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RIVISTA ITALIANA DI ECONOMIA DEMOGRAFIA E STATISTICA

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INDICE

FROM TANDEM TO SIMULTANEOUS DIMENSIONALITY REDUCTION AND CLUSTERING OF TOURISM DATA[1]

Mario Fordellone, Venera Tomaselli, Maurizio Vichi

1. Simultaneous *vs* sequential methods

In the market segmentation studies, but also in economic and social phenomena, many variables are often observed and a huge amount of objects are analysed in large data sets. The suitable statistical data analysis for modelling complex phenomena requires reducing both variables and units in order to extract the relevant information (Knowledge) from the data. From one end, the aim is to identify significant relationships, via dimensionality reduction either: of categorical variables by multiple correspondence analysis (MCA); or, of metric variables by principal component analysis (PCA) or factor analysis (FA). The reduction provide the measurement of hidden concepts, i.e., latent variables. From the other end, clustering produces a reduced sets of homogeneous objects described by the reduced set of latent variables.

The traditional sequential data reduction and clustering procedure is often not reliable due to some problems. Firstly, a reduced set of factors extracted from many variables could remove relevant information about the subsequent clustering data structure (De Sarbo *et al.*, 1994). Furthermore, noise could be introduced from those variables not so useful for clustering objects (Rocci, Gattone & Vichi, 2011). Thus, the sequential or *tandem analysis* (TA) could not clearly define factors and properly describe the clustering structure.

Focusing on factorial methods, the interpretation of the factors is often very hard. Factors, indeed, are defined as linear combinations of all variables, and generally have loadings usually different from zero; while, only few variables are effectively relevant for each factor. With the aim to simplify, alternative procedures have been proposed that combine the search for a reduced set of factors, such as multidimensional scaling or unfolding analysis, and clustering methods (Heiser, 1993; De Soete and Heiser, 1993, De Soete and Carroll, 1994, Bolton and Krzanowski, 2003).

[1] Invited paper to the 54th SIDES Scientific Meeting – Catania 2017.

As a good alternative to TA in the case of metric variables, a Factorial *K*-Means (FKM) model combining *K*-means cluster analysis with PCA was proposed by Vichi and Kiers (2001). The method selects the most relevant variables achieving factors that best identify the clustering structure in order to find in the data the best subspace that best represents this structure.

In the case of observed categorical variables, a similar methodology was proposed by Fordellone and Vichi (2016), named Multiple Correspondence *K*-Means (MCKM), for simultaneous dimension reduction and clustering. By means of an alternative least squares algorithm, in this innovative simultaneous definition of factors and clusters on the observed data, the minimization of a single objective function allows for identifying the best partition of *N* objects depicted by the best orthogonal linear combination of variables.

However, in the last years, Structural Equation Modeling (SEM) has become one of the reference statistical methodologies in the analysis of complex phenomena, where there are statistical relationships between variables directly observable (manifest variables) and non-directly observable (latent variable). Then, SEM are often used to assess unobservable hidden constructs (latent variables) by means of observed variables and to evaluate the relations between latent constructs. Covariance Structure Approach (CSA) (Jöreskog, 1978) and Partial Least Squares (PLS) (Lohmöller, 1989) are the two alternative statistical techniques for estimating such models. However, PLS is considered preferable to CSA in three specific cases: (*i*) when the sample size is small, (*ii*) when the data to be analyzed is not multi-normal as required by CSA, and (*iii*) when the complexity of the model to be estimated may lead to improper or non-convergent results (Bagozzi and Yi, 1994; Squillacciotti, 2010).

To detect homogenous tourism profiles, the sequential procedure is often employed in the tourism market segmentation studies to find clustering structure with a reduced set of factors (Pina & Delfa, 2005; Dolnicar, 2005; Asero *et al.*, 2013). In the following sections of the present paper, tourism survey data are processed with the aim to compare the findings by sequential and simultaneous methods. A new methodology for simultaneous non-hierarchical clustering and PLS-modeling was recently proposed and named Partial Least Squares K-Means (PLS-KM) (Fordellone and Vichi 2017). The model is based on the simultaneous optimization of PLS-SEM and Reduced K-Means (De Soete and Carroll, 1994), where centroids are laying the reduced space of the LVs, thus, ensuring the optimal partition of the statistical units on the best latent hyperplane defined by the structural/measurement relations estimated by the SEM pre-specified model.

In our hypothesis, TA shows some fallacies to correctly classify units and synthesize the relationships among observed categorical or metric variables. Specifically, the loss function of the TA is only imprecisely estimated by the

sequential procedure. Employing the simultaneous procedure, instead, the loss function is optimized. Hence, well-characterized dimensions are detectable and more homogenous and well-separate clusters identifiable, making even easier the interpretation of the achieved results.

2. Simultaneous procedure

Given the $n \times J$ data matrix $\mathbf{X}$, the $n \times K$ membership matrix $\mathbf{U}$, the $K \times J$ centroids matrix $\mathbf{C}$, the $J \times P$ loadings matrix $\mathbf{\Lambda} = [\mathbf{\Lambda}_{\mathrm{H}}, \mathbf{\Lambda}_{\mathrm{L}}]$[2], and the errors matrices $\mathbf{E}$, $\mathbf{Z}$, $\mathbf{D}$, the Partial Least Squares *K*-Means model can be written as follows (Fordellone and Vichi, 2017):

$$\begin{aligned} \mathbf{H} &= \mathbf{H}\mathbf{B}^{\mathrm{T}} + \mathbf{\Xi}\mathbf{\Gamma}^{\mathrm{T}} + \mathbf{Z}, \\ \mathbf{X} &= \mathbf{\Xi}\mathbf{\Lambda}_{\mathrm{H}}^{\mathrm{T}} + \mathbf{H}\mathbf{\Lambda}_{\mathrm{L}}^{\mathrm{T}} + \mathbf{E}, \\ \mathbf{X} &= \mathbf{U}\mathbf{C}\mathbf{\Lambda}\mathbf{\Lambda}^{\mathrm{T}} = \mathbf{U}\mathbf{C}\mathbf{\Lambda}_{\mathrm{H}}\mathbf{\Lambda}_{\mathrm{H}}^{\mathrm{T}} + \mathbf{U}\mathbf{C}\mathbf{\Lambda}_{\mathrm{L}}\mathbf{\Lambda}_{\mathrm{L}}^{\mathrm{T}} + \mathbf{D}, \end{aligned} \tag{1}$$

under constraints: *(i)* $\mathbf{\Lambda}^{\mathrm{T}}\mathbf{\Lambda} = \mathbf{I}$; and *(ii)* $\mathbf{U} \in \{0,1\}$, $\mathbf{U}\mathbf{1}_K = \mathbf{1}_n$. Where, $\mathbf{H}$ is the $n \times L$ matrix of the endogenous LVs with generic element $\eta_{i,l}$, $\mathbf{\Xi}$ be the $n \times H$ matrix of the exogenous LVs with generic element $\xi_{i,h}$, $\mathbf{B}$ is the $L \times L$ matrix of the path coefficients $\beta_{l,l}$ associated to the endogenous latent variables, $\mathbf{\Gamma}$ is the $L \times H$ matrix of the path coefficients $\gamma_{l,h}$ associated to the exogenous latent variables, $\mathbf{\Lambda}_{\mathrm{H}}$ is the $J \times H$ loadings matrix of the exogenous latent constructs with generic element $\lambda_{j,h}$, and $\mathbf{\Lambda}_{\mathrm{L}}$ is the $J \times L$ loadings matrix of the endogenous latent constructs with generic element $\lambda_{j,l}$.

Thus, the PLS-KM model includes the PLS and the clustering equations. In fact, the third set of equations is the model of Reduced K-means (De Soete and Carroll, 1994). The simultaneous estimation of the three sets of equations will produce the estimation of the pre-specified SEM describing relations among variables and the corresponding best partitioning of units.

When applying PLS-KM, the number of groups is unknown and the identification of an appropriate number of *K* clusters is not straightforward. Then, often you need to rely on some statistical criterion. In this paper we use the *gap method* proposed by Tibshirani at al. (2001) for estimating the number of clusters, i.e., a *pseudo*-F designed to be applicable to virtually any clustering method.

In the preliminary step of the PLS-KM algorithm, the estimation of the PLS-SEM over the entire dataset is carried out; subsequently, the number of the *K* classes is obtained according to the maximum level of the *pseudo*-F function

[2] Note that $H+L=P$

computed on the estimated latent scores. Then, once chosen the number of clusters, the PLS-KM algorithm optimize the following overall objective function:

$$\text{argmin}_{\mathbf{UC\Lambda}} \left\| \mathbf{X} - \mathbf{UC\Lambda\Lambda}^{\mathrm{T}} \right\|^{\mathbf{2}} \qquad (2)$$

Note that because the constraints on **U**, the method can be expected to be rather sensitive to local optima. For this reasons, it is recommended the use of some randomly started runs to find the best solution.

3. Data and findings in sequential reduction and clustering

The methods for dimensionality reduction and clustering are employed to analyse incoming tourism data collected by a survey based on a sampling design known as *Time-Location Sampling* (Kalton, 2003; 2009). This methodology suits the mobile aspect of tourists and the absence of a complete list of sampling units for an unknown population. Tourists are often not immediately identifiable at destination access points because they mingle with residents or other types of travellers.

On the basis of official data on tourist flows, the survey was carried out at the main Sicilian ports and airports in spring, summer and early autumn when more than 80% of tourists visit the Island (Asero *et al.*, 2013). Data were collected by a questionnaire divided into different sections based on main tourism related dimensions, specifically: tourist nationality, first-time *vs.* repeated visitors, age, reason/motivation for vacation, family/friends or alone on holiday, information tool, travel arrangements, type of accommodation, type of holiday, total expenditure and specific items, expectations, and level of satisfaction. In addition, a special section was dedicated to mobility among different destinations within Sicily. Tourists were asked to indicate all the locations visited where they had spent at least one night; specifying the number of nights spent and the type of accommodation.

All of these variables were derived from a thorough review of tourism segmentation literature (Kozak, 2002; Pina & Delfa, 2005; Dolnicar, 2005; Martínez-Garcia & Raya, 2008). In the segmentation studies, the variables can assume the role of bases if they directly generate the process of classification into groups of units under observation, or behave as descriptors when they come to the interpretation of the segments (Brasini *et al*., 2002). The variables of market segmentation, as a consequence, should allow for significant differentiation of the members of the various segments in terms of expectations, attitudes and consumer behaviour. Furthermore, they must support the construction of explanatory

hypotheses about the factors affecting the observed phenomena (Idili and Siliprandi, 2005).

The analysis of the above survey data focused on tourists autonomously visiting the destinations in order to identify tourist profiles through motivational and behavioural variables leading to choose a destination. Thus, a number of 3233 self-organized tourists were selected from the original sample (3935).

On this sample of tourism data, the sequential approach for dimensionality reduction and clustering was performed. Specifically, the selection of useful features was performed step-by-step by the integrated multidimensional analysis strategy aimed to synthesize the variables into analytical dimensions for the subsequent clustering procedure (CA). For categorical variables, Multiple Correspondence Analysis (MCA) was employed and Principal Component Analysis (PCA) for the metric variables. Object scores by MCA and factor scores by PCA were used to define market segments by CA. The clustering was a non-hierarchical grouping procedure involving 'centres on the move'. It performed directly a partition in stable and homogeneous groups without progressive aggregation of pairs or groups of objects. The aggregation method, related to single links or to the closest units, was based on the smallest distances among contiguous units into a single group. The identification of stable groups was performed using the criterion of Ward known as 'minimum variance' which, after decomposition of the variance in *between* and *within*, aggregates the elements that together make up the cluster with the least internal variance (Fabbris, 1997). The agglomerative hierarchical method was used, proceeding *via* the progressive aggregation of groups into 'nodes', in order to build a tree whose terminal elements were precisely the stable groups previously identified.

Following this procedure, two clusters were obtained (Asero *et al.*, 2013): in the first, younger Italians were recovered, who spent less time on holiday, less interested in the 'beach' product, travelling alone or with friends, preferring free accommodation or B&B; in the second cluster, mainly older foreigners, for longer periods, preferring the beach and almost exclusively with family, with a *per capita* expenditure of around double in comparison with the first cluster, overall for internal trips and restaurants as well as for hotels and residence as accommodation.

4. Main results by simultaneous method

Dataset consists in 9 variables (8 categorical and 1 continuous) that represent the answers of 3233 self-organized tourists. The set of categorical variables have been re-scaled in an indicator matrix (called also *complete disjunctive table*) centred and normalized both by rows and by columns. In particular, $J^{1/2}\mathbf{JDL}^{1/2}$ is

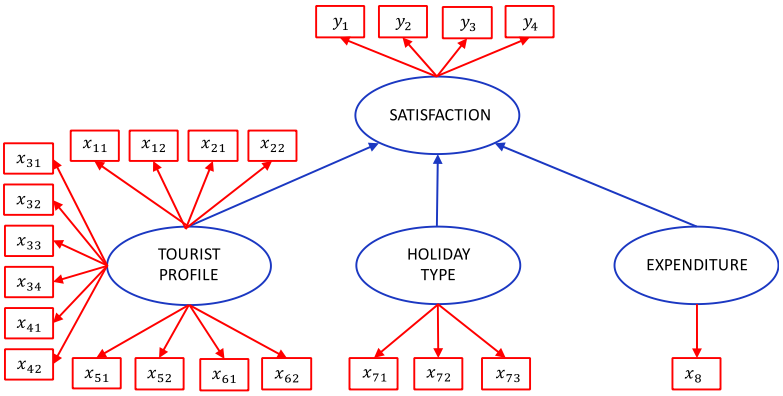
the centred categorical data matrix corresponding to the J qualitative variables, with the binary block matrix $\mathbf{D} = [\mathbf{D}_1, \dots, \mathbf{D}_J]$ formed by J indicator binary matrices $\mathbf{D}_J$ with elements $d_{ijm} = 1$, if the i^{th} individuals has assumed category m for variable j; $d_{ijm} = 0$, otherwise; $\mathbf{L} = diag(\mathbf{D}^T\mathbf{1}_n)$; $\mathbf{J} = \mathbf{I}_n - n^{-1}\mathbf{1}_n\mathbf{1}_n^T$ is the idempotent centering matrix with $\mathbf{1}_n$ the *n*-dimensional vector of unitary elements. The details on the original variables are shown in Table 1.

