroad and included separately. For each model two alternatives are deployed with regard to the definition of remittances. They are introduced separately first as a continuous variable (Model 1a). Due to possible inaccurate responses for the total amount of monthly remittances (because households were concerned at revealing the true size of remittances received), the variable is also introduced as a dummy variable taking values 1 for remittance-recipients, zero otherwise (Model 1b).³

The assumption on the stability over time of the emigration propensity will be tested using an analog to the Chow test used in linear models. Similar to the Chow test, a rejection of the null implies that we reject the equality of the coefficients and/or the equality of error variances unless the latter is ruled out by a pre-test. Demaris (2004) argues however that it is not simple to test for equal variances in non-linear models. Therefore, the approach in Demaris (2004) is deployed of a likelihood ratio test without a pre-test. Also, it should be noted that in this analysis the major focus is to test whether the relationship has remained stable over time. If differences are found, irrespective of the source of differences, that is, differences in coefficients or unobserved heterogeneity, the result implies that the relationship has not remained stable over time. To conduct this test the model will be estimated for both years separately and then for the combined data set including a year dummy to distinguish between the data sets. The null hypothesis implies that the coefficient effects are the same across the two years. This follows a chi square distribution with degrees of freedom equal to the difference in the number of parameters estimated in the combined versus the separate models.

The formula for the chi square is as follows:

$$\chi^2 = -2 \ln L_c - [-2 \ln L_1 + (-2 \ln L_2)]$$

where $\ln L_c$ is the fitted log-likelihood for the combined sample, $\ln L_1$ is the log-likelihood in the 2007 model (Table 2) and $\ln L_2$ is the log-likelihood in the 2008 model (Table 2).

Substituting the values from the estimated models in the above formula gives the following:

$$\chi^2 = 2 * 656.96 - [2 * 514.86 + (2 * 122.05)] = 40.1$$

The formula for the degrees of freedom is as follows:

³ Non-response was not an issue as all households that have declared receiving remittances have also reported their amount.

$$DF = (\text{Number of parameters in 2007 Model} + \text{Number of parameters in 2008 Model}) - \text{Number of parameters in combined Model}$$

Substituting the values from the estimated models in the above formula gives the following:

$$DF = (16 + 16) - 17 = 15$$

Thus the χ^2 is 40.1 and has 15 degrees of freedom, which is greater than $\chi^2_{(15)}$ at the 1 per cent level of 30.58 and the null hypothesis of stability over time of this relationship is rejected, that is, the coefficient effects are not the same between the two years (or there is a difference in the variances). Below, the differences between respective estimated coefficients in the two years will be compared to consider where such differences are arising.

The empirical results⁴ suggest that there are some differences in emigration behaviour between the two years in terms of the effects of particular variables. The marginal effects for the empirical results in Table 2 are calculated at the mean values of the variables. There are some difficulties in comparing the results, given the use of the probit model. Given there are some differences in the mean values between the samples, it needs to be remembered that the marginal effects of the variables between the two samples are not fully comparable, as they are based on different values for the independent variables, since they are at the means of the respective samples. Also the second sample size was considerably smaller than the first, which may have some effect on the significance of the variables, although at over 200 the size of the later sample was not small. Therefore, the discussion of differences will focus on the direction of the effect and level of significance of the marginal effects. Variables that are insignificant in both models will not be considered in the comparison. The comparison takes the results from the Kosova 2007 sample as the benchmark whenever not explicitly emphasised.

Differences in the estimates of the determinants of the emigration decision between the two years appear with regard to all variables in some respect. In non-linear models, the marginal effects of the term and squared term cannot be interpreted separately as 'other things being equal' does not apply (Norton et al., 2004).⁵ Therefore, the marginal effect of the term and the squared term can only

⁴ For ease of comparison, the empirical results using the 2007 data set are provided in Table 3.

⁵ Unfortunately, this approach was not considered in Kotorri (2010). However, in this study this is provided for both data sets.

be interpreted as the weighted sum of the marginal effects of the two interacted variables. The weighted sum of the marginal effects of total income at home is different between the two years. It is negative and highly significant in 2007, while positive but insignificant in 2008. There is also a difference in the estimates of education between the two years. In both years, the marginal effect of education has a negative impact supporting the view that the better educated may benefit more from higher employment probabilities and the wage differentials at home, however this is significant only in 2007 (however, the marginal effects are of approximately the same magnitude).

The results from the two estimations are dissimilar with respect to the marginal effects of the variables controlling for location-related characteristics. The marginal effect of the variable controlling for the regional unemployment rate has the expected positive impact in both years, but is significant only in 2008 (and the marginal effect is estimated to be considerably higher). Additionally, there is a difference between the estimates with regard to the variable controlling for the type of area. It has the expected positive sign in both years; but it is significant only in 2007.

There is some similarity between the two years in the marginal effect of households' perceptions of changes in their economic situation (*Worsen*). It is highly significant and, as expected, it has a positive impact on the probability of planning the emigration of a household member in both years. However, the estimated marginal effect in 2008 is approximately twice as large as in 2007 (Table 2).

Table 2 Emigration Propensity – Model 1 Including Household Migrant Members

Emigration Propensity	Remittances as a continuous DV				Remittances DV			
Variable	Kosova 2007		Kosova 2008		Kosova 2007		Kosova 2008	
Definition of remittances	Model 1a)		Model 1a)		Model 1b)		Model 1b)	

	Marginal effects	P> t	Marginal effects	P> t	Marginal effects	P> t	Marginal effects	P> t
Household Characteristic								
<i>Weighted sum of the marginal effects of</i>	-9.4E-04	0.01	0.6E-05	0.75	-9.2E-04	0.01	1.3E-04	0.49
<i>Weighted sum of the marginal effects of</i>	1.3E-04	0.61	1.6E-03	0.08	1.7E-06	0.99	1.7E-03	0.06
TR_i	-1.5 E-03	0.28	9.4E-04	0.64				
RDV_i					0.06	0.38	0.23	0.01
$TSU16_j$	1.3 E-03	0.44	-2.0E-03	0.66	1.3E-03	0.42	-2.6E-03	0.59
$TSWA_i$	2.6 E-03	0.1	1.8E-03	0.71	2.6E-03	0.09	1.2E-03	0.85
$TSFWA_j$	-9.6E-04	0.44	-2.3E-03	0.16	-9.7E-04	0.43	-2.4E-03	0.14
Edu_i	-0.16	0.01	-0.03	0.68	-0.16	0.01	-0.03	0.67
<i>Improve</i>	0.02	0.61	-0.03	0.63	0.02	0.72	-0.05	0.49
<i>Worsen</i>	0.16	0.01	0.31	0.01	0.16	0.01	0.29	0.01
Psychic Income								
TS_i	6.0E-03	0.39	7.8E-03	0.49	5.1E-03	0.47	6.3E-03	0.57
$Network_i$	-0.03	0.61	-0.18	0.11	-0.04	0.42	-0.24	0.01
$TNuc_i$	-0.013	0.55	0.03	0.56	-0.013	0.54	0.03	0.53
Location-related characteristic								
RU_j	8.1E-04	0.72	0.01	0.01	7.6E-04	0.73	9.7E-03	0.01
TA_j	0.11	0.01	0.09	0.12	0.1	0.01	0.07	0.19
Number of observations	922		255		921		255	
LR chi2(16)	98.12		46.12		96.4		54.13	
Prob>chi2	0		0.0001		0		0.0001	
Pseudo R2	0.09		0.16		0.09		0.18	
Log likelihood	-515.34		-124.82		-515.00		-120.81	

