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Brain Drain, Brain Gain and Brain Return Explained by a Model based on a Comparable Individual Country's Well-being Indicator (LISE)

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Abstract

Our paper aims to introduce a new model that will be able to explain jointly migration flows linked to brain drain, brain gain and brain return. Our simple indicator (LISE) measures level of individual well-being linked to each country and it was perfectly comparable. With our indicator it is possible to understand what are the drivers of migration flows, there is the possibility to prevent phenomena related to brain drain or to incentivate phenomena related to brain gain or brain return simply connecting the relative differences between the indicators calculated in various countries of the world. We have empirically tested the validity of our indicator on a sample of 12 countries. We have opened new avenues for research because using our indicator it is possible to make forecasts or to understand how and when a skilled migration flow can occur. We are able to prevent damages of Brain Drain and cross border skill mismatching using our simple indicator.

Key Words: *Brain Drain, Brain Gain, Brain Return, Migration Flows, Skilled Migration, Skilled Workers, Skilled Migration, Return Migration, Returns to Ed- Ucation*
JEL Codes: F22, J61, O15

1. Introduction

This paper aims to introduce a new model based to explain Brain Drain, Brain Return and Brain Gain. The introduction of individual well-being index (*LISE*) represents a natural point of balance for highly skilled migration because phenomena related to Brain Drain appear explanaible in a more simple way if we use differences between comparable indices. The most important literature's current on Brain Drain starts from the model of Borjas and Bratsberg (1986). The autors, identified and tested a theory of optimal migration. They carried as hypothesis of drain and return personal skills and wages' dispersion in the sending and in the receiving country. Two reasons, concerning migrants' return, are considered in this model: an erroneous initial information on opportunities in the States or the possibility that the decision to migrate is reversible and that the return has already been programmed as part of a life cycle in the context of an excellent residential sequence. These two latest hypothesis direct us to start a model based on a different level of satisfaction. Inside the Borjas and Bratsberg model we can find the evidence that, if the flow of migrants is positively selected, will return home the low skilled instead, if it is negatively selected, will came back the highly skilled migrated. For these reasons we chose to develop a new model in which give greater importance to individual well-being, which would explain, in a more simple and complete way, the initial hypothesis of misinformation or a decision based on a residential sequence contained in the Borjas and Bratsberg's model. We find an indicator that measures the individual well-being. Movements of skilled migrants occur because there are a lot of variables that change the weights of well-being that they can get in a country or in another. For example we can consider the weight that may have the variables family, friends, career, meritocracy, "propensity to shift", as already mentioned in previous literature cost of moving, different level of schooling and bonus on wage, on the well-being indicator. Calibrating this indicator on an average level of the variables in each area of the world we can understand the different perception of individual well-being in every area of the world. The Goal of our model is to introduce a new indicator to compare levels of individual well-beinglevels that influence migration flows linked to brain drain , brain gain and brain return. With our simple indicator we are able to locate and also to prevent migration flows. This is quite simple because we can calculate the relative differences between the indicators related to the countries all over the world and comparing these differencies with the the historical development of migration flows. We are able with our simple indicator (LISE) to define when a migration flow will probably start. We are able to make provision about the phenomena related to brain drain, brain gain and brain return with the same simple indicator. With our simple indicator, we are able to implement economic policies in a simply way.

2. Literature Review

Literature begins to write about the possibility of an international mobility of human capital with manufacts of Grubel and Scott (Grubel and Scott, 1966), identifying with the help of Johnson's work some possible economic aspects of brain migration (Johnson, 1967) and beginning to highlight some aspects related to welfare (Berry and Soligo, 1969). A great contribution to the theoretical analysis was provided to us by Bhagwati and Hamada, they showed results in contrast to the neoclassical model in the case of the assumption of rigid wages and unemployment (Bhagwati and Hamada, 1974). Even we must underline the importance of McCulloch and Yellen's work to underline how the introduction of different kinds of externalities can improve the negative consequences of brain drain. High-skilled migration s presented as a driver for growth of the differences between rich and poor countries "Migration to the North" (McCulloch and Yellen, 1977). Bhagwati shows us the way to restrict the "passage of wealth", which occurs through the brain drain, from developing countries to developed countries: identifying a possibility in the taxation of emigration (Bhagwati, 1976). After the Borjas and Bratsberg model that gave us a pioneering vision of the phenomenon and in which the two writers had already identified that if the premium on wage in the native country was greater than the cost of emigration plus the cost of return divided by 1 minus the fraction of time spent working in the States the decision taken is to return[*]. A positive selection of immigration's flows determines a homecoming of low skilled conversely a negative selection of immigration facilitates the return home of the highly skilled migrants (Borjas and Bratsberg, 1994). Haque and Kim demonstrate that there is evidence about negative effects on economic growth and development of human capital in the country of origin (Haque and Kim, 1995). In the following years, some researchers, have studied how the immigration produced incentives on education, how a brain drain in a country can produce a brain gain in an other country. As demonstrated Brain Gain can manifest without the justification of the new skills learned abroad and taken home. Also previous literature explains that brain drain creates negative consequences for the country that