Table 1 – *Description on the variables included in the model*

Variable	Description
Nationality (x_1)	x_{11}: *Italy* x_{12}: *Foreign Country*
Gender (x_2)	x_{21}: *Male* x_{22}: *Female*
Age classes (x_3)	x_{31}: *<25 years* x_{32}: *25-44 years* x_{33}: *45-64 years* x_{34}: *>64 years*
Travel-friends 1 (x_4)	x_{41}: *Alone* x_{42}: *With someone*
Travel-friends 2 (x_5)	x_{51}: *Alone* x_{52}: *With family*
Travel-friends 3 (x_6)	x_{61}: *Alone* x_{62}: *With friends*
Type of holiday (x_7)	x_{71}: *Beach only* x_{72}: *Partial beach* x_{73}: *No beach at all*
Expenditure (x_8)	x_8: *Cost of the holiday* (continuous)
Satisfaction (y)	y_1: *High satisfaction* y_2: *Medium-high satisfaction* y_3: *Medium-low satisfaction* y_4: *Low satisfaction*

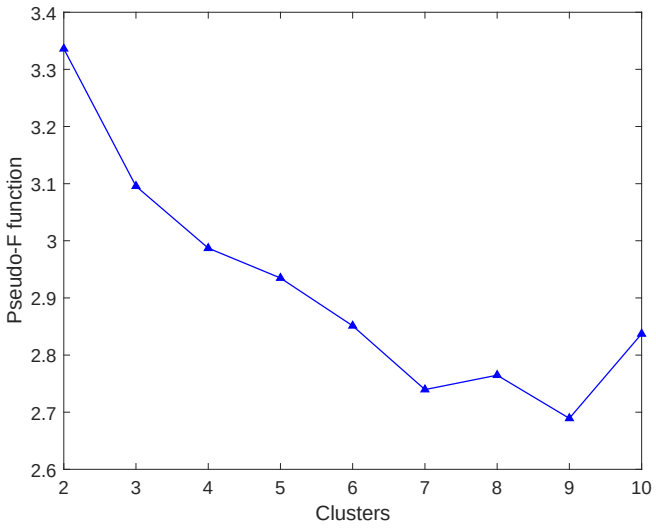
The causal structure used for modelling the relationships among latent constructs and observed variables, is represented by the path-diagram shown in Figure 1.

Figure 1 – *Path-diagram of the tourism model*



In order to apply the Partial Least Squares *K*-Means, the first step to consider is the choice of the number of clusters *K*. The optimal number of classes is obtained according to the maximum level of the *pseudo*-F function computed on the latent scores firstly estimated by PLS approach (Tenenhaus et al., 2004). The gap method proposed by Tibshirani et al. (2001) suggests $K = 2$, with the corresponding value of *pseudo*-F equal to 3.336 as shown in Figure 2.

Figure 2 – *Pseudo-F function obtained via gap method on the PLS scores from 2 to 10 clusters*



Once the number of clusters has been chosen, PLS-KM has been applied fixing a number of random starts equal to 15. The latent hyperplane obtained by the model has an Average Variance Explained (AVE) for factors equal to 54%.
The results obtained on the structural model and measurement models are shown in Table 2 and Table 3, respectively.

Table 2 – *Structural model estimated by PLS-KM*

	Tourist profile	Holiday type	Expenditure	Satisfaction
Tourist profile	0	0	0	**0.482**
Holiday type	0	0	0	**0.342**
Expenditure	0	0	0	**0.175**
Satisfaction	0	0	0	0

Table 3 – *Measurement models estimated by PLS-KM*

	Tourist profile	Holiday type	Expenditure	Satisfaction
x_{11}	**0.404**	0.000	0.000	0.000
x_{12}	**-0.404**	0.000	0.000	0.000
x_{21}	**-0.047**	0.000	0.000	0.000
x_{22}	**0.047**	0.000	0.000	0.000
x_{31}	**0.109**	0.000	0.000	0.000
x_{32}	**-0.403**	0.000	0.000	0.000
x_{33}	**0.326**	0.000	0.000	0.000
x_{34}	**0.114**	0.000	0.000	0.000
x_{41}	**-0.179**	0.000	0.000	0.000
x_{42}	**0.179**	0.000	0.000	0.000
x_{51}	**0.323**	0.000	0.000	0.000
x_{52}	**-0.323**	0.000	0.000	0.000
x_{61}	**-0.227**	0.000	0.000	0.000
x_{62}	**0.227**	0.000	0.000	0.000
x_{71}	0.000	**-0.646**	0.000	0.000
x_{72}	0.000	**-0.107**	0.000	0.000
x_{73}	0.000	**0.756**	0.000	0.000
x_{8}	0.000	0.000	**1.000**	0.000
y_{1}	0.000	0.000	0.000	**-0.715**
y_{2}	0.000	0.000	0.000	**0.667**
y_{3}	0.000	0.000	0.000	**0.173**
y_{4}	0.000	0.000	0.000	**0.122**

From the results obtained by structural and measurement models, is interesting to see that the *satisfaction* of the tourists is most influenced by *tourist profile* dimension (path coefficient equal to 0.48), with respect to the *holiday type* dimension (path coefficient equal to 0.34) and the *expenditure* dimension (path coefficient equal to 0.17). In Table 3 is possible see the intensity and the direction of the relationships among the four latent constructs and the single observed variables.

In Table 4 are shown the summary statistic on the normalized latent scores observed on the two clusters.

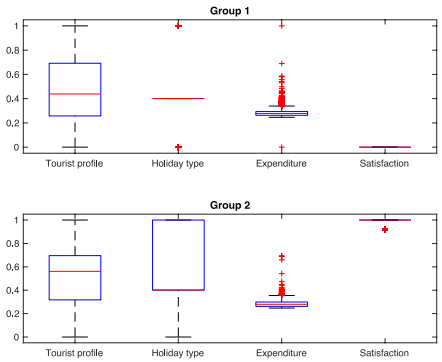
Table 4 – *Summary statistics of the latent scores observed on two groups*

	Group 1				Group 2			
	Tourist profile	Holyday Type	Expenditure	Satisfaction	Tourist profile	Holyday Type	Expenditure	Satisfaction
Min	0.000	0.000	0.000	0.000	0.000	0.000	0.247	0.918
Q1	0.258	0.401	0.263	0.000	0.318	0.401	0.262	1.000
Median	0.438	0.401	0.278	0.000	0.562	0.401	0.280	1.000
Mean	0.458	0.443	0.284	0.000	0.530	0.507	0.288	0.992
Q3	0.692	0.401	0.294	0.000	0.696	1.000	0.299	1.000
Max	1.000	1.000	1.000	0.000	1.000	1.000	0.694	1.000
	N = 2614				***N = 619***			

From the summary statistics, it is easy to note that in two observed clusters (formed by 2614 and 619 observations, respectively) represent the unsatisfied and the very satisfied tourists, respectively.
In fact, in the *tourist profile* dimension, no relevant differences are observed among clusters. In particular, in the first group (satisfied tourist) the 44% of tourists are Italian tourists and the 56% are foreign tourists, half of tourists are men (women), and most of them (about 88%) has age included between 25 and 64 years old. In the second group (no satisfied tourists) the 36% of tourists are Italian tourists and the 64% are foreign tourists, also in this group half of tourists are men (women), while about the 90% of tourists have age included between 25 and 64 years old.
As regards the cost of the holiday, it is possible to see that the second group has a *per capita* expenditure bigger than first group (mean of expenditure equal to 70.24 and 63.54 respectively).

Finally, in Figure 3 the box-plots of the normalized latent scores observed on the two groups are shown

Figure 3 – *Box-plots of the latent scores observed on two groups*



5 Conclusion

Tandem Analysis (TA) is a well-known sequential procedure for clustering and dimension reduction. This methodology is frequently used in applications for both quantitative data and qualitative/categorical data.

However, in some case this approach has several limitations. In particular, TA can fail to find the correct clustering structure of data because the noise variables could mask it. As alternative to TA there are the simultaneous approaches, e.g. Factorial *K*-Means (FKM) (Vichi and Kiers, 2001) in the case of metric variables, and Multiple Correspondence *K*-Means (MCKM) (Fordellone and Vichi, 2016) in the case of categorical variables. Both these approaches apply simultaneously a dimension reduction model (PCA and MCA, respectively) and a clustering model (*K*-Means).

In this work a new model recently proposed in (Fordellone and Vichi 2017) and named Partial Least Squares *K*-Means (PLS-KM) has been applied on mixed categorical and continuous variables. This methodology combines the Structural Equation Model (SEM) estimated via PLS algorithm and the *K*-Means model.

A comparison between TA and PLS-KM has been carried in order to analyse the incoming tourism phenomenon. Both approaches provide a number of clusters $K = 2$, but the results obtained show many differences in terms of tourist profile. The simultaneous procedure shows more homogenous and well-separate clusters than the sequential approach. Moreover, PLS-KM in addition of clustering model provides a model to study relationships among variables, where it is possible to analyse the tourist satisfaction as influenced by other aspects of the holiday.

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SUMMARY

From tandem to simultaneous dimensionality reduction and clustering of tourism data

The study of tourist demand is a critical component of a successful destination management strategy. In order to define tourist segments, many factors play an important role in the decision-making process. Tourism motivations are often used as segmentation bases of tourism market since they can affect the choices about travel destination, type of holiday and consumer behaviour. A tourist destination offers many experiences and products, which appeal different market segments. This paper aims to identify *a posteriori* segments of tourism demand by means of multidimensional approach employing a simultaneous factorial dimensionality reduction and clustering method. On the basis of results, tourists are classified in two clusters in order to understand the relationship between motivations and consumer behaviour. In particular, the two observed clusters represent the very satisfied tourists and the tourists unsatisfied at different level, respectively. Moreover, in terms of cost of the holiday, the first group has a per capita expenditure bigger than second group.

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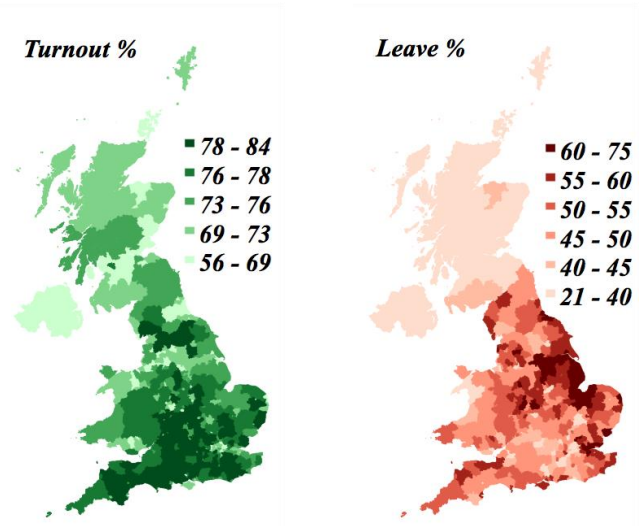
DEMOGRAPHIC AND SOCIO-ECONOMIC FACTORS INFLUENCING THE BREXIT VOTE

Leonardo Salvatore Alaimo

1. Introduction

The referendum on the United Kingdom' staying in the European Union ("British exit" or "Brexit") took place on Thursday 23rd June 2016. It was probably the most important political event in recent British history and a central theme in the political agenda because of the possible implications and consequences of citizens' choices. The interest of the electorate on this issue was reflected in the fact that turnout, at 72.2%, was the highest since the general election in 1992. On the question: "*Should the United Kingdom remain a member of the European Union or leave the European Union?*", 51.9% of the electorate (17,410,742) voted to leave the EU.

Figure 1 – *Referendum 23rd June 2016: Turnout and Percentage of Leave by local government district.*



Personal processing of data of the UK Electoral Commission Office (www.electoralcommission.org.uk)

The 2016 referendum was the second time that citizens were asked for their point of view on the issue of staying within the *"Europe system"*. The so-called "*Common Market Referendum*" was held on 5th June 1975. It was the first ever national referendum in the history of the UK[1] and the electorate had to vote yes or no on the question: "*Do you think the UK should stay in the European Community (Common Market)?*". The valid votes were just under 26 million (with a turnout of about 65%)[2] and 67% voted on continued British membership of the European Community. The image that emerged was that of a country "strongly pro-European". At the 2016 referendum the result was profoundly different and the situation was overturned compared to 1975, returning the image of the country as one divided between Euroskeptics and pro-Europeans.

In this paper, I will try to provide a possible key to the Brexit vote and, above all, to identify some of the potential factors behind a far different electoral choice than that made 40 years previously.

Did the "European theme" truly affect the electoral outcome? How did the main issues of the electoral campaign, immigration and economic crisis, influence the electoral choices? Which demographic and socio-economic factors have had an impact on the voting pattern? How much did they influence the results?

The paper is structured as follows. Section 2 presents the hypotheses dealt with in this work about the main determinants of Brexit vote. Section 3 describes data, variables and methodology. Section 4 presents the empirical results and discussion and section 5 the conclusion.

2. Determinants of the Brexit vote

One useful starting point for explaining the results is to focus on the electoral issue: the relationship between UK and EU, which has always been rather controversial. This has always been a central issue in British public opinion. Britain is, in fact, the country where the term Euroscepticism was created in the 1980s. Over the years this sentiment has been manifest in politics, the media and public opinion. The main findings of the EU sponsored public opinion survey, *Eurobarometer*, consistently show that in the UK public regard for EU membership is significantly lower than the EU average. For example, in the Standard Eurobarometer Survey of spring 2016 (EB85), 36% of British respondents had a negative image of the EU[3] (in the survey of spring 2015 - EB83 - the percentage

[1] It was, in fact, the first referendum taking place in all four parts of the United Kingdom: England, Wales, Scotland and Northern Ireland

[2] In Northern Ireland the turnout was lower than the national average: 47.3%.

[3] The weighted average for the 28 European Member States is 27%, increased by 8 percentage points compared to EU83. Only in Greece (51%), the Republic of Cyprus (41%) and Austria (37%) the percentages of people having a negative image of EU are higher than in UK.

was 28%). Concerning the future of the EU, British respondents are divided between pessimists (46%) and optimists (44%)[4].

So British citizens, the media, public opinion and the political class have always been deeply critical and skeptical about Europe. The UK has never played a very strong and active role in Europe. The EU is not only considered distant and inadequate to resolve everyday issues (immigration, unemployment, and so on), but it is often perceived as their major cause. In this way, the 2016 referendum was an occasion to clearly express this position. Leave became a resentful vote, through which citizens expressed their dissatisfaction primarily with the government unable to define politics in favor of them, and secondly with the EU, accused of restricting the political and economic power of the UK. I want to demonstrate that Leave was an expression of what Robert Putnam (1993) has defined *politics of issues*: the electoral outcome expressed *civic involvement* on the issue of the relationship between the UK and the EU. Thus, the vote was not influenced by partisanship or the possibility of obtaining immediate, personal benefits (what Putnam called *politics of patronage*): it was the clear and unambiguous way in which British citizens expressed their position on Europe.