Model 1b) Introducing Remittances as a Dummy Variable (TABLE 2)

When introducing remittances as a dummy variable⁶, the same differences/ similarities are found between the results from the two estimations as in Model 1a (Table 2). However, in Model 1b, there are slightly more differences. The dummy variable on remittances is positive in both years and

⁶ In Kotorri (2010), remittances were introduced as a continuous variable only.

significant only in 2008, while network is still negative but significant only in 2008. Again, the variable *Worsen* is positive and highly significant in both years.

Using proxies that explicitly relate to forward expectations

In Kotorri (2010) and in section 2 above, it was argued that attitudinal variables were useful for inclusion in the model and that these may be a proxy for forward-looking expectations. Yet, the question on which these variables are based was the current perception of the situation compared to one year ago. Although we argued that in a period of structural change, modelling rational expectations is difficult, it has to be acknowledged that these variables may not be a good proxy of forward-looking expectations. In the 2008 survey only a question was added in the survey as to whether the household head expected the economic situation of the household to improve, remain the same or worsen in the future. This is included in the regression through three dummy variables (*Future_Improve*, *Future_Same* and *Future_Worsen*) with the middle option used as the benchmark. The model with the new attitudinal variables is estimated and results are shown in the table below.

Table 3 Emigration Propensity – Model 1 with *Improve* and *Worsen* compared to Model 1 with *Future_Improve* and *Future_Worsen*

Emigration Propensity	Remittances as a continuous				Remittances DV			
Variable	Kosova 2008		Kosova 2008		Kosova 2008		Kosova 2008	
	Model 1a)		Model 1a)		Model 1b)		Model 1b)	
	Marginal	P> t	Marginal effects	P> t	Marginal effects	P> t	Marginal effects	P> t
Household Characteristics								
<i>Weighted sum of the marginal</i>	0.6E-05	0.75	1.1E-04	0.58	1.3E-04	0.49	1.7E-04	0.35
<i>Weighted sum of the marginal</i>	1.6E-03	0.08	1.5E-03	0.12	1.7E-03	0.06	1.5E-03	0.09
TR_i	9.4E-04	0.64	1.1E-03	0.57				
RDV_i					0.23	0.01	0.27	0.01
$TSU16_j$	-2.0E-	0.66	-2.2E-03	0.63	-2.6E-03	0.59	-2.9E-03	0.55
$TSWA_i$	1.8E-03	0.71	1.0E-03	0.94	1.2E-03	0.85	3.7E-04	0.94
$TSFWA_j$	-2.3E-	0.16	-2.9E-03	0.09	-2.4E-03	0.14	-3.0E-03	0.07

Edu_i	-0.03	0.68	-3.5E-03	0.96	-0.03	0.67	-1.9E-03	0.98
Improve	-0.03	0.63			-0.05	0.49		
Worsen	0.31	0.01			0.25	0.01		
Future_Impr			-0.15	0.03			-0.15	0.02
Future_Wors			0.15	0.18			0.14	0.18
Psychic Income								
TS_i	7.8E-03	0.49	9.9E-03	0.36	6.3E-03	0.57	6.9E-03	0.52
$Network_i$	-0.18	0.11	-0.15	0.26	-0.24	0.01	-0.21	0.03
$TNuc_i$	0.03	0.56	0.01	0.74	0.03	0.53	0.02	0.65
Location-related								
RU_j	0.01	0.01	9.3E-03	0.02	9.7E-03	0.01	7.8E-03	0.05
TA_j	0.09	0.12	0.08	0.16	0.07	0.19	0.06	0.27
Number of observations	255		255		255		255	
LR chi2(16)	46.12		35.59		54.13		45.93	
Prob>chi2	0.0001		0.003		0.0001		0.0001	
Pseudo R2	0.16		0.12		0.18		0.16	
Log likelihood	-124.82		-130.08		-120.81		-124.91	

The results suggest that the two model specifications are similar. The marginal effects of all variables that are insignificant in both specifications have the same sign and a similar magnitude. The regional unemployment rate (RU) is significant in both specifications, positive and has a similar magnitude. The marginal effect of **Future_Improve** is negative and significant. The marginal effect of **Future_worsen** has the expected positive impact but is insignificant. Unlike in the previous specification, this one suggests that it is rather optimism that has a significant (negative) impact on the plan to emigrate. The results are similar when remittances are introduced as dummy variable. Although the results in this section do suggest that the explicitly forward-looking expectations variables are a measure that differs to some degree from the current-based variables, the similarity in the results in respect to the other variables does continue to support the conclusion in the previous section that the model is not stable between the two time periods.

Further Investigation of the Marginal Effect of Worsen using the 2008 model based on the 2007 sample mean values of the variables (TABLE 4)

In the empirical estimation, the variables *Improve* and *Worsen* were introduced to account for background changes in perceived economic conditions and as the descriptive statistics show there were some changes in the proportions replying in the two categories between the two periods. In Table 2, the marginal effect of the second estimation indicates an effect twice the size of the first, but these were not strictly comparable given that in a probit model marginal effects vary given the values of all the variables. When checking if estimating the marginal effects at the same variable values for the two years made a difference. As shown in Table 4, estimating the marginal effects of the variables for 2008 at the sample mean values of the respective variables in 2007 gives marginal effects the same as or very close to those estimated at the individual sample means given in Table 2.