[*] $\kappa > M + \frac{R}{1-\pi}$ and $(1-\eta)v < \mu_0 - \mu_1 + \kappa > M + \frac{R}{1-\pi}$ on these two conditions Borjas and Bratsberg developed their model:

- If $(1-\eta)v \leq (\mu_0 - \mu_1 + \kappa) + \frac{M+R-\kappa}{1-\pi}$ stay in sourse country
- If $(1-\eta)v > (\mu_0 - \mu_1 + \kappa) + \frac{M+R-\kappa}{1-\pi}$ migrate to United States
- If $(\mu_0 - \mu_1 + \kappa) + \frac{M+R-\kappa}{1-\pi} < (1-\eta)v < (\mu_0 - \mu_1 + \kappa) + \frac{R}{1-\pi} - \varepsilon$ return to source country

Where π is the fraction of working life spent in the U.S.A., v and ε measure deviation of mean income, M cost of migrating in the States, R cost of return, κ premium on wage, η represent positive or negative selection ($\eta < 1$ positive selected and $\eta > 1$ negative selected)

suffered the demise of the brains. Brain return framed as a result of a negative shock (Stark et al., 1997). In the following years, some authors also written on the probability of employment in an external country increases the level of human capital in the home country. This happens because the possibility of emigrating affects human capital formation by generating a positive externality for the home country and a possible gain for the receiving country (Stark et al., 1998). It was also explained the value of a temporary possibility to migrate, in fact, it could increase the productivity's average level of an economy in the home country. Mountford also showed that the income of a long-run period and the income equality was increased from brain drain in a small open economy (Mountford, 1997). Past research, also provided to us, evidence that the possibility to migrate in a small developing economy generates an average level of human capital higher if it is open rather than if it is closed. This mechanism, according to the authors, work in two stages: the first, in which the human capital is developed through investment in education, it is called "Brain effect", the second, in which migration takes place, is called "Drain effect". The explained model is realized when the first effect dominates the second (Beine et al., 2001). Docquier and Marfouk measured the international mobility of brains (Docquier and Marfouk, 2004). Following research was refined with new estimates of entry's age, in order to exclude the age range considered out of sample worthy of study (Beine et al., 2007). We may define "high-skilled migrants" with the help of Doquier and Marfouk as as a foreign-born person, over 25 yeasrs old, holding an academic or professional degree (Docquier and Marfouk, 2000). According to some studies, Brain Drain is positive for developing countries if it turns into a brain gain, and if kept in estimated rates between 5 and 10 percent in low-income countries. As noted, most of developing countries shows an emigration rate below 10 percent, and most of the countries of Central America and sub-Saharian Africa are above this percentage. In this case is not at all obvious that a tax as in Baghwati, may generate a gain for the origin's country, in fact, it would have a positive impact only in the case of a brain drain "harmful" or above the percentage considered adequate. For these reasons, a fee may even harm the home country . Is already clear that brain drain rates decrease with economic development (Docquier et al., 2007). The research of Peri and Mayr (2009) tries to combine the model of Borjas and Bratsberg (1986) on the decisions of emigration and return, with the model of the decisions of migration and schooling of Stark et al. (1997) and the model that explains the relationship between the heterogeneous costs of schooling and schooling achievements as reported by Stiglitz (Stiglitz, 1975). The model has a structure based on two periods. The autors applied the model to the elimination of barriers to work mobility from the Eastern to Western Europe. They analized the period from 1990 to 2010 and they found that the possibility to emigrate induces the migrants from the East to invest more in human capital. This effect have a positive influence on average schooling and a negative effect on Brain Drain. Another

findings is that immigration policies in Western Europe the high skilled workers of the East to increase their knowledge (Mayr and Peri, 2009). Docquier and Rapoport show that brain drain migration becomes the dominant model of international mobility and it was one of the major aspects of globalization process (Docquier and Rapoport, 2012) .