The electoral outcome created disbelief all over the world. While, in fact, it is clear that a large proportion of UK residents are skeptical about Europe, it is not clear enough that this position coincides with the wish to leave the EU. Euroscepticism should not be, however, confused with this wish. Szczerbiak and Taggart (2008) have distinguished two different types of Euroscepticism.

> *Hard Euroscepticism is where there is a principled opposition to the EU and European integration and therefore can be seen in parties who think that their counties should withdraw from membership, or whose policies towards the EU are tantamount to being opposed to the whole project of European integration as it is currently conceived.*
>
> *Soft Euroscepticism is where there is not a principled objection to European integration or EU membership but where concerns on one (or a number) of policy areas lead to the expression of qualified opposition to the EU, or where there is a sense that 'national interest' is currently at odds with the EU's trajectory.*
>
> (Szczerbiak and Taggart, 2008:7,8)

Before the referendum, it was thought that Soft Euroscepticism was the dominant position held by British public opinion. For example, a report of the NatCen Social Research, published on 26 February 2016 using data from the British Social Attitudes survey for the period July–November 2015, showed that

[4] 50% of Europeans are optimistic and 44% pessimist.

while 65% of respondents were skeptical about the EU, only 30% supported Britain's leaving the EU.

I want to try to identify some potential factors which have favored the spread of Hard Euroscepticism leading to the victory of Leave. Obviously, since my analysis is based on aggregate data, I am unable to formulate an hypothesis about the factors influencing attitudes and voting behaviors of individuals. But I can identify those factors that might have affected the overall result and which then led to Leave. Many studies have identified these factors in the main issues of the electoral campaign, for example, immigration and economic crisis.

Immigration is the most important issue for public opinion in the UK, as shown by the aforementioned EB85[5] and it was also central for the Leave electoral campaign. Many post-voting analyses have therefore tried to examine the link between immigration and electoral results. Most of these studies (for example, Goodwin and Heath 2016; Picascia, Romano and Capineri 2016) focused exclusively on the presence of resident immigrants in the territory. In this way, they concluded that immigration was not significant in explaining the electoral results and that it was linked to the Leave by an inverse relationship: the higher the vote for the Leave, the smaller the presence of immigrants in the local governement district (LGD). However, taking into consideration only the stock of immigrants resident in an LGD as an immigration indicator can lead to misleading conclusions. It is rather obvious that immigrants are concentrated in the richer areas with more job opportunities. Therefore, the inverse link between Leave vote and the presence of immigrants can probably be explained by economic factors. By more fully interpreting whether and by how much immigration influenced the vote, other aspects must be taken into account, first of all how the presence of immigrants is changed over the years.

Economic crisis was also an important factor determining the result of the 1975 referendum. According to Clarke, Goodwin and Whiteley (2017) the decision to stay in ECC was influenced by the so-called *British Disease*, an economic situation, plaguing England in the 1960s and 1970s, characterized by inflation, high unemployment, low productivity and industrial unrest. In that situation, the UK staying in the EEC was considered by the electorate as a potential necessity to revitalize the internal economy. In 2016 the situation changed completely. The Leave electoral campaign, in fact, described the EU as the main cause - with immigration - of the economic crisis, limiting the autonomy of British economic choices. Thus, the EU became the ideal scapegoat on which people living in a situation of economic disadvantage because of the economic crisis could give vent to their frustration. This paper analyzes the link between Leave and the economic

[5] 38% of British respondents consider immigration the most important problem of their country.

crisis, taking into consideration the economic disadvantage dimension, defined from a set of economic indicators.

I also try to identify the main features of the Pro-Leave voter. Goodwin and Heath (2016) linked the Leave vote to the so-called *"left-behind voters"*. This is a class of voters where the changes to the British socio-economic structure have pushed them to the margin: *"older, working class, white voters, citizens with few qualifications, who live on low incomes and lack the skills that are required to adapt and prosper amid the modern, post-industrial economy"* (Goodwin and Heath, 2016:325). According to this work, I analyse the relationship between the Leave vote and the presence in the territory of people with the main characteristics of the left-behind voters.

3. Data, variables and methodology

Referendum data originated from the Electoral Commission Office[6] and was concerned with the turnout, count and percentages of voters in the 380 Btitish LGDs[7]. The demographic structure of the population was reconstructed on 30th June 2015, using the datasets *Population Estimates for the UK, England and Wales, Scotland and Northern Ireland* produced annually by the Office for National Statistics[8]. Economic and social variables come from the *Annual Population Survey* (APS), a continuous sample survey providing a cover on households within the UK with the aim of providing local estimates for many important variables regarding many topics (for example, employment and unemployment, ethnicity, religion, health and education, etc.). The APS datasets comprise 12 months of survey data and are disseminated quarterly; the sample size is approximately 320,000 respondents. The data used in this work refers to the situation of 30th June 2016.

I employed the fraction of total counted votes that was for Leave in any LGD as a dependent variable.

As suggested by Robert Putnam, I used the turnout of the 2016 referendum as an indicator of civic involvement. *"The primary motivation of the referendum voter is concern for public issues, perhaps enhanced by a keener than average sense of civic duty, so that turnout for referenda offers a relatively clean measure of civic involvement"* (Putnam, 1993:93). As a measure of the partisanship, I used the average turnout at the European Parliament elections in 2009 and 2014.

[6] www.electoralcommission.org.uk

[7] Results from Gibraltar and the Isle of Scilly were excluded from this analysis, because og the absence of comparable data. Northern Ireland was included in one single district.

[8] I used the latest data available, released on 26th June 2016 www.ons.gov.uk

For analyzing the effect of immigration on the Leave vote, this analysis focuses, on the one hand, on the presence and inflows of non-UK born population resident in UK in 2015; on the other hand, on their variations in individual LGD in a 10-year time span. I used four variables: the percentage of non-UK born resident population in England in 2015, the non-UK born inflows rate per hundreds resident population in 2015 and the variations of these two variables from 2005 to 2015.

Table 1 - *Descriptive statistics of the dependent and independent variables: situation at 30 June 2015 if not differently shown*

Variable	Mean	SD	Min	Max
Proportion of votes to Leave 2016	0.53	0.10	0.21	0.76
Turnout 2016 Referendum %	73.71	5.08	56.25	83.57
Average Turnout PE elections 2009-2014 %	35.37	4.18	23.38	47.14
Non-UK born presence in LGDs %	11.30	10.18	0.00	54.1
Non-UK born inflows in LGDs %	0.80	0.97	0.07	9.3
Diff. Non-UK presence in LGDs 2015-2005	3.32	3.54	-5.99	22.52
Diff. Non-UK inflows in LGDs 2015-2005	-0.09	0.49	-3.79	3.90
Economic disadvantage	0.00	1.00	-1.85	3.19
Male %	46.68	0.98	46.51	56.04
People over 65 years %	24.23	5.33	7.68	38.73
Workers without any qualification %	8.06	3.47	1.60	22.20
Population in thousands	171.34	143.51	8.76	1851.62
GVA per head in thousands	23.95	14.12	10.98	221.10

Table 2 – *Empirical measures of economic disadvantage: economic variables at 30 June 2016 if not differently shown; factor loadings; eigenvalue; variance explained; Kaiser-Meyer-Olkin test*

Economic disadvantage	
Unemployment rate	0.92
Inactivity rate	0.74
Workless Households - All unemployed 2015	0.81
Jobseeker's Allowance	0.91
Jobseeker's Allowance for over 12 monhts	0.67
Claimant Count Rate	0.95
Eigenvalue	4.25
Variance explained	0.71
Kaiser-Meyer-Olkin Test	0.83

The dimension of economic disadvantage was constructed from a set of variables, as shown in table 2, through Factor Analysis[9]. All these variables relate to a situation of economic difficulty: the higher their value, the worse the economic situation in the LGD and indeed the higher the economic disadvantage.

The set of demographic variables, selected from the main characteristics of the left-behind voters, includes the percentage of male population of electoral age, the percentage of people over 65 years of age and the percentage of workers without any qualification.

The analysis includes two control variables, chosen to consider the differences of LGDs: the amount of the population in thousands and the gross value added (GVA) per capita in thousands.

The dependent variable is linked to independent variables through a regression model. The regression model used was chosen based on the nature of the dependent variable studied: a fractional response variable bounded (0.1). The histogram of the proportion of Leave, displayed in figure 2, suggests that it does not follow a normal distribution, as also confirmed by the Shapiro-Wilk W test, reported in table 3.

Figure 2 – *Distribution of proportion of votes going to Leave with Kernel density plot*

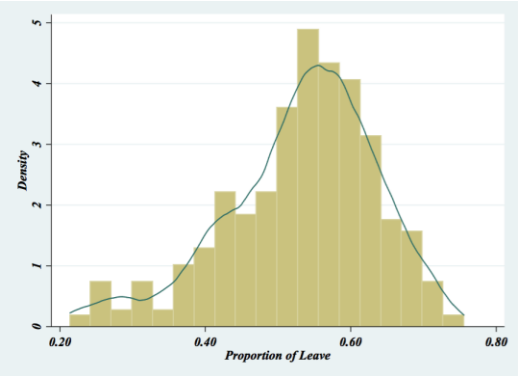


Table 3 - *Shapiro-Wilk W test for normal data*[10]

Variable	Obs	W	V	Z	Prob>z
Leave %	380	0.96819	8.363	5.042	0.0000

[9] The type of estimation used to analyze the correlation matrix was the principal-component factor method: the communalities are assumed to be 1. After estimation, I used an orthogonal rotation quartimax.

[10] The test is implemented by the command swilk of Stata, that can be used with $4 \leq n \leq 2000$ observations. The value reported under W is the Shapiro–Wilk test statistics. The p-value is based on the assumption that the distribution is normal; in our case, it is very small, indicating that we can reject that r is normally distributed. The test also report V, which is more appealing index for departure from normality. The median values of V is "1" for samples from normal populations; large values indicate non-normality.

According to a consolidated literature (Papke and Wooldridge 1996, Zhao, Chen and Schaffner 2001, Kieschnick and McCullough 2003, Ferrari and Cribari-Net 2004, Smithson and Verkuilen 2006, Baum 2008, Papke and Wooldridge 2008, Cook, Kieschnick and McCullough 2008), if we want to model a variable $0 \leq y \leq 1$ through a set of explanatory variables $X \equiv (x_1, x_2, x_3, \ldots, x_k)$, the use of a linear model:

$$E(y \mid x) = \beta_1 + \beta_2 x_2 + \beta_3 x_3 \ldots + \beta_k x_k$$

rarely provides the best description of $E(y \mid x)$ and is based on erroneous assumptions, although it is often the most common approach used by researchers.
According to Kieschnick and McCullough (2003), the main problems associated with the use of a linear model for the study of this type of variables are mainly two. The most stringent characterization of these models is that when they are used, implicitly assuming that the dependent variable distribution is normal. However, it is logical that the fractional response variables bounded (0.1) are not distributed normally, because they are not defined beyond their range, which is the domain beyond which the normal distribution is defined. Furthermore, the fact that these variables are observed only in a limited range implies that the function of the conditioned mean is non-linear and that the conditioned variance is a function of the mean.

In this paper, the model used was the *fractional logit regression model* developed by Papke and Wooldrigde (1996). It does not have the limits of the linear one and it ensures all the fitted values will always be in (0,1). For fitting fractional response variables, they consider this model:

$$E(y \mid x) = G(x_i \beta)$$

where $G(.)$ is a known function satisfying the following condition

$$0 \leq G(z) \leq 1 \quad \forall z \in \mathbb{R}$$

While one can use different specifications of $G(.)$,the two authors use in their analysis the following logistic function:

$$E(y \mid x) = \frac{\exp(x_i \beta)}{1 + \exp(x_i \beta)}$$

The estimation procedure proposed and used by Papke and Wooldridge is a particular quasi-likelihood method, which consists of maximizing the Bernoulli log likelihood function:

$$l_i(b) = y_i \ln[G(x_i \beta)] + (1 - y_i) \ln[1 - G(x_i \beta)]$$

4. Empirical results and discussion

The four regression models are presented in table 3. Model 1 includes the two variables selected as measure of civic involvement and partisanship; model 2 adds the control variables; model 3 adds the immigration variables and the economic disadvantage dimension; model 4 includes the demographic variables.

Table 4 – *Fractional logit regression models of proportion of Leave on socio-economic and demographic variables: marginal effects; standard errors; observations; Akaike information criterion*

Variable	Model 1	Model 2	Model 3	Model 4
Turnout 2016 %	0.0092***	0.0062***	0.0056*	0.0069***
	(0.0017)	(0.0016)	(0.0022)	(0.0020)
Average turnout 2009-2014 %	-0.0118***	-0.0086***	-0.0042**	-0.0051***
	(0.0019)	(0.0018)	(0.0016)	(0.0014)
Population in thousands		-0.0001	-0.0001	-0.0001
		(0.0001)	(0.0001)	(0.0001)
GVA per head in thousands		-0.0029**	0.0001	0.0004
		(0.0011)	(0.0008)	(0.0004)
Non-UK born presence %			-0.0015	0.0007
			(0.0009)	(0.0009)
Non-UK born inflows %			-0.0465***	-0.0659***
			(0.0115)	(0.0110)
Non-UK presence Δ 2015-2005			0.0094***	0.0085***
			(0.0016)	(0.0015)
Non-UK inflows Δ 2015-2005			0.0374***	0.0282***
			(0.0098)	(0.0069)
Economic disadvantage			0.0281***	0.0264***
			(0.0082)	(0.0077)
Male %				0.0421***
				(0.0069)
Workers without any qualif. %				0.0058***
				(0.0014)
People over 65 years %				0.0061***
				(0.0014)
N	378	377	366	365
AIC	526.46	526.92	519.27	521.88

*Standard errors in parentheses. Constant included but not reported. * p<0.05, ** p<0.01, *** p<0.001*

Turnout of the 2016 referendum and the average turnout of the European Parliament elections 2009-2014 are significant and have the expected effects in all four models. About the two control variables, the amount of population is never significant in all the models; indeed, the gross value added per capita is significant and has the expected negative sign only in the model 2. The immigration variables are all significant and have the expected signs, with the exception of the amount of non-UK born population, which is never significant. The economic disadvantage

dimension is significant and has the expected effect in all the models. The demographic variables are all significant and present the expected positive sign.

The referendum turnout, considered an indicator of civic involvement, is highly related positively to Leave. This seems to indicate not only that the membership in the EU was and continue to be a very important issue in Britain, leading to vote also people not usually doing it, but also that, nowadays, civic involvement on this issue is largely specified in terms of the wish to leave the EU. The civic involvement did not depend on parties loyalty or membership. In fact, where there were higher levels of partisanship, the Leave vote decreased: the higher the loyalty to the parties, the lowest the vote for Leave.