Table 4 Emigration Propensity – The marginal effect of *Worsen*⁷

Emigration								
Variable	Kosova 2008 using mean values of		Kosova 2008 using mean values of		Kosova 2008 using mean values of		Kosova 2008 using mean values of	
Definition of	Model 1a)		Model 1a)	Model	Model 1b)	P> t	Model 1b)	
	Marginal	P> t	Marginal	P> t				P> t
Household								
<i>Improve_i</i>	0.02	0.61	-0.04	0.64	0.02	0.72	-0.06	0.49
<i>Worsen_i</i>	0.16	0.001	0.31	0.001	0.16	0.001	0.28	0.001

6. Further Investigation of the Emigration Propensity

The results in the previous section provide evidence that the economic model of the determinants of households' emigration decisions is not stable over time. The original results in Kotorri (2010) provide mixed support for the household approach. In the literature, the approaches taken by the studies are different, although the majority of those reviewed in Kotorri (2010) take an

⁷ These results hold also for Model 1b and model specifications to be introduced in the next section.

individual perspective. Some of them have purely theoretical models, some provide statistical analysis, while others estimate their models. In this section, only the last type of studies will be considered. McKenzie (2006) and Liebig and Suoza-Poza (2004) control for individual but not for household characteristics. The former study finds that for males all individual characteristics are significant, while for females results are mixed. The latter study investigating self-selection finds that the majority of the individual characteristics are significant. Germenji and Swinnen (2006) controlling for individual, household and regional characteristics find mixed support for their view. Some of the migrants' individual characteristics are significant, some are not. The same is true for the household characteristics. Other studies take the unitary household approach (Carletto et al. 2004; and Phuong et al., 2008). These studies find mixed support for their views. This section provides a variant on the model developed in Kotorri (2010) to further investigate the degree of stability over time of households' migration behaviour and considers whether the lack of support is the result of a particular specification. The difference between the model specification in Kotorri (2010) and this one lies in the definition of the household. In the new specification, the household will be defined as consisting of only members living in Kosova (henceforth, the Kosova-based model). This approach may be more appropriate given that it is closer to the models used in the literature. It is namely the same as the approach used in Carletto et al. (2004) and Phuong et al (2008). This model has implications for the definition of other variables used. To illustrate this issue an example will be given: the variable SU16 – total share of those under the age of 16 - is defined as the number of those under the age of 16 living in Kosova divided by the number of household members living in Kosova. So, in this specification the variables are based on the Kosova-based household only. The income abroad variable is based only on the migrant-household and is divided by the number of migrant-members only (see Table 1, Appendix 1 for variable definitions). Again, for reasons explained in Section 5, remittances will be introduced first as a continuous variable and then as a dummy variable. Below the results are compared between the two years using this model specification. Similar to the comparison of results between the two years based on Model 1a and Model 1b variables for which marginal effects are insignificant will be ignored.

Comparison between the two years using the Kosova-based model – Model 2a and Model

2b, Table 5

Examination of the 2007 estimates between the two models does suggest that there are some differences. The marginal effects of the four variables that are significant in Model 1a) are found to be significant and of similar sign and magnitude in Model 2a). However, unlike in Model 1a), in this model the marginal effect of the share of those of working age is significant, while household size and number of nuclear families have a negative impact. Yet, both are insignificant. Below results using this model are compared for the two years.

This model specification also provides evidence that the relationship is not stable over time (Table 5). The marginal effects of some of the variables are different both in terms of level of significance and direction of impact. Similar to Model 1a, the weighted sum of the marginal effects of the Kosova-based household income per capita at home and its squared term is negative and significant in 2007, while it is positive and insignificant in 2008. The marginal effect of the share of those of working age has the expected positive effect in 2007, but is negative in 2008. It is significant only in 2007. This suggests that having an excess labour supply increases the probability to emigrate in 2007. The marginal effect of TA has a positive impact on the emigration propensity in both years, which is not in line with expectations. However, the estimate is significant only in 2007.

The marginal effects of other variables are different between the two years only in terms of level of significance. The weighted sum of the marginal effects of the household income per capita abroad and its squared term is positive in both years, but significant only in 2008. The marginal effect of education is negative in both years but significant only in 2007. A similar difference was found between the two years under Model 1a. Theoretically, the impact of networks – household members abroad - is ambiguous. Results suggest that the marginal effect of network is negative in both years but significant only in 2008. Similar to the comparison based on Model 1a, the marginal effect of the regional unemployment rate has a positive impact in both years but is significant only in 2008.

Again, as found in the comparison under Model 1a, only the level of significance and the sign of the marginal effect of the attitudinal variable controlling for the effect of whether the household head perceives the economic situation of the household to have worsened is similar between the two years; it is positive and significant. However, the magnitude of the marginal effect is again much larger in the 2008 estimate.

Model 2b) Introducing Remittances as a Dummy Variable

Keeping the same definition of a household, after introducing remittances as a dummy variable a comparison of results between the two years suggests that the same differences/similarities apply as in the case where remittances are included as a continuous variable. The impact of remittances is significant in 2008 only; it is positive in 2008 and negative in 2007.

Moreover, the differences/similarities with respect to the emigration propensity between the two years that are found between Model 1a and Model 1b are also found between Model 2a and Model 2b. Yet, there are additional differences between the two years when using Model 2a and 2b. This comparison suggests that the results are different also with respect to the level of significance of the WSME of YA and YASQ, and with respect to the MEs of SWA and Network.

To sum up, Table 5 shows that the two years are different in terms of both level of significance and sign with respect to three variables (four variables in Model 2b) out of a total of 14 variables. Differences with respect to level of significance only between the two years are found for four variables (four variables in Model 2b). Again, the only similarity is with respect to the significance level and sign of the marginal effect of *Worsen*. Calculating the marginal effects of this variable using the sample mean values of the variables in 2007 (as in section 5) gives a marginal effect twice as large in the 2008 estimate compared to the 2007 estimate (Model 2a and Model 2b). According to these results the re-specification is not an improvement to the model. Model 2 is if anything slightly less stable than Model 1 between the two years. Consequently, irrespective of the definition of the household the results suggest that there are differences between the two models applicable in the two years.