3. The Model

The finding of this paper is to present a new simple model that allows us to describe and analyze in a quantitative manner, with insertion also of qualitative parameters, the ways in which brain drain, brain gain and brain return operate. Considering the structure divided in two periods presented by Peri and Mayr (2009) interesting but not yet sufficient to explain the differences in migration because the decision-making model generate it's too sharp, it was decided to insert a dedicated parameter to aging, considering it a parameter inversely proportional to the ability and to the capacity to move. The assumption of the model is that there is free movement of migrants and therefore there are no barriers to entry or to exit. The model is based on an "individual well-being indicator related to one country" (LISE) built on a structure composed of multiple variables. The novelty presented by this paper consists in the possibility of being able to compare the various "individual well-being indicators" in the various countries of the world and there is also the possibility to calibrate the indexes on the different perception of the individual well-being in the various countries. With the help of this index it is also possible to ascertain how the Brain drain, brain gain or the brain return occur between the various countries. The index calculated is comparable because it is homogeneous.

3.1 A N-Countries Model

Identifying the values of the indices in the various countries we can succeed in establishing how the migratory flows move.

We can built an "individual well-being indicator" for a contry (*LISE*):

$$LISE = \frac{WP - CM - MI + CP - LS}{1 + \frac{AAG}{PM}} - \frac{FA * AAG}{PM} + \frac{I}{1 + \frac{AAG}{PM}}^{\dagger} \quad (1)$$

The value of *WP* can be defined identifying an average wage and then it is possible to calculate the difference between the average wage and salary in the country for which the index is calculated. *WP* can be both positive and negative.

† LISE is individual country well-being indicator, WP represents the wage premium, CM is the cost of moving, MI is an index that estimate meritocracy perception, FA measure the importance attributed to family and friends (as a psychological cost), CP estimates career possibility, AAG measure the average age of migrants, PM estimates propension to move, LS represents level of schooling and I are incentives on migration.

$$WP = \frac{cw - aw}{aw}^{\ddagger}$$

CM is the real cost of migration that is different between the various countries of the world: a country closer result in a lower cost, a country farther will require a higher cost of moving. CM represents the average cost of moving weighed according to the distance.

$$CM = \frac{acm * d}{acm}^{\S}$$

MI estimates meritocracy perception. To calculate MI is it possible to introduce an average level of meritocracy and after calculate the difference from the average value.

$$MI = \frac{mi - ami}{ami}^{**}$$

CP defines career's possibility in the indexed country.

$$CP = \frac{fj - nm}{fj}^{\dagger\dagger}$$

LS is the level of schooling of the indexed country calculated as:

$$LS = \frac{cls - als}{als}^{\ddagger\ddagger}$$

In the first part of the index, we have entered a weight that can decrease the impact of the variables *WP, CM, MI, CP* and *LS.*

$$1 + \frac{AAG}{PM}^{\S\S}$$

To calculate *PM*:

$$PM = \frac{pm - apm}{apm}^{***}$$

FA measure importance of family and friends' presence in the country for which we are calculating the index:

$$FA = \frac{nofh - noff}{1 + noff}^{\dagger\dagger\dagger}$$

I measure the incentive's level to migration in the country indexed:

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‡ *aw* is the average wage calculated in all countries and *cw* is the average wage in the country for which we are calculating the index.
§ a*cm* is average cost of moving and *d* represents distance.
** *mi* is a meritocracy index for the indexed country and *ami* is the average value of meritocracy.
†† *fj* is a variable that represents free jobs and *nm* is the number of migrants.
‡‡ *als* represents average level of schooling calculated in all countries and *cls* is the average level of schooling in the country which we are calculating the index.
§§ *AAG* is the average age of migrants and *PM* measure the propension to move.
*** *apm* measure average propension to move calculeted in all countries and *pm* is propension to move of the migrants we are indexing.
††† *Nofh* represents numbers of people in the family or friends in the home country and *noff* is the number of people in the family or friends in the country indexed.