The difference in population and GVA per capita among the LGDs did not influence the Leave vote. Immigration and economic crisis had an important role in the definition of the electoral results. About immigration, the analysis highlighted a difference among the variables taken into account, in relation to their effect on electoral outcomes. If we consider the variables about the situation of immigration in 2015, we observe that only the non-UK born inflows rate per hundreds resident population is significant. This variable is negatively related to Leave vote; this indicates that the Leave vote decreased in those LGDs where there were higher inflows of non-UK born people. However, taking into account the variation in the presence and the inflows of non-UK born in LGDs from 2005 to 2015, the situation is overturned: the results indicate that increases in these variations have a statistical significant positive relationship with the Leave vote. The vote for Leave increased where there were higher level of economic disadvantage; this indicates that the economic crisis influenced the electoral results and that people probably considered the European Union as the main cause of the British economic problems, as sustained by the Leave supporters during the electoral campaign.

The analysis confirmed a relationship between some demographic characteristics and Leave; in fact, it increased in those LGDs where there were higher percentages of male population, people over 65 years and unqualified workers.

5. Conclusion

Britain has always been skeptical about the staying in the European Union. The 2016 referendum showed how this was a central issue for British people and how the wish to leave the EU was largely widespread among citizens.

Immigration and the economic crisis have played a decisive role in defining the electoral results. In areas with high presence and inflows of non-UK population

there have often been expressions of vote for remain in the European Union: as we said, this was probably explained by the fact that these areas were also the ones with more wealth and with better economic conditions. Leave had, instead, higher percentages in areas where more frequent changes in the population structure occurred, both in terms of presence and inflows of non-UK born population and in those where there were high levels of economic disadvantage.

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SUMMARY

Demographic and socio-economic factors influencing the Brexit vote

On 23rd June 2016, a referendum on Britain's staying in the European Union was held. The electoral turnout was very high (72%) 52% of the preferences were for Leave. So, the referendum result returned the image of a country divided between Euroskeptics and pro-Europeans. The aim of this article is to highlight whether the vote was not only an expression of the opinion about the European Union, but also the clear manifestation of a malaise linked to the influence of other factors, such as the economic crisis and the immigration.

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LIFESTYLES OF UNIVERSITY STUDENTS IN ALBANIA [1]

Giovanna Da Molin, Maddalena Lenny Napoli, Elita Anna Sabella, Arjeta Veshi

1. Introduction

Throughout decades Albania has been considered the "Cinderella of Europe", a victim of a contemporary and double dispute, on the one hand during the Cold War between the different blocs and, on the other hand, for the domestic rivalry between Fatos Nano and Sali Berisha. Nowadays, after more than twenty-five years of democracy, the Country of the Eagles has got solid foundations and aims at a both regional and European growing integration.

However, the transition from Hoxha's dictatorship to democracy was tortuous. After Enver Hoxha's death in April 1985, Albanian governments, unlike the politicians of Eastern Europe countries which were following the path of democratic reforms, continued to support the idea that they were the only country to build "the true Socialism in the world" (Dell'Erba, 1997). Shortly this situation inevitably resulted in a collapse of all the Albanian state institutions, from political to economic, from military to education ones. At the same time, since 1990 to present a large number of Albanians have seen both temporary and permanent migration as a valid opportunity to improve their living conditions. Moreover, the geographical proximity with some destination countries represented an advantage for those attracted by the economic well-being shown in Western TV shows and commercials. The Albanian governments themselves have not hindered this process of migrant leak because they thought that the migrants remittances would represent a source of growth for the Albanian state. Actually, only in the last years the negative effects of mass migration on family, economy and population structure are emerging. The westbound migration has also caused a considerable influence of Western models on the traditional structure of the Albanian society which has also led to a real cultural and identity crisis. On top of that, an important element of the Albanian transition is to be focused: the transformation of the education system,

[1] This article is the result of the collaboration between the authors. In particular paragraphs 1, 4, 4.1 and 5 are attributed to all the authors; paragraph 4.3 is attributed to M.L. Napoli; paragraph 4.2 to E.A. Sabella; paragraphs 2, 3, and 4.4 are attributed to A. Veshi.

especially University. Indeed, University, as a hotbed of the ruling class and "channel for transmission" of the national culture, represents a fundamental institution within society and a pillar in the democratization and re-modernization process of the country (Pantella, 2004).

2. The University system in Albania

The first University in Albania, established in Tirana, was founded in 1957 by the Albanian Labour Party, which considered the educational institutions of great importance. Since its inception the Albanian University followed a "Communist" approach, i.e. the faithful to the party and to the dogmas of the Stalinism was considered a *conditio sine qua non* to access the University teaching and career[2].

During the Communist regime, in Albania even the University enrollment depended on the political careers of the students' fathers and only after the Central Committee approval a student could access the limited University vacancies in the country.

Following the collapse of Communism, the demand of the increasing number of post-diploma students did not match the inadequate offer of the University system. To cope with the increasing demand the Albanian government decided that the high average grade in the high school years combined with the outcome of the state exam was a prerequisite for the University access[3].

Due both to the limited vacancies of the state University and the rigid procedure of state selection the number of private Universities increased, whose enrollment costs were much higher than the state system,

Therefore, since the first years of 2000, the liberalization of the University system on the one hand has opened up greater opportunities for training, on the other hand it has led to University degrees not always in accordance with the needs of the socio-economic development of the country.

For the sake of clarity of a situation that in a few years seemed to get out of control, in January 2014 the Albanian government set up an ad hoc committee – chaired by Prof. Arjan Gjonçaj and composed by academics of the state and private system – whose role was to examine the locations, the curricula and the papers of all the Universities throughout the country.

[2] In the first academic year 1957-1958 the University of Tirana had 3,613 students in 15 Faculties. Nowadays the University of Tirana is the largest public University in the country and the first choice for high school graduates, with about 40,000 students, http://www.unitir.edu.al/index.php/sq/rreth-nesh/historiku/universiteti-i-tiranes.

[3] Further details may be found in Ligj n. 80/2015 "Për arsimin e lartë dhe kërkimin shkencor në institucionet e arsimit të lartë në Republikën e Shqipërisë".

The report of the Gjonçaj Committee revealed that Albania had 59 Universities, 15 were public and 44 were private; about 1,500 syllabi, 650 Bachelor's Degrees, 600 professional and scientific Master courses, 100 Doctorate degrees were offered. More than 78% of 160,000 University students were enrolled to public Universities. Yet, beyond the data, during the investigation irregularities have been encountered. Consequently the above Committee has launched work towards a reform of the University system in line with the international standards (Gjatolli, 2015). In addition, following the Report of the Committee the government has adopted an action plan structured in three categories to improve the University system: the Universities in the first category were allowed to continue with their academic activities, under close monitoring, up to the effective implementation of the Ministry's suggestions; the Universities in the second category were requested a temporary suspension of their activities as a matter of urgency, lasting two years, during this period the institutions would be unable to enroll new students until the legal requirements were met; but, the Universities in the third category underwent a definite withdrawal of the license: 18 private institutions and 6 branches of public Universities were closed down[4].

3. The research

Lifestyle is "a way of living based on identifiable patterns of behaviour which are determined by the interplay between an individual's personal characteristics, social interactions, and socioeconomic and environmental living conditions" (WHO, 1998, p. 16). The aim of the research is to analyse the lifestyles of the Albanian University students, the children of a nation which in the last 25 years has undergone significant changes, opening up to markedly Western behavioural patterns. The democratization process which started a quarter century ago in Albania, involved several areas, and also influenced the lifestyles of the population. The Country of the Eagles, which in the last years of the Communist regime had a predominantly agricultural and labour intensive economy, necessary to meet the nation's food demand, since the nineties has undergone a fast process of urbanization and economic growth. This change, that in low- and middle-income countries resulted in a decrease of the opportunities of physical activities (Monda *et alii*, 2007; Ng *et alii*, 2009; Abubakari *et alii*, 2009; Sobngwi *et alii*, 2002), was decisive for Albania as well. Indeed, since the first democratic elections, the Country of the Eagles has undergone a significant change by adopting markedly Western patterns and behaviours. Some of the consequences were: an increase in

[4] Further details may be found in the Report of the Committee, available in the following link: http://www.arsimi.gov.al/files/userfiles/reformaalksh/Raport_Final_Ministria_Arsimit.pdf.

the number of people who owned a car, a higher availability of Western food, and consequently the introduction of new eating habits and a decrease in the levels of physical activities (Shapo *et alii*, 2003). The democratization process also contributed to remove the main prejudices of the regime time: for instance, smoking cigarettes, which in the Albanian culture of the past was a men's prerogative, has gradually spread among women as well, as a sign of the emancipation towards new lifestyles, mainly among the young generations (Zaloshnja *et alii*, 2010). A similar attitude happened with the consumption of alcoholic beverages which increased among women over time (Burazeri, Kark, 2010).

This research contributes to increase the knowledge of the lifestyles in a country where "new" behaviours and habits, once unpopular, are growing, especially in young generations. Furthermore the lifestyles mirror the wellbeing of the population as they may play a significant role in preventing illnesses, in controlling the evolution, or, likewise, they may represent the cause. This is what happens for the main cause of death in the world, namely non-communicable diseases: a high percentage of these illnesses could be prevented through the reduction of the risk factors linked to people behaviour, such as the physical inactivity, incorrect eating habits, tobacco smoking habit and the harmful use of alcohol (WHO, 2013). Indeed, these last habits represent the object of investigation in this research, which contributes not only to outline the behavioural patterns of the young Albanians, but also to identify the risk factors in order to carry out prevention and information actions, aimed at promoting a health and wellbeing culture.

4. The sample and the survey

The research has involved the students enrolled in the Albanian Universities during the academic year 2016/2017. The nonprobability sampling technique, quota sampling, has been used for the construction of the sample (Corbetta, 2014); this on the basis of two known variables: the gender of students and the type of University attended (public or private) (Table 1), setting the sample size to 1,000 units (Table 2).

Table 1 – *Population: University students in Albania for type of University attended and gender, a. y. 2015/2016 (a. v. and %).*

	Public University		Private University		Total	
	A. V.	%	A. V.	%	A. V.	%
Men	48,946	33.4	12,697	8.6	61,643	42.0
Women	72,692	49.5	12,421	8.5	85,113	58.0
Total	121,638	82.9	25,118	17.1	146,756	100.0

Source: our elaborations on INSTAT 2017 data.

Table 2 – *Sample: University students in Albania for type of University attended and gender, a. y. 2015/2016 (a. v. and %).*

	Public University		Private University		Total	
	A. V.	%	A. V.	%	A. V.	%
Men	334	33.4	86	8.6	420	42.0
Women	495	49.5	85	8.5	580	58.0
Total	829	82.9	171	17.1	1,000	100.0

Source: our elaborations.

Data were collected through the administering of an anonymous self-completed assessment questionnaire, from January to March 2017, at the Albanian Universities. The questionnaire detected many areas of interest: the socio-demographic characteristics; anthropometric measures, such as weight and height; numerous lifestyle-related aspects, such as physical activity, tobacco smoking habit and the consumption of alcoholic beverages.

Once the questionnaires were administered, data were imported and processed using the SPSS software for the calculation of the univariate descriptive statistics with the distribution of frequencies, and bivariate, with contingency tables. For the purpose of assessing the significance of the relationship in the double entry tables, the χ^2 test was adopted, examining only those tables for which the value of p was less than 0.05.

4.1 Socio-demographic characteristics

The research involved 1,000 students enrolled in Albanian public (82.9%) and private (17.1%) Universities, 420 males (42%) and 580 females (58%). Depending on the distribution by age groups, 559 students (55.9%) are aged between 18 and 21, 406 (40.6%) are aged between 22 and 24, and 35 (3.5%) between 25 and 30, with an average of 21.4 years (standard deviation 1.565).

Almost all the students reside in the University town (46.6%) or in a place that allows daily transfer to the University attended (46.3%); few of them, instead, reside in a distant place from their University and so they have an accommodation near the same (7.1%). Studying in the city where one resides, along with commuting, represents therefore the prevailing situations in the Albanian Universities. Commuting, in particular, seems to be an adaptation strategy for students who, having to bear the costs of studies and less supportive capacity from their families, do not give up studying but make choices that are compatible with their condition and their own resources.

Also finding a job is symptomatic of such a widespread habit among the Albanian students, usually connected with an aspiration for a better social

independence or for improving the skills acquired through the academic training. Five students out of ten have a paid employment: in the vast majority of cases this is a temporary job (37.8%); about two students out of ten have a continuous permanent (8.3%) or temporary (7.5%) job. Females prefer devoting full time to academic commitments; males, instead, are mostly burdened by both the training and job commitments ($p<0.001$). For both sexes, the spread of employment is linked to their age (males: $p<0.01$; females: $p<0.05$): among younger students temporary job in its different forms prevails; as the students grow, this type of job is progressively associated with the continuous one (Table 3).

Table 3 – *Distribution of the students for the employment status, distinguished for gender and age group (%).*

Gender and age group	Permanent job %	Temporary job %	Occasional job %	No %	Total %	*p for comparison of age groups*
Men*						
All ages	7.4	7.4	46.9	38.3	100.0	
18-21 years	3.1	7.6	49.8	39.5	100.0	<0.01
22-30 years	12.2	7.1	43.6	37.1	100.0	
Women*						
All ages	9.0	7.6	31.2	52.2	100.0	
18-21 years	6.5	6.3	33.9	53.3	100.0	<0.05
22-30 years	12.3	9.4	27.5	50.8	100.0	
Both sexes						
All ages	8.3	7.5	37.8	46.4	100.0	
18-21 years	5.2	6.8	40.2	47.8	100.0	<0.001
22-30 years	12.2	8.4	34.7	44.7	100.0	

**p for comparison in relation to gender <0.001.*
Source: our elaborations of survey data.

4.2. Smoking habit among the young Albanian University students

Smoking habit among young University students confirm the change in national customs compared with the early 1990s when tobacco smoking was still considered a taboo for women.

Table 4 shows that 29.3% of female students smoke or have been smokers, whereas for male students the result is rather worrying, as about half of them are smokers. Furthermore, tobacco smoking is a more widespread habit among working students (35.4%), probably due to economic independence.