Table 6 Emigration Propensity – Model 2 Kosova-based Model

Emigration Propensity								
Variable	Kosova 2007		Kosova 2008		Kosova 2007		Kosova 2008	
Definition of remittances	Model 2a)		Model 2a)		Model 2b)		Model 2b)	
	Marginal effects	P> t	Marginal effects	P> t	Marginal effects	P> t	Marginal effects	P> t
Household								
<i>Weighted sum of the marginal</i>	-8.2E-04	0.01	3.5E-06	0.99	-8.1E-04	0.01	7.5E-05	0.68
<i>Weighted sum of the marginal</i>	8.1E-04	0.19	6.3E-04	0.01	7.1E-05	0.28	6.2E-04	0.01
R_i	-1.3E-03	0.25	0.5E-04	0.73				
$R(DV)_i$					-0.02	0.77	0.23	0.01
$SU16_j$	2.2E-03	0.15	-4.3E-03	0.59	2.2E-03	0.14	-5.0E-03	0.52
SWA_i	3.3E-03	0.02	-2.1E-03	0.79	3.3E-03	0.02	-2.7E-03	0.73
$SFWA_j$	-1.5E-03	0.22	-1.7E-03	0.22	-1.5E-03	0.2	-1.8E-03	0.17
Edu_i	-0.15	0.01	-8.3E-03	0.89	-0.15	0.01	-0.01	0.83
$Improve_i$	0.01	0.82	-0.04	0.57	6.1E-03	0.89	-0.05	0.38
$Worsen_i$	0.16	0.01	0.32	0.00	0.16	0.01	0.31	0.01
Psychic								
S_i	-3.9E-03	0.62	0.013	0.29	-3.6E-03	0.65	0.015	0.24
$Network_i$	-0.05	0.28	-0.26	0.00	-0.06	0.24	-0.31	0.01
Nuc_i	0.03	0.21	0.04	0.39	0.03	0.22	0.04	0.38
Location-								
RU_j	1.2E-03	0.59	0.01	0.00	1.1E-03	0.63	0.01	0.01
TA_j	0.01	0.01	0.08	0.17	0.09	0.01	0.06	0.29
Number of	930		255		929		255	
LR chi2(16)	104.78		51.67		102		59.69	
Prob>chi2	0		0		0		0	
Pseudo R2	0.09		0.17		0.09		0.20	
Log likelihood	-514.87		-122.05		-515.05		-117.89	

7. The Extended Oaxaca-Blinder Decomposition For Non-Linear Models

As argued in the introduction, the aim of this paper is to investigate the stability over time of migration behaviour. In addition to the approach followed above, in this section an extension of the Blinder-Oaxaca decomposition (henceforth, BO decomposition) is applied (Blinder, 1973; Oaxaca, 1973). The BO technique was developed to decompose the gender wage differential in the context of linear regression models. The technique takes either the male wage structure to be the non-discriminatory benchmark (Equation 1.1) or the female wage structure (Equation 1.2). The original decomposition formula is as follows:

Male-weighted decomposition measures the difference if females were paid the same rates as males:

$$\bar{Y}_M - \bar{Y}_F = \sum \hat{\beta}_j^M (\bar{X}_j^M - \bar{X}_j^F) + \sum \bar{X}_j^F (\hat{\beta}_j^M - \hat{\beta}_j^F) \quad 1.1$$

Female-weighted decomposition measures the difference if males were paid the same rates as males:

$$\bar{Y}_M - \bar{Y}_F = \sum \hat{\beta}_j^F (\bar{X}_j^M - \bar{X}_j^F) + \sum \bar{X}_j^M (\hat{\beta}_j^M - \hat{\beta}_j^F) \quad 1.2$$

where \bar{Y} is the mean value of the dependent variable, \bar{X} is the mean value of the explanatory variable, $\hat{\beta}$ is the vector of estimated coefficients of the respective explanatory variables and the subscripts M and F indicate males and females, respectively.

The BO technique decomposes the differential into a part that is explained by differences in observed productivity characteristics (first term on the LHS of equation 1.1 and 1.2), the endowments/characteristics effect, and a residual part that cannot be accounted for by observable characteristics (second term on the LHS of equation 1.1 or 1.2), the coefficients effect. The residual part is attributable to differences in the estimated coefficients and is frequently used as a measure of discrimination. Additionally, the residual part subsumes also the influence of model misspecification, either in terms of not explicitly controlling for determinants in the model or imprecise measurement of the explanatory variables. This technique is mainly applied to labour market discrimination. However, it can be applied to decompose group differentials in any outcome variables. Park and Lohr (2010) used it to decompose differences in the use of crop disease and nematode management

strategies by gender, while Gang et al. (2010) deployed it to decompose differences in the jump in attitudes towards foreigners displayed by Europeans.

The literature points at several limitations of the OB technique. According to Masters (1974), Bloch and Smith (1977), Daymont and Andrisani (1984) and Cotton (1988) the principal concern is statistical in nature and relates to the discrimination effect. The OB technique interprets the residual part not accounted for by productivity-related characteristics as the gender discrimination effect. The critics question whether the residual is an appropriate measure of the discrimination effect or simply a result largely of model misspecification. They argue that for the residual to be an exact measure of discrimination the model must be correctly specified. Otherwise, the discrimination effect will represent the influence of missing variables and/or incorrect functional form and therefore bias the discrimination effect. So far, no solution to this problem has been found, but results from this technique need to be interpreted with caution (Cotton, 1988 and Masters, 1974).

Another criticism relates to what Oaxaca (1973) calls the “index number problem”. Butler (1982) argues that the technique confounds demand-side sources of discrimination with supply-side sources. Due to past supply-side differences in skill-acquiring opportunities, differences in the demand-elasticities by gender are expected. Hence, the coefficient estimates of the two genders would be different and basing discrimination on this difference may over- or under-estimate the discrimination effect. Cotton (1988) agrees on Butler’s argument about differing model structures by gender. However, he disagrees on Butler’s assumption about these model structures prevailing under no discrimination. According to Cotton (1988), both wage structures are functions of discrimination and it would be incorrect to consider the wage structure of either gender to prevail in the absence of discrimination. Instead the author suggests specifying a non-discriminatory wage structure assuming that in the absence of discrimination the two wage structure would be identical. For this he uses a hypothetical vector of coefficients, β^* , expected to prevail in the absence of discrimination:

$$\bar{Y}_M - \bar{Y}_F = \sum \beta^* (\bar{X}_M - \bar{X}_F) + \sum \bar{X}_M (\hat{\beta}_M - \beta^*) + \sum \bar{X}_F (\beta^* - \hat{\beta}_F) \quad 1.3$$

The first RHS term represents the difference in average productivity characteristics in the absence of discrimination. The second and third RHS components represent the discrimination effect, where the former captures the amount by which male productivity characteristics are overvalued, the

advantage effect, while the latter captures the amount by which female productivity characteristics are undervalued, the disadvantage effect.

For the hypothetical term, β^* , the author suggests using the weighted average of the wage structures of the two genders where the relative sample size of the majority group serves as the weight, Ω :

$$\beta^* = \Omega \hat{\beta}_M + (I - \Omega) \hat{\beta}_F,$$

where β^* is defined as a weighted average of the coefficient vectors β_M and β_F , Ω is a weighting matrix and I is an identity matrix.