$$I = \frac{ci - ai}{ai}$$ ‡‡‡

3.2 A Particular Case: A Two Countries Model

Assuming that a model is composed of two economies (H home country and F foreign country) it is possible with our "individual well-being indicator" (*LISE*) to find a level of the indicators of the two countries it is possible to find different levels of the indexes of the country H and the country F to which occurs the Brain Drain for H, the Brain Gain for F and the subsequent Brain Return to H. (for example if $LISE_F = 2\,LISE_H$ we can find an hyphotetical starting point for Brain Drain comparing actual results with historical differences of the indicator when migration occurred in the past)

We can built variables in this way to estimate$LISE_F$:

$$WP_F = \frac{cw_F - cw_H}{cw_F + cw_H}$$

It is possible to calculate *CM* as:

$$CM_F = cost\ of\ moving\ from\ H\ to\ F$$

MI becomes:

$$MI_F = \frac{mi_F - mi_H}{mi_F + mi_H}$$

We can calculate *CP*:

$$CP_F = \frac{fj_F - fj_H}{fj_F + fj_H}$$

LS is transformed into:

$$LS_F = \frac{cls_F - cls_H}{cls_F + cls_H}$$

To calculate *PM*:

$$PM_F = \frac{pm_H - pm_F}{pm_H + pm_F}$$

FA turn in:

$$FA_F = \frac{nof_F - nof_H}{nofF_F + nof_H}$$

measure of the incentive's level to migration *I* becomes:

$$I_F = \frac{ci_F - ci_H}{ci_F + ci_H}$$

Finally using equation (1):

$$LISE_F = \frac{WP_F - CM_F - MI_F + CP_F - LS_F}{1 + \frac{AAG}{PM_F}} - \frac{FA_F * AAG}{PM_F} + \frac{I_F}{1 + \frac{AAG}{PM_F}}$$

‡‡‡ *ci* are incentives to migration in the country indexed and *ai* is average incentives.

Using the same procedure for the index $LISE_H$ we can compare the two indexes to determine how migration move from country h to country f and viceversa. We are able to doing this simply observing the relative levels of the indices calculated.

$$LISE_F > LISE_H$$

4. Methodology and Research Design

A quantitative method was chosen as the best way to find some clear evidence about our new indicator. Data were collected from OECD databases and from IAB databases (the research institute for the federal employment research). We have investigated on a thirteen years time horizon with annual observations of thirteen countries: Australia, Canada, Germany, Italy, Japan, Luxembourg, Netherland, Norway, Spain, Sweden, Switzerland, United Kingdom, United States. We have implemented a model with 169 observations so we have collected a model with a sufficient number of observation to have a statistical validity. We have standardized data in the statistical sense. Obviously observations are related only to a sample of high-skilled migrants. Variables incorporated in our model are as follows: Adult education level tertiary woman and man from 25 to 64 years old percentage from 2000 to 2013 to measure the influence of level of education on migration flows(LS); Average wages in US dollars from 2000 to 2013 to compare the levels of wage between different countries (WP); Education Spending in tertiary sector from 2000 to 2013 to compare different level of schooling between different countries (LS); Elderly population percentage from 2000 to 2013 to insert a variable related to the population average age (PM); Foreign born participation as a percentage of foreign born labour force from 2000 to 2013 as a variable able to explain different levels of labour force related to immigration (I); Employment by education in tertiary as a percentage of 25-64 years old from 2000 to 2013 to evaluate the real labour force in tertiary sector; Employment rate as a percentage of working age population from 2000 to 2014 for a correct evaluation of working age population between selected countries (AAG); Family benefits public spending as a percentage of GDP from 2000 to 2013 to find evidence about the real level of life quality in every country (CM); GDP long term forecast in million of US dollars from 2000 to 2014 to evaluate the possibility of surveyed countries' development in future years; Employee compensation by activity in percentage of gross value added from 2000 to 2013 to measure the possibility to future development of the country (MI); General government spending by destination in percentage of GDP from 2000 to 2013 to understand different levels of public spending between different countries (FA); Researchers per 1000 employed to explain different levels of high skilled employees in different countries (LS); Health spending Public and private out of pocket in percentage of GDP from 2000 to 2013 to evaluate different levels of life quality (FA); Life expectancy at birth measured in years from 2000 to 2013 (FA); Suicide rates total per 100.000 persons from

2000 to 2012 to evaluate quality of life (CM); Tax on personal income in percent of GDP from 2000 to 2013 and Tax on property in percent of GDP from 2000 to 2013 to evaluate the impact of taxation on quality of life (CM and FA); Public unemployment spending in percentage of GDP from 2000 to 2012 to give to our index a correct evaluation about unemployment in different countries (PM).