Table 4 – *Distribution of students for their smoking habit distinguished for gender and employment status (%).*

	Smoker %	Ex-smoker %	Non-smoker %	Total %	*p for comparison of the employment status*
Men*	49.5	22.6	27.9	100.0	
Working	57.1	25.5	17.4	100.0	<0.001
Non-Working	37.3	18.0	44.7	100.0	
Women*	12.8	16.5	70.7	100.0	
Working	15.2	23.8	61.0	100.0	<0.001
Non-working	10.6	9.9	79.5	100.0	
Both sexes	28.2	19.1	52.7	100.0	
Working	35.5	24.6	39.9	100.0	<0.001
Non-working	19.8	12.7	67.5	100.0	

**p for comparison in relation to gender <0.001.*
Source: our elaborations of survey data.

4.3. The consumption of alcoholic beverages

Table 5 shows that the habits of the consumption of alcoholic beverages among young Albanian students vary according to gender. Indeed, female students are found to be one-off users (56.9%), while one third of male students frequently consume alcohol (38.6%), i.e. 1 or more times a week.

Moreover, the analysis of the relationship between the consumption of alcohol beverages and the employment status shows that the working students tend to have a greater propensity to consume alcoholics than non-working ones.

Table 5 – *Distribution of students classified for their alcohol consumption habit, distinguished for gender and employment status (%).*

	Almost every day/every day %	1-2 times a week %	Occasionally %	Never %	Total %	*p comparison of the employment status*
Men*	7.4	31.2	46.7	14.7	100.0	
Working	7.3	33.6	51.4	7.7	100.0	<0.001
Non-working	7.5	27.3	39.1	26.1	100.0	
Women*	0.7	8.6	56.9	33.8	100.0	
Working	0.7	10.1	59.9	29.3	100.0	0.140
Non-working	0.7	7.3	54.1	37.9	100.0	
Both sexes	3.5	18.1	52.6	25.8	100.0	
Working	3.9	21.5	55.8	18.8	100.0	<0.001
Non-working	3.0	14.2	48.9	33.9	100.0	

**p for comparison in relation to gender <0.001.*
Source: elaborations of survey data.

4.4. Physical activity, weight and security

As has already been stated above, the increase in urbanization, together with the overall improvement of socio-economic conditions in Albania has determined a change in the ways of life especially among the young generations. As a matter of fact, a reduction in the level of physical activity and changes in the eating habits, which could lead to the emergence of obesity, among other issues, have been observed.

The survey indicates (Table 6) that more than a half of the interviewed students have stated they do not do a minimum 30-minute physical or sports activity a day (52.8%), with a difference of more than 10 percentage points with women (10.2%) who are disadvantaged.

Table 6 – *Distribution of students for minimum 30-minute physical or sports activity a day and gender (%).*

	Men %	Women %	Total %
Yes	53.1	42.9	47.2
No	46.9	57.1	52.8
Total	100.0	100.0	100.0

Source: our elaborations of survey data.

The following table shows the results of the calculation of the Body Mass Index (BMI)[5] which is a biometric value derived from the weight (in kilograms) and the square of the body height of an individual (in metres), used as an indicator of the target weight (Table 7). As regards the body weight, the fact that 10.3% of the female students are under-weight clearly emerges from the data processing in this survey. Thanks more to eating habits than to sports activity, 87.5% of the young Albanian students are normal-weight, while obesity is not frequent (0.4%).

Finally, to consider the attitude towards the rules for the road safety, the students were asked if they travel by bike, motorcycle or scooter, and in this case if they wear a helmet. Only a half of the interviewed students use these means of

[5] This index was used for the first time in 1832 by Adolphe Quetelet, a Belgian mathematician and statistician, who, in his studies on anthropometric data of the human growth, came to the conclusion that "the weight increases with the square of the body height" (Eknoyan, 2008). This index, later named Body Mass Index by the physiologist Ancel Keys, is considered the first approximate index to define the status of the target weight of an individual, as it does not take into account further fundamental features such as gender, shoulders width, pelvis width, head circumference and further factors (WHO, 1995; WHO, 2000). In addition, it is fundamental to consider the percentage of fat and lean body mass of the individual (Bei-Fan, 2002).

transportation (50%); among them 48% do not respect the elementary rules of safety as they do not use any protection like wearing a helmet.

Table 7 – *Distribution of students according to body mass index and gender (%).*

	Men %	Women %	Total %
Under-weight	0.7	10.3	6.3
Normal-weight	90.7	85.2	87.5
Over-weight	7.6	4.5	5.8
Obese	1.0	-	0.4
Total	100.0	100.0	100.0

Source: our elaborations of survey data.

5. Conclusions

The picture that emerges from the survey is overall positive, even though it shows that the interviewees often adopt incorrect behaviours regarding fundamental aspects of their life and security. Undoubtedly, issues such as the tobacco smoking and the alcohol use/abuse, but also the inadequate or lack of physical or sports activity, considered typical "Western habits", emerge among the young Albanian University students. The failure to adopt measures of road safety and the poor information on the health risks of incorrect attitudes highlight the importance of health education and citizenship, so that especially the young could choose their lifestyle more consciously, thus avoiding risky behaviours that may be dangerous or prejudicial for their physical or psychological integrity.

Appendix

Questionnaire

- Please, indicate your University:

-Public University -Private University

- How old are you?
- What is your sex?
- What is your height (in cm)?
- What is your weight (in Kg)?
- The status you have as a student:

-Resident -Outside the venue -Commuter

- Are you currently working?

-Yes, on a permanent basis -Yes, on a temporary basis -Yes, occasionally -No

- Do you smoke?

-Yes -Not anymore -No

- Do you happen to drink alcoholic beverages?

-Almost every day/every day -1-2 times a week -Occasionally -Never

- Do you practice at least 30 minutes a day of physical activity or sport for at least 5 days a week?

-Yes -No

- If you move using bicycle/motorcycle/scooter, do you usually wear the helmet?

-Yes -No -I do not use bicycle/motorcycle/scooter to move

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SUMMARY

Lifestyles of University students in Albania

The Albanian University system demonstrated to be inadequate following the transition from Communism to democracy. In the past the University enrollment depended on the Central Committee and an high average grade in the high school years was a prerequisite for the University access. After the collapse of Communism, anyone was granted to access University, which has represented a means of the democratization process and of the re-modernization of the country. However, the limited vacancies of the state system were unable to satisfy the demand of an increasing number of University students. Consequently, several private Universities were set up in order to enroll all the students left out by the procedure of state selection. The democratization process which had started 25 years earlier, in a country which had been isolated from the rest of the world for a long time, also influenced the lifestyles of the young University students. The prejudices linked to the habits are being removed: for instance smoking tobacco is no longer a man's prerogative but is spread among women as well.

The aim of this research is to analyze the lifestyles of the young Albanian students in the period of democracy. More specifically, this study involved 1,000 students enrolled at the public and private Albanian Universities in the 2016-2017 academic year. A survey was used from January to March 2017. Subsequently, the data were processed using the SPSS software. Many lifestyle aspects of the young Albanian University students have been examined: the physical activities and shape, risk behaviors like the use of tobacco and the consumption of alcoholic beverages, because these habits had been the object of the state control up to the advent of democracy.

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CAPITALE UMANO E MULTINAZIONALI ESTERE[1]

Elisabetta Bilotta, Emanuela Trinca

1. Introduzione

Gli effetti prodotti dalle multinazionali estere sul mercato del lavoro del paese ospitante rappresentano uno degli aspetti più qualificanti dell'attuale dibattito teorico e di politica economica sul ruolo degli investimenti diretti esteri in Italia. In questo lavoro verrà illustrato lo stato dell'arte della letteratura sugli effetti prodotti dalle imprese multinazionali sul mercato del lavoro del paese ospitante ed i principali canali attraverso cui questi effetti si esplicano. Successivamente il lavoro si concentrerà sull'analisi del contributo delle multinazionali in Italia alla crescita del capitale umano, sia da un punto di vista teorico che empirico.

Per quanto riguarda gli effetti che le multinazionali producono sul capitale umano considerato in senso lato (crescita della conoscenza e degli *skill* tecnici, delle competenze manageriali), molti contributi teorici sono concordi nell'affermare che le multinazionali estere hanno di solito un ruolo favorevole nella formazione e consolidamento delle conoscenze tecniche e delle competenze manageriali della forza lavoro del paese ospite, d'altro canto quando una multinazionale assume forza lavoro nel paese ospite realizza un'attenta selezione del personale potendo solitamente garantire differenziali salariali positivi rispetto alle imprese domestiche.

L'evidenza empirica sia in termini di produttività che di costo del lavoro fa presumere che il capitale umano sia più qualificato nelle multinazionali rispetto alle imprese nazionali. La presenza di lavoratori qualificati può dipendere da una maggiore selezione del personale in fase di assunzione (effetto di spiazzamento delle risorse dal mercato) o ad una maggiore formazione interna o da entrambe.

Questo lavoro è finalizzato a verificare - sulla base di un'evidenza empirica innovativa e partendo dall'ipotesi che il titolo di studio rappresenta una buona *proxy* dello *stock* di conoscenze possedute dal lavoratore prima dell'assunzione - se la presenza di un capitale umano potenzialmente più qualificato nelle imprese

[1] Il presente lavoro è frutto di un lavoro congiunto tuttavia i paragrafi 1, 2 e 3 sono da attribuire ad Elisabetta Bilotta mentre i paragrafi 4 e 5 ad Emanuela Trinca.

multinazionali estere che operano in Italia possa derivare da un effetto di selezione sul mercato del lavoro domestico.

2. Rassegna della letteratura

Esiste un'ampia e consolidata letteratura internazionale, sia di tipo teorico che applicato, sugli effetti prodotti dalle imprese multinazionali estere sul mercato del lavoro domestico o nazionale, ossia sul mercato del lavoro del paese che ospita gli investimenti diretti esteri distinguendo i seguenti "canali" di realizzazione: occupazione, salari e capitale umano.

Riguardo agli effetti prodotti dalla presenza di multinazionali estere sull'occupazione del paese ospite, la letteratura fornisce segnali piuttosto controversi. Da un lato ci sono contributi che enfatizzano il ruolo delle multinazionali estere come imprese capaci di creare nuova occupazione o di aumentare l'occupazione già esistente (Arnold e Javorcik, 2009). Dall'altro esistono contributi che pongono l'attenzione sul pericolo rappresentato dalle multinazionali come possibili fonti di instabilità dell'occupazione (Hakkala et al, 2010).

Per quanto riguarda gli effetti sui salari, la letteratura sembra convergere verso una valutazione del ruolo delle imprese multinazionali come elemento che favorisce la presenza di un differenziale positivo a favore delle imprese a controllo estero rispetto a quelle a controllo nazionale. Questa differenza a favore delle multinazionali estere è principalmente spiegata dalla necessità di attrarre manodopera altamente specializzata (Bandick e Hansson, 2009). La superiore produttività delle imprese a controllo estero consente, inoltre, di mantenere ed incrementare i salari rispetto a quanto offerto dalle imprese domestiche. In un'analisi empirica sull'Italia Bilotta e Menghinello (2015) hanno evidenziato che la presenza di rilevanti differenziali salariali tra imprese a controllo nazionale e a controllo estero è in parte spiegata da differenze strutturali sia in termini di specializzazione produttiva che di distribuzione dimensionale.

Per quanto riguarda infine gli effetti che le multinazionali producono sul capitale umano considerato in senso lato (crescita degli *skill*, delle competenze manageriali ed organizzative), molti contributi teorici sono concordi nell'affermare che le multinazionali estere hanno di solito un ruolo favorevole nella formazione e consolidamento delle conoscenze tecniche e delle competenze manageriali della forza lavoro del paese ospite.

Questo effetto positivo dipende in larga misura dalla presenza di sostanziali differenze nel grado di sviluppo economico e progresso tecnico nonché innovazioni organizzative tra paese investitore e paese ospitante.

Come sottolinea Driffield (1999) le imprese a controllo estero hanno diverse esigenze nella domanda di lavoro rispetto alle imprese domestiche. Il secondo effetto è essenzialmente un effetto *spillover*. Ciò riguarda l'assimilazione delle nuove tecnologie possedute dalle multinazionali estere da parte delle imprese domestiche. Questo porta ad un aumento della domanda di lavoratori qualificati a scapito dei lavoratori non qualificati. Ad esempio, Hijzen et al. (2005) in uno studio sul Regno Unito evidenziano che l*'international sourcing* favorisce la diminuzione della domanda di lavoro non qualificato. Barba Navaretti et al. (2003), evidenziano che le affiliate estere di una multinazionale si caratterizzano per una manodopera qualificata. Driffield e Taylor (2000) in uno studio condotto sull'impatto degli FDI nel Regno Unito sostengono che le multinazionali estere favoriscono la crescita della domanda di lavoratori qualificati. Bandick e Hansson (2009), da un'analisi sulle imprese svedesi, rilevano che la presenza di multinazionali estere nel paese ha favorito la crescita di domanda di lavoro qualificata. La causa di tale incremento è dovuta alle maggiori competenze tecnologiche delle multinazionali estere rispetto alle imprese domestiche. Anche secondo Aitken e Harrison (1999) le multinazionali estere investono molto di più, rispetto alle imprese domestiche, in formazione del personale e attivano un processo di trasferimento di conoscenze dalla casa madre. Huttunen (2007) in uno studio empirico sulle imprese finlandesi evidenzia che le multinazionali estere investono maggiormente in formazione del personale e ciò porta a degli effetti positivi sui salari. Un altro filone di lavori applicati si è concentrato sulla diminuzione negli ultimi anni della domanda di lavoro non qualificato e sull'aumento della richiesta di lavoratori qualificati. Questo filone della letteratura può essere collegato alla teoria di Hymer (1970) il quale sosteneva che le attività transnazionali favorivano la crescita delle disuguaglianze aumentando l'occupazione dei lavoratori qualificati a diminuendo quella dei lavoratori non qualificati. A sostegno della tesi di Hymer, Bailey e Driffield (2002) dimostrano che nel Regno Unito la presenza di multinazionali estere favorisce l'aumento dell'occupazione di lavoratori qualificati e la diminuzione dell'occupazione di lavoratori non qualificati. La spiegazione di questo fenomeno è stata trovata nella crescita del commercio internazionale (Levy e Murnane, 1992) e dell'evoluzione tecnologica (Desjonqueres et al., 1999) che hanno dato un'ulteriore spinta agli investimenti diretti esteri da parte delle multinazionali.

3. Dati e modello per l'analisi empirica

La base dati utilizzata per questo studio è stata costruita attraverso l'integrazione a livello di impresa di dati provenienti da diverse fonti. In particolare

le fonti utilizzate sono state le seguenti: le imprese manifatturiere residenti in Italia con almeno 10 addetti selezionate a partire dall'archivio ASIA, le principali variabili di conto economico presenti nel FRAME SBS, il registro Asia-occupazione - le cui informazioni sono presenti a livello di dipendente - e infine i dati sulle multinazionali italiane ed estere[2]. Le informazioni disponibili a livello di occupati sono state sintetizzate a livello di impresa sulla base di indicatori che misurano la composizione percentuale nell'impresa di una determinata caratteristica dei lavoratori in essa impiegati. Ad esempio per i lavoratori laureati è stata calcolata per ogni impresa la percentuale di dipendenti laureati sul totale dei dipendenti.