This author recognises, though, the operational weakness of estimating the non-discriminatory wage structure based on strong assumptions given that it is not observable in reality.

Following this criticism, different assumptions about the form of Ω were suggested in the literature. The principal BO decomposition (Blinder, 1973 and Oaxaca, 1973) assumes Ω to be a null-matrix or equal to I . Reimers (1983) suggests using $\Omega=0.5I$. Neumark (1988) and Oaxaca and Ransom (1994) suggest estimating the pooled model to derive the counterfactual coefficient vector β^* .

In the literature, various authors have suggested and used alternatives to the traditional formula. Masters (1974) argued that the sum of the discrimination and the endowments effect does not necessarily equal the total wage differential. Hence, even in the absence of discrimination and if females had the same values of the independents the total effect would be greater (lower) than the individual effects since females with above average values for the independents may face (lower) discrimination. Consequently, he suggests adding the so called “interaction effect” which is a combination of the endowment effect of Equation 1.2 and the discrimination effect of Equation 1.1:

$$\bar{Y}_M - \bar{Y}_F = \Delta OLS = (\bar{X}_M - \bar{X}_F) \hat{\beta}_F + \bar{X}_F (\hat{\beta}_M - \hat{\beta}_F) + (\hat{\beta}_M - \hat{\beta}_F)^* (\bar{X}_M - \bar{X}_F) \quad 1.4^8$$

that gives

$$\bar{Y}_M - \bar{Y}_F = \Delta OLS = E + C + CE \quad 1.5$$

where

⁸ Please note that unlike BO decomposition, in this formula the first RHS component corresponds with the first RHS component of Equation 1.1, while the second component corresponds with the second RHS component of Equation 1.2. The author does not provide any rationale for this modification.

where E , the first RHS component, represents the portion of the differential due to differences in characteristics, while C , the second component represents the portion of the differential due to differences in coefficients, which can provide a base estimate of the degree of discrimination. The additional RHS term CE is called the interaction effect, which is part of the residual capturing the differential accounted for by the fact that the returns to males tend to be greater for those characteristics for which males have higher means. As such, the interaction effect is part of the discrimination effect.

There is yet another critique on the applicability of this technique. Fairlie (2005), Bauer and Sinning (2008), Sinning et al. (2008) and Zhao and Shyr (2009) question its validity when applied to categorical dependent variables. According to them, the standard BO technique cannot be applied in this case since there is a difference between the parameter estimates of linear models and the marginal effects of the latent outcome variable. In this regard, Bauer and Sinning (2008) have developed an extension of the BO decomposition for non-linear models. Sinning et al. (2008), use that approach and explain how to apply the BO decomposition to models with categorical dependent variables using the STATA command `nldecompose`. The `nldecompose` command performs only the overall decomposition but not by variable contributions separately. After decomposition, the STATA command `bootstrap` calculates the standard errors of the decomposition components.

In this paper, these two alternatives of this technique are used to decompose the characteristics effect from the coefficients effect. The former effect measures how observable characteristics across the two years influence migration behaviour, while the latter measures the relative strength of a characteristic on the migration decision across the two years. The first approach is that suggested in Masters (1974) (Equation 1.4). This variant of the technique decomposes the difference in migration decisions into the part resulting from differences in the mean values of explanatory variables and the part resulting from differing model structures. The second component consists of the coefficients effect and the interaction effect. Additionally, the Oaxaca and Ransom (1994) approach is followed which further decomposes the coefficients effect into the so called "disadvantage effect" and "advantage effect" (Equation 1.3). Please note that within the context of this research the discrimination/coefficients effect measures the difference in the probability to send one or one additional member abroad for economic reasons between the two years, 2007 and 2008

resulting from the differing model structures. As argued above, the residual component is considered to contain this latter effect. It has to be noted, though, that, there was no significant economic change between the two years. Additionally, the two samples are largely similar with respect to all the variables. So, a priori, it is expected that the probability to emigrate between the two years will be similar with respect to both the predictabilities of the variables, that is, the same model structure holds in both years, and to the mean differences. However, some difference due to mean values of the variables is expected as the statistical analysis indicates statistically significant differences in mean values for some of the variables. Considering the a priori expectations of no or relatively small differential, the suggestion in Neumark (1988) and Oaxaca and Ransom (1994) about using the coefficients from the pooled regression as the counterfactual coefficient vector β^* for this decomposition seems reasonable.

The tables below show the results from the decomposition for the two years.

Table 6 Analysis of Stability over Time of the Emigration Propensity Model Between the years 2007 and 2008

	Model 1a)			Model 1b)			Model 2a)			Model 2b)		
	Coefficient effects	P> t	Percentage	Coefficient effects	P> t	Percentage	Coefficient effects	P> t	Percentage	Coefficient effects	P> t	Percentage
Using 2008 as the standard												
Characteristics effect	-0.022	0.14	66.46	-0.043	0.04**	138.83	-0.022	0.07*	66.46	-0.012	0.46	38.11
Coefficients effect	-0.022	0.64	65.63	0.01	0.86	-35.92	-0.022	0.59	65.63	-0.04	0.40	126.06
Interaction effect	0.011	0.79	-32.09	0.001	0.99	-2.91	0.011	0.77	-32.09	0.02	0.59	-64.17
Using 2007 as the standard												
Characteristics effect	-0.011	0.742	34.37	-0.042	0.43	135.92	-0.01	0.77	34.37	0.008	0.81	-26.06
Coefficients effect	-0.011	0.743	33.54	0.01	0.75	-38.83	-0.01	0.73	33.54	-0.02	0.57	61.89
Interaction effect	-0.011	0.792	32.09	-0.001	0.99	2.91	-0.01	0.77	32.09	-0.02	0.59	64.17
<i>Using the pooled</i>												
Characteristics effect	-0.016	0.164	49.30	-0.03	0.05**	106.13	-0.017	0.13	49.30	-0.003	0.82	10.73
Coefficients effect												
Advantaged	-0.013	0.558	39.84	0.001	0.95	-4.27	-0.013	0.5	39.84	-0.02	0.33	69.77
Disadvantaged	-0.004	0.56	10.86	0.0006	0.92	-1.86	-0.004	0.50	10.86	-0.006	0.34	19.51
Raw	-0.033	0.296	100	-0.03	0.29	100	-0.033	0.25	100	-0.03	0.31	100
B Number of observations A	255			255			255			255		
A Number of	922			922			922			922		
Bootstrap	50			50			50			50		

In section 5, the probit estimation results were compared between the 2007 and the 2008 data sets to analyse the time-stability of the emigration behaviour in terms of possible differences in model structure. The comparison focussed on direction of effect and level of significance of single independent variables, as comparability of marginal effects is difficult when sample mean values are different. Here, aiming at investigating the time-stability of the emigration behaviour the extended BO decomposition for nonlinear models is deployed.