5. Data Analysis and Results

We have conducted an analysis of the inputs of the main components designed to produce a composite indicator that is able to measures the attractiveness of a country for brains or high skilled migrants. We have inserted in our model In the following tables it is possible to observe the weight and the type of effect of each independent variable:

Table 1

	Adult education level Tertiary (% Tertiary, women (% Tertiary, men, % of 25-64 year-olds) 2000-2013	Average wages Total, US dollars 2000-2013	Education spending Tertiary, 2005=100, 2000-2013	Elderly population Total, % of population, 2000-2013
Australia	0,16099673	0,53611155	1,20228539	-0,98214998
Canada	1,67811405	0,1203162	-0,49096821	-0,71526482
Germany	-1,05712667	-0,39861498	1,26313126	1,12225486
Italy	-2,40813626	-1,42648897	-0,86473569	1,00875197
Japan	1,02475696	-1,19362034	-0,76390539	2,27875722
Luxembourg	0,29388292	1,5628241	0,48256569	-1,12326167
Netherlands	-0,45913882	0,53413711	1,4823E-15	-0,27761406
Norway	0,19421828	0,54447392	-1,54273251	-0,56495019
Spain	-0,48128652	-1,22927654	0,42171982	0,08539067
Sweden	-0,1158495	-0,73299342	-0,03027806	0,44880441
Switzerland	0,09455363	1,12693584	-1,45233293	-0,00970635
United Kingdom	0,42676911	-0,6113907	1,56214524	-0,19990037
United States	0,64824609	1,16758623	0,21310541	-1,0711117
weight	**5,37%**	**3,86%**	**0,39%**	**0,12%**
type of effect	+	+	-	-

Table 2

	Foreign-born participation ratesTotal, % of foreign-born labour force, 2000 – 2013	Employment by education levelTertiary, % of 25-64 year-olds 2000 – 2013	Employment rateTotal, % of working age population, 2000 – 2013	Family benefits public spendingTotal, % of GDP, 2000 – 2012
Australia	-0,29589045	-0,15177969	0,30645718	0,59041534
Canada	0,54293882	-0,51216983	0,36930403	-0,86018243
Germany	-0,48229696	0,81226393	0,51412502	0,03804066
Italy	-1,725007	-1,40638786	-1,94236683	-0,63003836
Japan	-0,11530915	-0,74191855	0,27093506	-0,8425022
Luxembourg	0,41866782	0,15680436	-0,54880638	1,33991012
Netherlands	-0,97938097	0,85956513	0,5250549	-0,50243479
Norway	-0,0784162	1,20869308	0,77644228	0,8885223
Spain	1,38176809	-1,7487585	-2,0366371	-0,77032399
Sweden	0,01478705	1,1276053	0,63708623	1,30671753
Switzerland	2,22059737	1,10733335	1,34479634	-0,73431317
United Kingdom	-0,38909371	0,14103729	0,108353	1,52168648
United States	-0,51336471	-0,85228803	-0,32474372	-1,34549749
weight	**0,46%**	**15,35%**	**19,67%**	**1,49%**
type of effect	+	+	+	+

Table 3

	GDPlong-termforecastTotal, MillionUSdollars, 2000–2013	Employee compensation by activityTotal, % of gross value added, 2000 – 2013	General government spending by destinationIndividual, % of GDP, 2000 – 2013	ResearchersTotal, Per 1000 employed, 2000 – 2013
Australia	-0,377605392	-0,6623314	-0,36900698	0,34770373
Canada	-0,259463058	0,0178938	0,30836	-0,02774785
Germany	0,144665622	0,6655659	0,07794418	-0,08666576
Italy	-0,192156079	-2,3657203	-0,19133695	-1,88857178
Japan	0,45382014	-0,3987413	0,0224223	0,7283653
Luxembourg	-0,593263798	0,2303935	-0,47449856	-0,95079508
Netherlands	-0,444513553	0,3820822	1,48264783	0,06553883
Norway	-0,52898325	-0,8015866	0,65537177	0,84620112
Spain	-0,288651532	-0,4783157	-0,31903728	-0,896787
Sweden	-0,514435121	0,1930931	1,86574883	2,27005056
Switzerland	-0,519098244	1,8044741	-1,60159279	-0,43526339
United Kingdom	-0,054665474	0,7028664	0,18343576	-0,0179282
United States	3,174349738	0,7103265	-1,64045811	0,04589953
weight	**0,00%**	**8,24%**	**2,23%**	**14,34%**
type of effect	+	+	+	+