Come misura del capitale umano sono state definite quattro diverse misure del livello di educazione degli occupati nell'impresa:

1- Dipendenti in % con almeno il diploma di scuola secondaria superiore
2- Dipendenti in % con una laurea
3- Dipendenti in % con una laurea in materia scientifiche
4- Dipendenti in % con dottorato

Ciascuna di queste misure, utilizzate come variabili dipendenti nei modelli di regressione, cattura aspetti differenti dei livelli di educazione della forza lavoro impiegata nelle imprese:

1- Livello di educazione di base: almeno un diploma scuola secondaria superiore
2- Livello di educazione progredito non specialistico: laurea
3- Livello di educazione progredito e specialistico: laurea tecnica
4- Livello di educazione avanzato:dottorato

Nella tabella 1 sono riportati i principali indicatori statistici per le variabili utilizzate come variabili esplicative del modello. La formulazione del modello di regressione lineare per ciascuna misura del capitale umano è la seguente:

$$DIPLOMATI_i = \beta_0 + \beta_1 ADD_i + \beta_2 PRODLAV_i + \beta_3 CLPD_i + \mathrm{DONNE}_i + DIP15-29_i + DIP30-49_i + OUTWARD_i + INWARD_i + \sum_{J=10}^{33} ATECO_{ij} + \varepsilon_i \quad (1)$$

$$LAUREATI_i = \beta_0 + \beta_1 ADD_i + \beta_2 PRODLAV_i + \beta_3 CLPD_i + \mathrm{DONNE}_i + DIP15-29_i + DIP30-49_i + OUTWARD_i + INWARD_i + \sum_{J=10}^{33} ATECO_{ij} + \varepsilon_i \quad (2)$$

[2] A partire da ottobre 2017 la base dati sarà disponibile nel laboratorio Adele dell'Istat.

$$LAUREATI\_S_i = \beta_0 + \beta_1 ADD_i + \beta_2 PRODLAV_i + \beta_3 CLPD_i + \text{DONNE}_i + DIP15-29_i + DIP30-49_i + OUTWARD_i + i + \sum_{J=10}^{33} ATECO_{ij} + \varepsilon_i \quad (3)$$

$$DOTTORATO_i = \beta_0 + \beta_1 ADD_i + \beta_2 PRODLAV_i + \beta_3 CLPD_i + DONNE_i + DIP15-29_i + DIP30-49_i + OUTWARD_i + INWARD_i + \sum_{J=10}^{33} ATECO_{ij} + \varepsilon_i \quad (4)$$

dove il suffisso i rappresenta la i-sima impresa, DIPLOMATI indica in il numero di dipendenti sul totale con almeno un diploma, LAUREATI il numero di dipendenti sul totale in possesso di un laurea, LAUREATI_S il numero di laureati in materie scientifiche sul totale dei laureati, DOTTORATO il numero di dipendenti in possesso di un dottorato di ricerca sul totale dei dipendenti. DONNE indica il numero di donne sul totale dei dipendenti, DIP_15_29 il numero di dipendenti tra i 15 e i 29 anni sul totale dei dipendenti, DIP_30_49 il numero di dipendenti tra i 30 e i 49 anni sul totale dei dipendenti. INWARD e OUTWARD sono due variabili *dummy* che identificano, se presente, l'appartenenza ad un gruppo di imprese multinazionale, rispettivamente a controllo estero oppure a controllo nazionale con controllate all'estero. La variabile ATECO individua un insieme di 33 variabili *dummy* (j=1….33) che identificano in modo univoco l'appartenenza dell'impresa ad un determinato settore industriale al fine di tener conto delle differenze inter-settoriali. Le seguenti variabili esplicative sono espresse in logaritmo: ADD che misura il numero degli addetti dell'impresa quale *proxy* della sua dimensione, PRODLAV la sua produttività del lavoro e CLPD è il costo unitario del lavoro.

In termini matriciali, **ε,** vettore relativo alle variabili casuali ε_i, deve soddisfare le seguenti assunzioni, espresse in notazione matriciale:

$$E(\varepsilon) = 0 \quad (5)$$

$$Var(\varepsilon) = E(\varepsilon\varepsilon') = \sigma^2 I_n \quad (6)$$

In particolare, l'assunzione 6 implica sia l'omoschedasticità che la incorrelazione delle variabili causali ε_i.

La principale variabile esplicativa del modello è rappresentata dalla *dummy* variabile che identifica l'impresa come appartenente ad una multinazionale estera in Italia, le altre sono essenzialmente variabili di controllo che tengono conto di ulteriori differenze tra imprese in termini di dimensione economica, costo del

lavoro, produttività, ma anche differente composizione della forza lavoro per genere ed età.

Tabella 1 - *Principali statistiche descrittive per variabili utilizzate nei modelli.*

Nome variabile	Descrizione variabile	Obs	Mean	StdDev.	Min	Max
	Misure del capitale umano					
DIPLOMATI	Numero di dipendenti in possesso di almeno un diploma di scuola secondaria superiore rispetto al totale dei dipendenti	59.675	0,49	0,20	0	1
LAUREATI	Numero di dipendenti in possesso di una laurea rispetto al totale dei dipendenti	59.675	0,069	0,09	0	1
LAUREATI_S	Numero di dipendenti in possesso di una laurea in materie scientifiche rispetto al totale dei dipendenti	59.675	0,03	0,06	0	1
DOTTORATO	Numero di dipendenti in possesso di un dottorato rispetto al totale dei dipendenti	59.675	0,00	0,01	0	1
	Dati a livello di impresa					
CLPD	Costo unitario del lavoro (log)	59.675	3,54	0,38	0,02	5,52
ADD	Addetti (log)	59.675	3,23	0,79	2,48	10,42
PRODLAV	Produttività apparente del lavoro (log)	59.675	3,82	0,58	0,06	7,56
INWARD	Flag che identifica le affiliate in Italia di multinazionali estere	59.675	0,03	0,19	0	1
OUTWARD	Flag che identifica le affiliate in Italia di multinazionali italiane	59.675	0,038	0,19	0	1
DONNE	Dipendenti di sesso femminile rispetto al totale dei dipendenti	59.675	0,31	0,25	0	1
DIP15_29	Dipendenti nella fascia di età 15-29 rispetto al totale dei dipendenti	59.675	0,15	0,14	0	1
DIP30_49	Dipendenti nella fascia di età 30-49 rispetto al totale dei dipendenti	59.675	0,60	0,15	01	1

4. Principali risultati

Nel primo modello di regressione, viene utilizzata come variabile dipendente la presenza in percentuale di lavoratori con un livello di educazione di base. Per verificare l'influenza dell'appartenenza ad una multinazionale estera su questa variabile dipendente al lordo ed al netto dell'introduzione di variabili di controllo si è deciso di adottare una procedura di specificazione del modello *step by step* (Tab.2).

Da come si può vedere l'effetto rimane sempre positivo e statisticamente significativo in tutte le diverse specificazioni del modello progressivamente introdotte anche se, come atteso, il controllo per altre variabili ne riduce l'intensità dell'effetto poiché tiene conto di numerosi effetti di correlazione della variabile *dummy* con variabili di controllo in una prima fase omesse. Risulta quindi confermato che a parità di altri fattori a livello di impresa, le imprese a controllo estero si caratterizzano per una maggiore quota di lavoratori con livello di educazione base più elevato.

Successivamente si è voluto verificare l'effetto degli altri tre livelli di educazione considerati (livello di educazione progredito non specialistico: laurea, livello di educazione progredito e specialistico: laurea tecnica, livello di educazione avanzato: dottorato) con l'appartenenza ad un'impresa multinazionale (Tab. 3).

Dai risultati dei modelli di regressione si conferma che l'appartenenza ad un'impresa multinazionale estera ha un effetto positivo e statisticamente significativo rispetto ai livelli di educazione considerati. A dimostrazione del fatto che mediamente le multinazionali estere tendono ad assumere personale maggiormente qualificato. Dai modelli di regressione emerge anche che l'appartenenza ad una multinazionale italiana ha una correlazione positiva e statisticamente significati con i livelli di educazione considerati, a dimostrazione del fatto che in generale le multinazionali tendono ad assumere personale più qualificato rispetto alle imprese non multinazionali. Da mettere inoltre in evidenza la presenza di personale non solo più qualificato ma anche più giovane rispetto alle imprese italiane.

Tabella 2 - *Stima LS dei parametri della regressione lineare con standard error robusti. Modello 1*

Variabili	**Dipendenti con almeno un diploma di scuola secondaria superiore**				
	Step 1	Step 2	Step 3	Step 4	Step 5
ADD	0,029***	0,014***	0,008***	0,011***	0,006***
	(0,001)	(0,001)	(0,001)	(0,001)	(0,001)
PRODLAV		0,085***	0,041***	0,028***	0,027***
		(0,002)	(0,002)	(0,002)	(0,002)
CLPD			0,107***	0,155***	0,153***
			(0,004)	(0,004)	(0,004)
DONNE				0,080***	0,078***
				(0,004)	(0,004)
DIP15_29				0,292***	0,291***
				(0,007)	(0,007)
DIP30_49				0,159***	0,158***
				(0,006)	(0,006)
OUTWARD					0,056***
					(0,003)
INWARD	0,082***	0,068***	0,053***	0,051***	0,059***
	(0,004)	(0,004)	(0,003)	(0,003)	(0,003)
costante (a)	0,451***	0,132***	-0,058***	-0,321***	-0,299***
	(0,016)	(0,016)	(0,017)	(0,018)	(0,018)
Num. osservazioni	59.675	59.675	59.675	59.675	59.675
Prob > F	0,00	0,00	0,00	0,00	0,00
R-squared	0,2162	0,2644	0,2784	0,3132	0,3156
Root MSE	0,1808	0,1751	0,1734	0,1692	0,1689

(a) sono state introdotte delle *dummy* specifiche per ogni settore di attività economica non incluse per motivi di sintesi nella presente tabella.

SE riportato tra parentesi,*** p<0.01, ** p<0.05, * p<0.1.

Tabella 3 - *Stima LS dei parametri della regressione lineare con standard error robusti per la variabile dipendente dipendenti laureati. Modelli 2-3-4*

Variabili	**Dipendenti laureati**	**Dipendenti laureati in materie scientifiche**	**Dipendenti con dottorato di ricerca**
ADD	0,007***	0,004***	-0,000
	(0,001)	(0,000)	(0,000)
PRODLAV	0,009***	0,005***	0,000
	(0,001)	(0,001)	(0,000)
CLPD	0,048***	0,024***	0,001***
	(0,002)	(0,001)	(0,000)
DONNE	0,031***	0,004***	0,001***
	(0,002)	(0,001)	(0,000)
DIP15_29	0,061***	0,038***	0,001***
	(0,004)	(0,002)	(0,000)
DIP30_49	0,071***	0,036***	0,002***
	(0,003)	(0,002)	(0,000)
OUTWARD	0,039***	0,020***	0,001***
	(0,002)	(0,001)	(0,000)
INWARD	0,051***	0,027***	0,002***
	(0,003)	(0,002)	(0,001)
costante (a)	-0,201***	-0,111***	-0,005***
	(0,009)	(0,006)	(0,001)
Numero osservazioni	59.675	59.675	59.675
Prob > F	0,00	0,00	0,00
R-squared	0,2406	0,1959	0,0403
Root MSE	0,7822	0,0504	0,0087

(a) sono state introdotte delle *dummy* specifiche per ogni settore di attività economica non incluse per motivi di sintesi nella presente tabella.
SE riportato tra parentesi,*** p<0.01, ** p<0.05, * p<0.1.

5. Conclusioni

In tutti e quattro i modelli è presente una correlazione statisticamente significativa e positiva tra livello di istruzione e appartenenza ad un'impresa multinazionale ed è quindi verificata l'assunzione iniziale che le multinazionali estere assumono in media personale più qualificato rispetto alle imprese a controllo italiano.

La presenza di stimatori robusti nonché di variabili di controllo derivanti sia da dati a livello di impresa (dimensione dell'impresa, produttività, livello salariale) che da caratteristiche dei lavoratori sintetizzate a livello di impresa (sesso, fasce d'età sotto i 50 anni) consente di ritenere questi risultati come robusti sia da un punto di vista sia statistico sia dell'analisi economica.

La maggiore propensione delle imprese multinazionali estere ad assumere lavoratori con livello di educazione mediamente più elevati rispetto alle imprese a controllo nazionale interessa tutti e quattro i profili considerati: livello di educazione di base, livello di educazione progredito non specialistico, livello di educazione progredito e specialistico, livello di educazione avanzato.

L'analisi risente comunque di alcune importanti limitazioni che inducono ad interpretarne con cautela i risultati, ad esempio si basa esclusivamente su risultati di tipo *cross-section,* non tiene conto di aspetti connessi con la diversa localizzazione territoriale delle imprese e ipotizza che il titolo di studio sia stato conseguito prima dell'assunzione nelle imprese multinazionali.

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SUMMARY

Human capital and the multinational enterprises

This paper investigates and empirically tests whether the presence of more qualified workers in foreign multinationals results from a selection effect in the domestic labour market. The econometric model controls for both firm and employee level characteristics and adopts robust estimates for regression parameters. A statistically significant and positive correlation between the level of education and the presence of a multinational enterprise is found across all four model specifications, so the hypothesis that foreign multinationals assume more qualified personal compared to national enterprises is verified under the model conditions.

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ASSETTO PROPRIETARIO E MANAGERIALE: EVIDENZE EMPIRICHE SU ELEMENTI DI CONTESTO ED ORGANIZZATIVI DELLE IMPRESE ITALIANE.[1]

Valentina Ferri, Dario Guarascio, Andrea Ricci

1. Introduzione

La letteratura economica ha recentemente posto una crescente attenzione ai temi che legano le caratteristiche demografiche, culturali e comportamentali degli imprenditori e/o dei managers alle performance competitive e alla propensione ad investire nelle aziende da essi gestite (Bloom e van Reenen, 2010).