The results of the decomposition applied to model specifications 1a) through 2b) are summarised in Tables xx and xy. The estimates presented are based on the Masters (1974). The upper panel provides results of the three effects using the 2008 data set as the standard, while the lower panel provides results using the 2007 data set as the reference. The third panel provides results applying the Oaxaca and Blinder (1994) and Neumark (1988) suggestion on using the counterfactual coefficient vector derived from the estimated coefficients of the pooled sample. The hypothesis of interest is that in the absence of differences in the independent variables and in the absence of significant economic differences between these two years the model structure of the emigration behaviour will remain stable over time.

The empirical results suggest that the overall difference between the two years is relatively small, -0.03 points in the estimated probability to emigrate and statistically insignificant (Table XX). The results are mixed with respect to the proportion of the differential explained by observable characteristics compared to the unexplained part. Approximately one-third, in Model 2b more than half of the differential in emigration propensity is due to differing model structures between 2008 and 2007 or unobservable influences. However, individual effects are statistically insignificant in all model specifications in both alternatives, with the exception of the coefficients effect which is statistically significant in Model 1b.

As expected, the decomposition results suggest that the overall differential is relatively small and statistically insignificant. Additionally the individual effects are also insignificant, except for the characteristics effect in Model 1b. So, these results provide support for the hypothesis that the migration decision is stable over the time before the declaration of independence and the afterwards. This also suggests that the political change, which was not followed by any significant economic

changes, has not altered the migration behaviour of Kosovan households and that the same model structure can be applied to the samples in both years.

8. Further Investigation of Time Stability Focussing on the Differences in the Intercept and the Slope Coefficients

As argued in the previous section, the extended BO technique for nonlinear models does not separate the contributions of variables individually. Therefore, in addition to the comparison of the estimated coefficients between the two years, in this section, as a robustness check, a detailed analysis is conducted by introducing interaction terms between the variables and the year dummy, which takes the value of 1 for the year 2008 (Table 3, Appendix 3). Although this provides a detailed analysis by variable, its shortcoming is that it does not decompose the differential into the characteristics and coefficients effect. So, whenever the interaction term of a variable is statistically significant, attention will be drawn to whether a difference between estimated coefficients was found in terms of statistical significance in sections 5 and 6 (Columns 5, 7, 9 and 11, Table 3, Appendix 3). Attention will also be drawn to the statistical significance of the difference in the mean values of the variables (Columns 2 and 3, Table 3, Appendix 3).

In general, the results are similar to those in sections 5 and 6. The interaction terms are statistically significant for those variables for which a difference in statistical significance between the estimated coefficients was found in sections 5 and 6. However, in Model 1b), the interaction term on the variable income abroad is statistically significant, while no difference was found in the alternative analysis. For SWA the opposite holds in Model 2a and Model 2b. The interaction term on the variable controlling for type of area is statistically significant throughout model specifications, but no difference was found in the previous analysis.

The mean values of the variable Y_h and TY_h and of all three variants of the remittances variable are statistically different between the two years. So, the statistical significances of their respective interaction terms might be the result of the characteristics effect, rather than coefficients effect. The variable T_a was used to stratify the sample and the same weights were used in both years. The statistical difference in the mean values of this variable is therefore rather due to missing values. Hence, its interaction term is statistically insignificant here, but in the previous stability analysis the

estimated coefficients were found to be statistically different. An interesting finding is related to the variables Edu, Worsen and Ru. All three have statistically equal mean values between the two years, but their interaction terms are statistically significant and the marginal effects are positive, around 0.2. Additionally, their estimated coefficients are different in terms of statistical significance and are robust to model specifications. This indicates that the magnitude of the coefficients of these three variables have increased compared to 2007.

In general, the findings in this section provide mixed support for the stability over time of the emigration propensity.

9. Concluding Remarks

This study replicates the empirical analyses in Kotorri (2010), using a data set stemming from a survey conducted in 2008, to examine the stability over a short period of time of the models of the propensity to emigrate in Kosova. It investigates whether the economic model that includes variables that proxy households' perceptions of the future economic climate as deployed in Kotorri (2010) is appropriate for modelling the same relationship after the Declaration of Independence in Kosova. In 2008, the Kosova government declared the independence of the country which had also socio-economic implications. The 2008 sample may reflect a changed socio-economic and political situation after the Declaration of the Independence, while the 2007 captures the situation before. It was argued that the Declaration of Independence may have altered households' economic expectations. So, in this analysis the validity of the attitudinal variable as a proxy of expectations, the particular specification and the validity of the economic model are tested. The analysis is based on two samples that are two different random draws from two different years using the same sampling frame. Differences between these samples are expected because of randomness. There may also be structural differences in the model of probability of emigration given the political (and other unidentified) changes. The empirical results suggest that there are differences between the two years with respect to the majority of the variables (Table 2, Model 1a and Model 1b). The structural stability of the relationship was further investigated focussing on *Worsen* by running the 2008 model with the variables set at the sample mean values of the 2007 sample. Again results suggested differences between the two years. Conclusively, the estimates using a household decision on planning to send at

least one or one additional member abroad is not stable over time. The model is based on economic factors, as is most of the literature in the field, and this finding of instability may suggest that other factors are important, that the attitudinal variable is not a good proxy and/or that the specification is not appropriate. The Declaration of Independence is a factor in Kosova that may have had an impact on households' migration decisions, but other undetermined factors may also be involved. Indeed, given the lack of evidence from elsewhere it is unclear as to whether instability is uncommon, linked to occasional important events, or whether such instability is often to be found in migration behaviour over short periods of time. Instability is hardly the result of model specification as it is similar to those used in the literature. The model was actually developed based on the literature on emigration propensity.

Due to the lack of support for the time stability in Section 5 and the mixed support for the household view in Kotorri (2010), the model was respecified in Section 6 to check whether these results are due to model specification. The model was respecified by redefining the household as consisting only of members living in Kosova (Model 2a and Model 2b). Comparing the results between the two years with respect to Model 2a and Model 2b shows that all variables but SFWA and NUC are different between the two years with respect to sign and/or level of significance. The results suggest that the instability is not arising from the particular specification of the household.