Table 4

	Health spendingPublic/ Private/ Total/ Out-of-pocket, % of GDP, 2000 - 2013	Life expectancy at birthTotal/ Men/ Women, Years, 2000 - 2013	Suicide ratesTotal, Per 100 000 persons, 2000 - 2012	Tax on personal incomeTotal, % of GDP, 2000 - 2013
Australia	-1,27204047	0,29963264	-0,1139617	0,69215082
Canada	-0,2798489	-0,28050715	0,00949681	0,99048463
Germany	0,68814287	-0,77776982	0,00949681	0,07950104
Italy	-0,59444623	0,79689531	-1,28681754	1,1556337
Japan	0,80914184	1,29415798	2,66385475	-2,0088356
Luxembourg	-1,65923717	0,0510013	-0,33001409	-0,22416015
Netherlands	1,7852002	-0,36338426	-0,14482633	-1,09785202
Norway	0,05088162	-0,03187581	-0,08309707	0,33521573
Spain	-0,90904355	1,12840376	-1,10162977	-1,10317941
Sweden	1,3818703	0,13387841	0,34900771	1,52322357
Switzerland	-0,15078333	0,87977242	0,47246622	-0,43725573
United Kingdom	-0,15884993	-0,6120156	-1,07076515	-0,12826714
United States	0,30901276	-2,51818918	0,62678935	0,22334056
weight	**8,01%**	**1,90%**	**6,70%**	**0,03%**
type of effect	+	-	+	-

Table 5

	Tax on propertyTotal, % of GDP, 2000 - 2013	Public unemployment spendingTotal, % of GDP, 2000 - 2012	LISE	LISE (average=100)
Australia	0,18720008	-0,48058752	-0,19847	95,85489859
Canada	0,97543637	-0,44288884	0,324179	106,7706053
Germany	-1,13142104	0,1285195	0,808819	116,8925091
Italy	0,4918502	-0,10154547	-4,68803	2,088540267
Japan	0,46340395	-0,75787974	0,714386	114,9202337
Luxembourg	0,66252767	0,78593355	-0,92754	80,62799527
Netherlands	-0,97267264	0,48742617	1,447091	130,2230836
Norway	-0,84695859	-0,56852536	1,811957	137,8434542
Spain	-0,00733553	2,94739696	-4,20394	12,19907963
Sweden	-1,00020127	-0,7090538	2,933803	161,2736653
Switzerland	-0,34134951	-0,29324426	1,729094	136,1128229
United Kingdom	1,74348501	-0,60198291	-0,0634	98,67594561
United States	0,62215236	-0,39356828	0,312044	106,5171666
weight	**3,69%**	**8,12%**		
type of effect	-	+		

We can compare the differential between migration flows regarding the analyzed countries with the factors which are also differentials between countries, so we have the weight of every single factor and the type of effect of every single factor (table 1,2,3,4 and 5). We can that factors that have an haevy weight on migrations flows are: Employment rate with 19,67 %, Employment by education level with 15,35%,Researcher total per 1.000 employed with 14,34 %, Employee compensation by activity with 8,24 % and Public unemployment spending with 8,12 %. We can consider that these factors have a positive impact on our indicator. We can observe that Tax on property has a negative impact on our indicator with a weight of 3,69 %.

We have demonstrated that the best performers in Brain Gain are Sweden with a LISE average about 161, Norway 137, Switzerland 136 and Netherlands 130. The worst performers with the data analized by our model are Italy and Spain that present a bad LISE and a very bad LISE (average).

6. Conclusions

We managed a new indicator (LISE) that was able to measure in a relative and comparable way (with the help of differencial contained in the model) every migration flows between different countries with different features, size, levels of development, population and it will opens new avenues for research. It will be possible to implement new economic policies with the help of our simple and cheap indicator. Our paper gives to researchers the possibility to compare very small regions with very big countries. It will be possible to create a model that can prevent high skilled migration damages. Our simple indicator will become a good help for policy makers because with the help of weights and type of effect they can decide or improve their public policies to prevent Brain Drain, to help Brain Gain or to try to improve Brain Return. With our new indicator it will be possible to use previous literature theories to explain brain drain, brain gain and brain return together. Our work opens new avenues for research it may provide the inclusion of other factors such as innovation inside our index to assess its impact on skilled migration flows.

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