Nell'ambito dell'economia del comportamento e del management diversi studi sostengono che il capitale umano degli imprenditori ha un ruolo importante nel favorire la valorizzazione delle competenze professionali dei lavoratori e un clima cooperativo nella gestione delle risorse umane. Più in generale il capitale umano degli imprenditori viene individuato come elemento propulsore nel promuovere la qualità del lavoro nelle aziende (Lezear e Oyer, 2010). Tale ruolo assume una rilevanza particolare nel tessuto produttivo italiano, caratterizzato da imprese di piccole dimensioni e a proprietà familiare, peculiarità che favoriscono la creazione di uno stretto legame tra il profilo demografico degli imprenditori e le politiche del personale.

Sulla base di queste considerazioni, il presente contributo mira ad analizzare empiricamente in che misura gli assetti manageriali e proprietari delle imprese e le caratteristiche degli stessi abbiano un ruolo rispetto ad efficienza, competitività e produttività delle imprese italiane. Si esamina quindi il legame che sussiste tra il profilo demografico e il capitale umano e alcuni aspetti dell'organizzazione dei mercati interni del lavoro e delle relazioni industriali, tra cui la propensione ad erogare servizi sociali ai lavoratori e la diffusione della contrattazione di secondo livello.

A tal fine si utilizzano i dati della IV *Rilevazione su Imprese e Lavoro* (RIL) condotta dall'INAPP (ex Isfol) nel 2015 su un campione rappresentativo di circa 30.000 imprese operanti nel settore privato extra-agricolo. L'indagine RIL offre

[1] Sebbene il paper sia frutto della collaborazione dei tre autori, l'introduzione, le statistiche descrittive e le conclusioni vanno attribuite a Valentina Ferri, la letteratura di riferimento a Dario Guarascio e le analisi econometriche e i risultati ad Andrea Ricci.

infatti una ricca serie di informazione circa l'assetto manageriale e societario delle aziende italiane e permette di correlare tali dati alle performance di bilancio, alla natura delle relazioni industriali, alla composizione della forza lavoro occupata.

Le pagine seguenti sono organizzate come segue. Nel primo paragrafo si approfondisce lo stato dell'arte, richiamando contributi che hanno come oggetto di studio le pratiche manageriali e l'assetto proprietario. Nel secondo paragrafo si presentano i dati e le statistiche descrittive. Nel terzo paragrafo si sviluppa l'analisi econometrica e si discutono i risultati principali da essa derivati. Le conclusioni sono riportate nel quarto paragrafo.

2. Letteratura di riferimento

Secondo la letteratura di riferimento, il capitale umano dell'imprenditore è elemento fondamentale per ciò che concerne le performance e la produttività dell'azienda. Pur non potendo stabilire una relazione causale, è infatti verosimile che manager che hanno conseguito una laurea o un master possano conoscere meglio i vantaggi del management più moderno o della lean manifacturing rendendo più probabile un aumento di produttività. Un risultato meno ovvio e di grande interesse è che il livello d'istruzione dei lavoratori è positivamente associato con più efficienti pratiche manageriali (Bloom, Genakos, Sadun, Van Reenen, 2010), probabilmente perché molte di tali pratiche necessitano di un'iniziativa significativa proprio da parte dei lavoratori, che quindi più son formati, più potrebbero agevolarne l'efficienza nel contesto imprenditoriale ed un'organizzazione non verticistica ma partecipativa dei mercati interni del lavoro (Bloom e Van Reenen, 2010). Oltre al capitale organizzativo, anche il capitale umano inteso come formazione del personale, sembra essere fondamentale come motore dello sviluppo. I risultati empirici confermano che la produttività è una funzione crescente della scolarizzazione dei dipendenti e dell'esperienza degli stessi (Ilmakunnas, Maliranta, e Vainiomäki, 2004).

Nello studio delle relazioni tra misure di performance e peculiarità dell'impresa e dei vertici aziendali, sembra che rivestano un ruolo nella spiegazione dei differenziali di produttività anche i settori economici entro cui operano le imprese, emerge infatti una difformità significativa tra i patterns relativi allo stile di management (Bloom e Van Reenen, 2010). Un esempio sono le imprese nel settore farmaceutico, "human capital intensive" che tendono ad avere maggiori incentivi per pratiche manageriali rispetto ad imprese che operano per esempio nel tessile dove sono presenti in maggior misura lavoratori "unskilled" (Bloom e Van Reenen, 2007). Un'altra evidenza empirica utile da richiamare di supporto ai risultati che si descriveranno di seguito, è che le imprese ben gestite tendono a favorire i

lavoratori per ciò che riguarda la conciliazione vita-lavoro, le agevolazioni per la cura dei bambini, la flessibilità dell'orario di lavoro, la soddisfazione dei lavoratori (Bloom, Kretschmer e Van Reenen, 2009).

Livello di istruzione e ad aspetti psicologici degli imprenditori divengono rilevanti anche per i rapporti tra manager e personale. Inclusione e reciprocità, fiducia e cooperazione permettono infatti maggiore coinvolgimento dei lavoratori, inoltre gli incrementi di efficienza e crescita dei salari consentono di correggere l'inefficienza dovuta all'incompletezza dei contratti di lavoro (Fehr, Goette e Zehnder, 2009; Bandiera e al, 2013).

Per quanto riguarda gli studi che analizzano la produttività di una serie di Paesi economicamente più avanzati, nelle analisi aggregate incidono diversi aspetti normativi e relativi alla struttura del mercato che caratterizzano ogni Paese. Nel sistema statunitense, per esempio, le imprese mal gestite perdono velocemente quote di mercato e sono costrette ad uscire dal mercato perché poco competitive. Altro aspetto che può incidere nelle analisi aggregate e comparative è che tasse e altre politiche distorsive -che ad esempio favoriscono la conduzione familiare- appaiono ostacolare un buon management, invece maggior livello di istruzione e la presenza di multinazionali nel tessuto imprenditoriale del Paese sembra implementare le buone pratiche manageriali (Bloom e Van Reenen, 2010).

L'analisi di seguito proposta riguarda dati su imprese italiane, dunque si riferisce ad un Paese che, pur avendo un tessuto imprenditoriale variegato e con caratteristiche differenti tra le macro aree, mantiene in ogni caso diversi denominatori comuni, con un apparato normativo ben preciso.

3. Dati e statistiche descrittive

L'analisi empirica si basa sui dati della *Rilevazione su Imprese e Lavoro* (RIL) sviluppata dall'Istituto Nazionale per l'Analisi delle Politiche Pubbliche (INAPP - ex ISFOL). L'indagine fornisce informazioni su di un campione di circa 30.000 imprese italiane, le informazioni attengono ad una vasta serie di caratteristiche da quelle demografiche ed economiche a quelle relative all'innovazione di processo e di prodotto, alle attività formative, all'utilizzazione di incentivi pubblici ed all'internazionalizzazione. In particolare, RIL fornisce un set di informazioni dettagliate circa le caratteristiche della forza lavoro impiegata dall'impresa e sull'assetto proprietario e manageriale (titolo di studio, tipologia contrattuale, grado di sindacalizzazione). La presente analisi empirica è condotta sui dati del 2014 e la rilevazione è stata effettuata nel 2015.

Nella Tabella 1 sono riportate le statistiche descrittive delle principali variabili di riferimento. Si osserva così che, in media il 24% è gestita da datori di lavoro

laureati, tale quota varia a seconda della macroarea considerata. Nello specifico la quota più elevata di proprietari/manager laureati è presente nel Nord Ovest (30%) e nel Nord Est (20,4%) quindi nel Sud (23%) e nel Centro Italia (215). In media, a livello nazionale, è solo il 7,2% la quota di manager/proprietari che ha meno di 35 anni. La quota percentuale di giovani imprenditori del Sud, è al di sopra della media, il 10,3% sul totale ha meno di 35 anni. E' comunque nelle piccole imprese che aumenta il numero di dipendenti giovani. Il 15% dei manager/proprietari a livello nazionale è costituito da donne; l'89% delle imprese è di proprietà familiare e il 3,1% gestita da manager «esterni». Si evidenzia che la proprietà familiare riguarda ben il 94% delle imprese del Mezzogiorno. Si può osservare, inoltre, che la presenza di laureati e la gestione manageriale è crescente con la dimensione, la quota percentuale di donne e di giovani si riducono al crescere della dimensione. La proprietà familiare è più tipica delle imprese piccole, mentre la gestione manageriale cresce al crescere del numero di dipendenti.

Tabella 1. - *Assetto manageriale e proprietario. Valori percentuali*

	Istruzione terziaria	Età <35anni	Donne	Proprietà familiare	Gestione manageriale
Dimensione aziendale					
4 < n. di dipendenti<15	21.4	8.0	16.9	93.1	1.9
14<n. di dipendenti<100	26.7	5.5	12.1	85.4	4.5
99<n. di dipendenti<250	40.2	3.5	7.8	65.5	9.6
n di dipendenti>249	69.2	3.4	5.9	39.4	24.1
Macroarea					
Nord Ovest	29.0	7.0	16.4	85.6	3.9
Nord Est	20.4	4.9	14.1	89.2	3.0
Centro	21.7	7.0	15.6	90.7	2.8
Sud e Isole	23.3	10.3	14.7	94.0	2.4
Totale	**24.1**	**7.2**	**15.2**	**89.3**	**3.1**

Fonte: INAPP elaborazione su dati 2014 Indagine RIL 2015. Valori percentuali. Applicazione pesi campionari

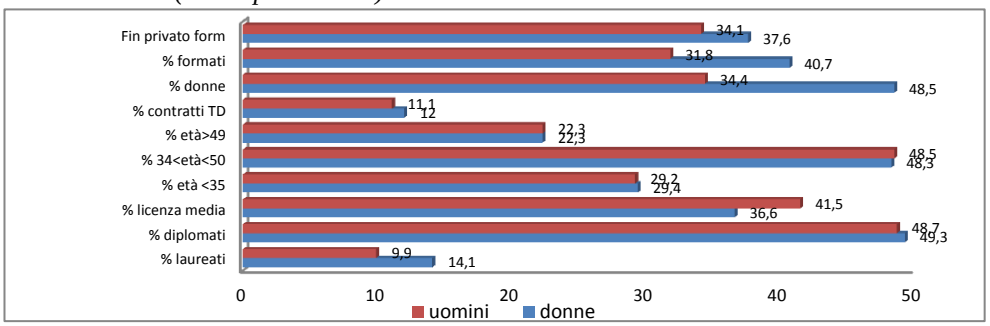
Nella seconda tabella si evidenzia come i datori di lavoro laureati occupano lavoratori più istruiti, in particolare il 23,6% rispetto al 6,4%, in questi casi prevale una maggiore occupazione femminile, le donne (37,6% rispetto al 34,1%) investono maggiormente in formazione, per il 40% rispetto al 31% dei non laureati e utilizzano meno contratti a termine il 9% rispetto al 12%.

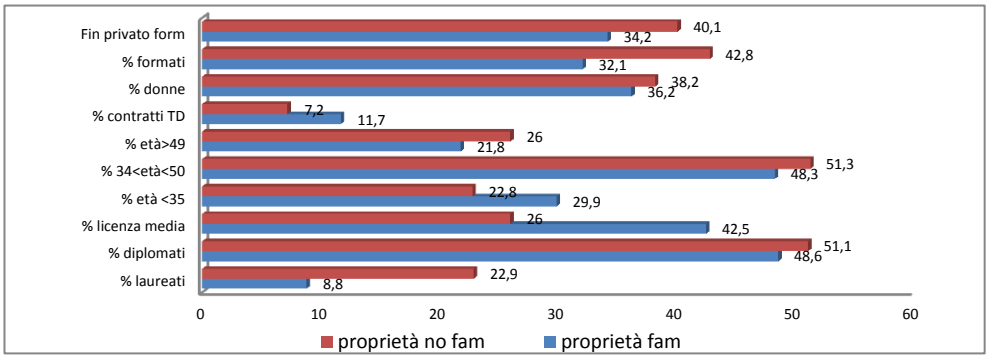
Tabella 2. - *Assetto manageriale e proprietario, composizione occupazione (valori percentuali)*

	totale	laureati	no laureati	donne	uomini	proprietà fam	proprietà no fam
% laureati	10.5	23.6	6.4	14.1	9.9	8.8	22.9
% diplomati	48.8	49.9	48.4	49.3	48.7	48.6	51.1
% licenza media	40.7	26.5	45.2	36.6	41.5	42.5	26.0
% età <35	29.3	27.7	29.7	29.4	29.2	29.9	22.8
% 34<età<50	48.4	49.1	48.2	48.3	48.5	48.3	51.3
% età>49	22.3	23.2	22.0	22.3	22.3	21.8	26.0
% contratti TD	11.3	8.9	12.0	12.0	11.1	11.7	7.2
% donne	36.5	43.5	34.3	48.5	34.4	36.2	38.2
% formati	33.1	40.0	31.0	40.7	31.8	32.1	42.8
Fin privato form	34.7	39.5	33.1	37.6	34.1	34.2	40.1
N	18,634	6,027	12,604	2,209	16,422	14,806	3,740

Fonte: INAPP elaborazione su dati Indagine RIL 2015. Valori percentuali. Applicazione pesi campionari

Figure 1 e 2 - *Composizione dell'occupazione rispetto ad assetto proprietario e genere (valori percentuali)*





Fonte: INAPP elaborazione su dati Indagine RIL 2015. Valori percentuali. Applicazione pesi campionari

I datori di lavoro donne occupano per il 14% personale più istruito, con la laurea, rispetto al 10% dei meno istruiti. Le donne favoriscono l'occupazione delle donne assumendone per il 48,5% rispetto agli uomini che assumono donne per il 34,4% (Fig.1). Le donne inoltre investono maggiormente nell'ambito della formazione: il 40,7% rispetto al 31,8%. Le imprese di proprietà familiare occupano per il 9% lavoratori laureati, rispetto al 23% che caratterizza le imprese a proprietà non familiare (Tab. 2 e Fig. 1 e 2).

Per ciò che concerne le relazioni industriali e le misure di policy, nelle imprese gestite da laureati vi è una maggiore incidenza degli schemi di contrattazione integrativa e una maggiore "reattività" alle misure di politica economica, come quelle che prevedono l'allungamento dei requisiti minimi per accedere ai diritti di pensionamento, l'utilizzo degli incentivi fiscali per l'innovazione e la modifica delle aspettative occupazionali a seguito della riforma del lavoro (il cosiddetto Jobs Act). Le aziende condotte da donne, d'altra parte, manifestano una debole propensione alla contrattazione integrativa e all'adozione delle clausole di prossimità; sono meno "elastiche" al Jobs Act e agli incentivi fiscali. Analogamente la proprietà familiare sembra essere correlata negativamente alla contrattazione integrativa e all'erogazione di servizi sociali privati per i propri dipendenti, ovvero alle misure di politica economica (Tab. 3).