As a robustness check, an extension of the BO decomposition was deployed. The results indicate that overall the relationship is actually stable over time. This is supported also by the lack of statistical significance of the decomposition components.

Given this mixture of support for the stability over time, in section 8, a detailed analysis was conducted by interacting the variables with the year dummy. This analysis focussed on the statistical significance of the interaction terms. Results from this analysis were similar to those in the analysis in section 3.

The empirical results from the model on the emigration propensity, its respecification and the detailed analysis through the interaction terms all suggest that the migration decision is not stable over the time period under examination. Additionally, the further investigation of the emigration propensity with respect to *Worsen* and the WSMEs of the income variables, by both specifications suggests structural differences between the two models. This variable, and the variables Edu and RU

all are robust to model specifications and techniques used (excluding the extended BO technique). The structure of the relationship has altered, maybe because of the Declaration of Independence, and therefore the economic model in Kotorri (2010) cannot be used to model the relationship in 2008. Yet, the extension of the BO decomposition suggests the opposite. So, the analysis in this study provides mixed support for the time stability of the households' economic emigration decision.

To my knowledge the migration decision in a country or countries has not yet been examined by any other author in terms of its stability over time. These results, however, raise the need to investigate the stability over time of these relationships in other countries, in particular those that have experienced political or rapid economic change. Additionally, results suggest that drawing policy recommendations based on only one-off analysis of these relationships may be misleading.

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Appendix 1 Variable Definitions

Table 1 Variable label and variable description

Label	Abbreviated definition	Definition
P_i	Probability to emigrate	Probability to emigrate = 1 if household plans to send at least one or
	Household Characteristics	
TYH_i	Total income at home	Household income, excluding remittances, of those employed in the
TYA_i	Total income abroad	Household income per capita, excluding remittances, of those
YH_i	Kosova-based income at home	Household income per capita, excluding remittances, of those
YA_i	Income abroad	Household income per capita, excluding remittances, of those
TR_i	Total remittances per capita	Remittances divided by household size including migrant-members
R_i	Kosova-based remittances	Remittances divided by household size living in the home country
$R(DV)_i$	Remittances	= 1 if household receives remittances, 0 otherwise
$TSU16_j$	Total share of those under the age of 16	Share of those under the age of 16 including migrant-members
$SU16_j$	Kosova-based share of those under the age of 16	Share of those under the age of 16 living in Kosova
$TSWA_i$	Total share of those of working age	Share of those of working age including migrant-members
SWA_i	Kosova-based share of those of working age	Share of those of working age living in Kosova
$TSFWA_j$	Total share of females in those of working age	Share of females in those of working age including migrant-members
$SFWA_j$	Kosova-based share of females in those of working age	Share of females in those of working age
Edu_i	Education	=1 if household head in the home country has higher education

RY_{i-1}	Improve	=1 if the household head in the home country perceives the economic situation of the household to improve compared to one year ago, 0 otherwise
RY_{i-3}	Worsen	=1 if the household head in the home country perceives the economic situation of the household to worsen compared to one year ago, 0 otherwise
	Psychic Income	Psychic Income
TS_i	Total number of household members	Number of household members within the household including migrants
S_i	Kosova-based number of household members	Number of household members within the household living in the home country
$Network_i$	Network	= 1 if household has any household members abroad
$TNuc_i$	Total number of nuclear families	Number of nuclear families within the household including migrants
Nuc_i	Kosova-based number of nuclear families	Number of nuclear families within the household living in the home country
	Location-related characteristics	
RU_j	Regional unemployment rate	Regional unemployment rate
TA_j	Type of area	= 1 if household lives in a rural area, 0 otherwise

Appendix 2 Simple Comparative Descriptive Statistics

Table 2 Simple Comparative Descriptive Statistics – Kosova 2007 and Kosova 2008

Characteristics of migrants' households	Household including migrant-members	Household including migrant-members	Kosova-based household	Kosova-based household
	Kosova 2007	Kosova 2008	Kosova 2007	Kosova 2008
Emigration plan, %				
Yes			29.75 (341) ⁹	27.87 (97)
No			70.75 (825)	72.13 (251)
Household income per capita of those employed at home (in Euros), %				
Average (in Euros)	65	124	71	132
1 to 24	25.95 (307)	13.13 (42)	22.99 (272)	11.56 (37)
25 to 49	31.87 (377)	25.31 (81)	30.68 (363)	21.25 (68)
50 to 99	27.3 (323)	33.44 (107)	28.49 (337)	35.63 (114)
100 to 249	11.75 (139)	20 (64)	14.79 (175)	22.5 (72)
250 to 499	1.86 (22)	3.75 (12)	2.2 (26)	4.69 (15)
500 and more	1.27 (15)	4.38 (14)	0.85 (10)	4.38 (14)
Household income per capita of those employed in the host country (in Euros), %				
Average (in Euros)	283	239	1251	986
0	82.27 (1,030)	82.18 (226)	82.27 (1,030)	82.18 (226)
0 to 249	9.55 (119)	11.64 (32)	0.8 (10)	2.55 (7)
250 to 499	5.3 (66)	4 (11)	2.48 (31)	3.65 (10)
500 and more	2.81 (35)	2.18 (6)	14.46 (181)	11.31 (31)
Remittances (Yes/No), %				
Remittances recipient			16.23 (228)	24.07 (84)
Remittances non-recipient			79.79 (1,121)	73.07 (255)
Remittances no-response			3.99 (56)	2.87 (10)
Remittances per capita (in Euros), %				
0	83.16 (1,141)	74.63 (253)	83.16 (1,141)	74.63 (253)
More than 0 to 49	14.05 (188)	20.35 (69)	11.88 (163)	17.4 (59)
50 to 149	2.47 (33)	4.13 (14)	4.45 (61)	6.49 (22)
150 to 249	0.3 (4)	0.59 (2)	0.29 (4)	0.88 (3)
250 to 499	0 (0)	0.29 (1)	0.15 (2)	0.59 (2)
500 and more			0.07 (1)	0 (0)
Monthly household remittances (Euros)				
Average monthly household remittances			261	272.51
Minimum			10	15
Maximum			2500	1500
Median			25	100

⁹ (Number of households is given in parenthesis)

Share of those under the age of 16, %				
Average, %	22	24	22	24
0% to 25%	55.14 (735)	57.47 (200)	54.64 (736)	56.32 (196)
more than 25% to less than 50%	30.61 (408)	22.7 (79)	28.58 (385)	22.41 (78)
more than 50% to less than 75%	14.03 (187)	18.39 (64)	16.56 (223)	19.83 (69)
more than 75% to 100%	0.23 (3)	1.44 (5)	0.22 (3)	1.44 (5)
Share of those of working age, %				
Average, %	73	76	73	76
0% to 25%	0.22 (3)	0.29 (1)	0.89 (12)	0.57 (2)
more than 25% to less than 50%	11.66 (156)	11.49 (40)	13.46 (182)	11.49 (40)
more than 50% to less than 75%	37.07 (496)	30.17 (105)	35.65 (482)	28.45 (99)
more than 75% to 100%	51.05 (683)	58.05 (202)	50 (676)	59.48 (207)
Share of females in those of working age , %				
Average, %	34	34	35	47
0% to 25%	23.9 (310)	30.67 (96)	23.09 (311)	7.12 (24)
more than 25% to less than 50%	54.05 (701)	45.69 (143)	52.26 (704)	32.34 (109)
more than 50% to less than 75%	20.74 (269)	19.81 (62)	22.87 (308)	53.12 (179)
more than 75% to 100%	1.331 (17)	3.83 (12)	1.78(24)	7.42 (25)
Education				
Yes			22.84 (306)	26.3 (91)
No			77.16 (1,034)	73.7 (255)
Education Level				
Less than primary			7.68 (103)	2.69 (9)
Primary			23.92 (321)	20 (67)
Secondary			44.71 (169)	50.15 (168)
Higher education			22.8 (306)	27.16 (91)
Other			0.9 (12)	n.a.
Perception of the household head of the economic situation of the household compared to one year ago				
Improve			17.79 (236)	27.11 (93)
Remained the same			53.47 (702)	45.19 (155)
Worsened			28.56 (375)	27.7 (95)
Psychic Income				
Household size				
Average household size	6.93	7.27	6.17	6.27
1 to 5	47.31 (633)	39.83 (139)	46.431 (638)	49.14 (171)
6 to 10	45.52 (609)	42.41 (148)	44.98 (618)	41.95 (146)
11 to 15	5.83 (78)	12.89 (45)	5.68 (78)	6.9 (24)
16 and over	1.35 (18)	4.87 (17)	2.91 (40)	2.01 (7)
Network				
Yes			29.88 (401)	30.65 (103)
No			70.12 (941)	69.35 (233)
Number of nuclear families				
Average	1.9	1.7	1.6	1.5
1	51.89 (699)	60.99 (197)	58.95 (794)	66.38 (231)
2	25.32 (341)	21.98 (71)	28.66 (386)	22.7 (79)
3	10.32 (139)	10.53 (34)	8.69 (117)	7.47 (26)
4	6.24 (84)	4.33 (14)	2.6 (35)	2.59 (9)
5	3.64 (49)	1.24 (4)	0.45 (6)	0.86 (5)
6 or more	2.60 (35)	0.93 (3)	0.66 (9)	0 (0)
Location-related characteristics				
Region				
Prishtine			26.8 (361)	25.57 (89)

Mitrovice			13.21 (178)	13.22 (46)
Peje			14.03 (189)	12.93 (45)
Gjakove			6.09 (82)	6.03 (21)
Prizren			21.46 (289)	20.4 (71)
Gjilan			9.43 (127)	10.06 (35)
Ferizaj			8.98 (121)	11.78 (41)
Type of area				
Rural			51.45 (693)	45.69 (159)
Urban			48.55 (654)	54.31(189)

Appendix 3 Test on the Stability over time of the relationships introducing the interaction terms between variables and the year dummy

Table 3 The Statistical Significance Analysis of the Interaction Dummies of the Variables when Estimating the Emigration Propensity Model combining the 2007 and 2008 data sets

			Model 1a		Model 1b		Model 2a		Model 2b
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Dummy variable and Interaction Dummy Variables	P> t	Mean comparison	P> t		P> t		P> t		P> t
Household									
<i>AfterIndependence_i</i>	n/a	n/a	0.66		0.77		0.87		0.81
<i>Yh_i_DV</i>	0.01***	Unequal					0.05**	Yes	0.03*
<i>Yhsq_i_DV</i>							0.61		0.62
<i>TYh_i_DV</i>	0.01***	Unequal	0.03**	Yes	0.02**	Yes			
<i>TYhsq_i_DV</i>			0.57		0.57				
<i>Ya_i_DV</i>	0.15	Equal					0.02**	Yes	0.01*
<i>Yasq_i_DV</i>							0.02**	Yes	0.02*
<i>TYa_i_DV</i>	0.39	Equal	0.11		0.07*	No			
<i>TYasq_i_DV</i>			0.13		0.08*	No			
<i>R_i_DV</i>	0.09*	Unequal					0.34		
<i>R(DV)_i_DV</i>	0.002**	Unequal			0.09*	Yes			0.02*
<i>TR_i_DV</i>	0.01***	Unequal	0.34						
<i>SU16_j_DV</i>	0.23	Equal					0.44		0.39
<i>TSU16_j_DV</i>	0.18	Equal	0.52		0.46				
<i>SWA_i_DV</i>	0.008**	Unequal					0.54	Differe	0.49
<i>TSWA_i_DV</i>	0.04**	Unequal	0.92		0.84				
<i>SFWA_j_DV</i>	0.001**	Unequal					0.81		0.73
<i>TSFWA_j_DV</i>	0.75	Equal	0.45		0.42				
<i>Edu_i_DV</i>	0.18	Equal	0.09*	Yes	0.09*	Yes	0.06*	Yes	0.08*
<i>Improve_i_DV</i>	0.001**	Unequal	0.51		0.44		0.54		0.41
<i>Worsen_i_DV</i>	0.64	Equal	0.05**	Yes ¹	0.08*	Yes	0.04**	Yes	0.05*
Psychic Income									
<i>S_i_DV</i>	0.57	Equal					0.25		0.21
<i>TS_i_DV</i>	0.18	Equal	0.84		0.88				
<i>Network_i_DV</i>	0.78	Equal	0.13		0.06*	Yes	0.08*	Yes	0.02*
<i>Nuc_i_DV</i>	0.04**	Unequal					0.82		0.84
<i>TNuc_i_DV</i>	0.01***	Unequal	0.44		0.41				
Location-related characteristics									
<i>RU_j_DV</i>	0.3	Equal	0.03**	Yes	0.04**	Yes	0.02**	Yes	0.04*
<i>TA_j_DV</i>	0.06*	Unequal	0.99	Different	0.88	Different	0.95	Differe	0.77

¹ The marginal effect of the interaction dummy of this variable is around 0.16 on all model

specifications which is similar to the marginal effect of the variable itself.