Tabella 3. - *Assetto manageriale e proprietario, relazioni industriali e policy. Valori percentuali*

	totale	laureati	no laureati	donne	uomini	proprietà fam	proprietà no fam
contr int e welfare							
contr II livello	6.1	11.2	4.5	5.3	6.2	4.1	22.9
contr II livello: PRP	4.5	7.8	3.5	2.3	5.0	3.2	16.2
welfare aziendale	3.5	5.7	2.8	3.3	3.5	3.0	8.1
misure di policy							
clausole di prossimità	1.4	2.9	0.9	0.9	1.5	0.9	5.6
riforma pensioni	4.5	5.6	4.1	4.7	4.4	4.1	7.5
Job Act	18.1	22.0	16.9	17.5	18.3	16.7	29.0
Incentivi fiscali	8.0	9.9	7.3	5.7	8.4	7.7	10.8

Fonte: INAPP elaborazione su dati Indagine RIL 2015. Valori percentuali. Applicazione pesi campionari

Le imprese gestite da laureati mostrano maggiore propensione innovativa, la differenza è considerevole per le innovazioni di prodotto e sulle percentuali di investimento. Queste ultime sono più esposte al commercio internazionale e hanno più redditività. In letteratura si trovano conferme sulla propensione dei manager maggiormente istruiti ad aumentare gli stipendi anche attraverso incentivi (Damiani, Ricci, 2014).

La gestione femminile si caratterizza per una minore propensione innovativa (processo, prodotto, attività R&D, brevetti); minore esposizione al commercio internazionale (lo stesso dicasi per la gestione dinastica) e hanno uguale redditività.

Tabella 4. - *Assetto manageriale e proprietario, innovazione e competitività*

	totale	laureati	no laureati	donne	uomini	proprietà fam	proprietà no fam
innovazione							
% innov prodotto	33.2	39.3	31.3	32.1	33.4	32.4	41.6
% innov processo	28.3	32.4	27.0	26.1	28.7	27.2	37.0
% brevetti	3.9	4.7	3.6	3.1	4.0	3.6	6.3
% attività R& D	6.6	9.6	5.7	5.1	6.9	6.0	11.9
%investimento	39.6	47.9	37.0	35.4	40.4	37.6	56.5
invest per dip (euro)	7362.6	7179.3	7418.6	5189.6	7744.9	7254.0	8631.2
competitività							
% mkt esteri	24.9	27.6	24.0	19.9	25.8	23.5	34.7
% fatturato mkt esteri	7.2	8.5	6.7	5.8	7.4	6.6	12.1
ln(ricavi per dip)	11.7	11.9	11.6	11.6	11.7	11.6	12.2
ln(costo per dip)	8.1	8.2	8.0	7.9	8.1	8.0	8.8

Fonte: INAPP elaborazione su dati Indagine RIL 2015. Valori percentuali. Applicazione pesi campionari

4. Analisi econometrica.

L'analisi econometrica è basata su stime OLS e sul modello probit, dove le variabili dipendenti sono la contrattazione di II livello, i contratti di prossimità, il welfare aziendale e la riforma delle pensioni, rispetto alle caratteristiche demografiche e d'istruzione del management.

I risultati delle stime probit, riportati in Tabella 5, mostrano come in un'impresa in cui il datore di lavoro è laureato si ha una più elevata probabilità di integrazione del CCNL con la contrattazione di II livello, di clausole di prossimità e di rinuncia ad assumere a causa della riforma delle pensioni. La presenza di un datore anziano provoca un aumento della contrattazione di II livello e la rinuncia alle assunzioni ma attenua l'uso di incentivi. La proprietà familiare riduce tutte le misure di relazioni industriali e di policy (eccetto gli incentivi).

Le stime OLS, in Tabella 6, effettuate sui ricavi, sui costi, sugli investimenti e sugli investimenti pro capite e in R&D, danno i risultati di seguito descritti.

Tabella 5. – *Stime probit effetti medi marginali, primo set di variabili dipendenti.*

	contr II liv	contratti prossimità	welfare aziendale	riforma pensioni	incentivi fiscali
laurea	0.066***	0.023***	0.007	0.017**	0.000
	[0.009]	[0.006]	[0.007]	[0.007]	[0.009]
diploma	0.027***	0.010*	0.000	0.003	-0.005
	[0.008]	[0.006]	[0.006]	[0.006]	[0.008]
donna	-0.002	-0.005	0.001	0.003	-0.012
	[0.008]	[0.006]	[0.006]	[0.007]	[0.009]
età>49	0.044***	0.012	0.009	0.019*	-0.031**
	[0.014]	[0.009]	[0.010]	[0.011]	[0.012]
34<età<50	0.036***	0.019**	0.010	0.007	-0.025**
	[0.014]	[0.009]	[0.009]	[0.01]	[0.011]
proprietà familiare	-0.059***	-0.022***	-0.009**	-0.002	0.016**
	[0.006]	[0.004]	[0.004]	[0.006]	[0.007]
gestione man	0.044***	0.009*	0.014**	-0.007	-0.017
	[0.009]	[0.005]	[0.006]	[0.009]	[0.011]
altri controlli	si	si	si	si	si
N di oss	15462	15462	15462	15462	15462

Tabella 6: *stime OLS, secondo set di variabili dipendenti.*

	ln(ric pc)	ln(cos pc)	inv	inv pc	R&D
laurea	0.127***	0.213***	0.015	682.87	0.012
	[0.032]	[0.072]	[0.011]	[530.82]	[0.007]
diploma	0.083***	0.214***	-0.005	422.39	-0.003
	[0.026]	[0.06]	[0.01]	[450.042]	[0.005]
donna	-0.093***	-0.015	0.011	-126.84	-0.003
	[0.028]	[0.065]	[0.011]	[509.723]	[0.006]
età>49	0.092**	0.262***	-0.044***	-18.42	0.000
	[0.043]	[0.097]	[0.016]	[745.462]	[0.009]
34<età<50	0.052	0.088	-0.041***	-550.09	0.001
	[0.04]	[0.092]	[0.015]	[711.556]	[0.009]
proprietà familiare	-0.171***	-0.562***	-0.046***	-928.091**	-0.026***
	[0.030]	[0.066]	[0.010]	[422.84]	[0.008]
gestione manageriale	0.012	0.205*	0.032**	393.607	0.000
	[0.046]	[0.107]	[0.015]	[659.002]	[0.013]
altri controlli	si	si	si	si	si
R2	0.133	0.043	0.2	0.031	0.189
Obs	15462	18368	18037	16978	18006

*Fonte INAPP: dati RIL 2015. Note: gli altri controlli includono le caratteristiche degli occupati (livello di istruzione, genere e qualifica professionale dei lavoratori wcc), le caratteristiche di impresa (settore di attività, dimensione aziendale, macroregione, commercio internazionale ecc). Errori standard (robusti) tra parentesi. Significatività statistica *** p<0.01, ** p<0.05, * p<0.1.*

La presenza di un datore di lavoro laureato (e anziano) è correlata positivamente alla redditività e ai costi del lavoro, alla probabilità di contrattazione di II livello, alle clausole di prossimità e alla rinuncia ad assumere a causa della riforma delle pensioni; il datore di lavoro anziano riduce la probabilità di investimento; la proprietà familiare riduce redditività, costo lavoro, investimenti e innovazioni.

5. Conclusioni

Lo studio ha evidenziato nella parte descrittiva che le imprese italiane sono caratterizzate in media da un basso livello di istruzione, scarsa presenza femminile e management «dinastico». Le stime probit hanno rivelato come la conduzione familiare delle imprese si accompagni ad una scarsa probabilità di contrattazione di II livello, clausole di prossimità e misure di welfare aziendale. Al contrario la gestione manageriale sembrerebbe favorire queste misure.

I risultati appena evidenziati confermerebbero in parte quanto in letteratura viene rilevato come elemento distorsivo del tessuto imprenditoriale nazionale, probabilmente dovuto al sistema fiscale che non consente facilmente alle imprese di andare oltre una struttura dinastica della azienda. Queste caratteristiche tipiche italiane si associano ad un profilo psicologico e comportamentale che può frenare l'organizzazione efficiente delle risorse umane, lo sviluppo di relazioni industriali cooperative e una possibile «inerzia» a fronte a misure di politica economica. In tal senso è interessante osservare che la proprietà familiare è correlata in negativo e dunque non favorisce gli investimenti pro capite, né in ricerca e sviluppo. Le misure legate alla produttività appaiono dunque abbastanza penalizzate dalla peculiare struttura delle nostre imprese.

Le decisioni di investimento e i modelli di competitività, di conseguenza, possono essere influenzate da «present bias», con riduzione produttività e salari nel medio periodo. L'eterogeneità delle realtà imprenditoriali potrebbe far riflettere su una strategia che contempli un «disegno» inclusivo della politica economica e degli assetti del mercato del lavoro.

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SUMMARY

Ownership and management: empirical evidence from Italian firms.

This paper investigates the role played by the demographic profile of the employers and external management for the competitiveness and productivity performance of Italian firms. Further, we analyze the relationship between the employers' characteristics and the propensity to invest, innovate and providing welfare services at workplace.

Using a unique source of information derived by the Employers and Employees Survey (EES) conducted by INAPP on a representative sample of partnerships and limited liability firms, we show the following results. First, the entrepreneurship in Italy is characterized by a low level of education, a limited presence of female and an high diffusion of "dynastic" management. Second, linear and no-linear regression models are coherent to indicate that family ownership is negatively associated with the probability of introducing second level bargaining, opting out clauses (of the CCNL) and social welfare schemes. Third, we find that the education of the employers favors productivity and wages while family ownership are negatively correlated with them. As well, our results reveal that family ownership is negatively correlated with efficient human resources practices and, as a consequence, with the amount of investment in physical capital and research activities.

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WAGE GAPS BY COLLECTIVE BARGAINING AND FIRM SIZE IN ITALY[1]

Paola Naddeo, Stefania Cardinaleschi

1. Introduction

There is a general consensus in the literature on the existence of some form of relationship between collective bargaining, union power and wage dynamics. Several studies conclude that the first level collective bargaining can reduce, and in many cases significantly, wage dispersion. Moreover, it is argued that the power of the union tends to increase as the size of the enterprise grows. Therefore trade unions are stronger in large enterprises than in small and medium enterprises.

Atkinson (2015) identifies the strength of the union and the collective bargaining coverage among the main factors explaining inequality and argues that their decline during the recent decades is an important reason for the widening inequality. Along the same lines Stiglitz (2012) argues that "*organized labour and collective bargaining have traditionally been factors contributing to a reduction in inequality*".

Important international institutions, such as the OECD and the International Monetary Fund, have recently changed their approach to the topic of inequality: in the past, inequality was seen as a consequence of globalization and technology change, as well as of different levels of education; nowadays, an important role is attributed to labour market institutions and collective bargaining.

Despite there is ample evidence on centralized collective bargaining as a factor able to reduce wage inequalities, the effects of second level bargaining (SLB) on wage dispersion within individual firms are not so clear-cut. Some economists and sociologists argue that decentralized bargaining increases wage dispersion as it favours matching between firm's needs and individual characteristics (Dahl *et al*., 2011). Moreover, enterprises with SLB tend to provide higher salaries to their employees. Summing up the main findings from the existing literature:

[1] This paper is a result of a close cooperation between the authors. However, paragraphs 2 and 3 are realized by Paola Naddeo, paragraphs 1 and 4 by Paola Naddeo and Stefania Cardinaleschi. The work is an output of the Istat Working Group for the definition of an "Information System on enterprise bargaining" (SICA - Sistema Informativo sulla Contrattazione Aziendale) coordinated by Stefania Cardinaleschi.

- large firms tend to pay higher salaries to their employees;
- unionization rate is generally higher in large firms;
- there is a wage premium associated to companies with large union presence (union wage premium);
- wage tends to increase as job tenure increases.

At the same time, it is not clear which might be the effects of SLB on the gender pay gap (Antonczyk *et al.*, 2010).

2. Objective and Methodology

The aim of this paper is to analyse the relationship between SLB, enterprise size and wage gaps by age and gender in Italy. The analysis focuses on the pay gap between young people and elderly employees working in the private sector. We consider worker to be "young" if aged between 15 and 29 years old, in coherence with the definition used by the European Commission (2008), and "old" if aged 50 years old and over. We also adopt a gender perspective. More in detail, our aim is to investigate if there are differences in wage dispersion (by age and gender) between large and medium-small firms depending on whether or not the SLB is present. For the sake of simplicity, we have chosen to limit the analysis to the private sector and to workers with a full-time contract only (excluding part-timers). It is difficult to identify the differences in wages of public sector employees by size of the enterprise which counts little for differentiating the working conditions: public sector employees enjoy substantially the same rights and wages independently of whether they work in small or large departments. This does not happen in the private sector. On the other hand, the reasons for being a part-timer are very different, so we choose to exclude them from our analysis in order to avoid the confounding effects.

The analysis is conducted using the data collected by ISTAT within the *Structure of Earnings Survey* (SES) for 2010, integrated with a separate SICA (Sistema Informativo sulla Contrattazione Aziendale) section, which collects relevant data on the consistency and dissemination of first and second level of bargaining (at firm, territorial and plant level). In the next step, it is provided the results of the analysis taking into account the dataset for 2010 and 2014 (the SICA section is still integrated).

The SES represents a Linked Employer-Employee Database (LEED) covering a large sample of firms. The survey is realised every four years and provides the detailed information on both the individual characteristics of the employee (such as age, gender, type of employment, duration of employment, highest education level attained) and the characteristics of enterprise (such as size, economic activity,

location) with at least 9 employees in all sectors of economic activity from Section B (Mining activity) to Section S (Other Services) excluding Section O (Public Administration and Defence, Social Insurance Compulsory) of the NACE Rev.2 classification.

Using the SES data we first carry out a traditional descriptive analysis of working conditions by age and gender, taking into account the size of enterprise and the presence of SLB. In a second step of the analysis, we verify the impact of the size of enterprise and SLB on wage differentials by age and gender. We employ Oaxaca-Blinder (1973) decomposition technique as well as the method proposed by Ñopo (2008). This is done primarily to identify which part of the gap is explained by observed characteristics such as the level of education, job tenure, sector of economic activity. The remaining part of the gap will be attributed to discrimination, albeit it could also reflect the effects of unobserved variables. The Oaxaca-Blinder decomposition is based on the estimation of two separate Mincerian equations for the two distinct groups of workers (in our case young versus old, as well as male versus female workers) and on the use of the parameters estimates to decompose the average wage gap in two components:

- differences explained by the endowments or individual characteristics;
- differences not explained by these characteristics.

The unexplained part is usually attributed to discrimination or premium, but obviously could also reflect the effects of unobserved variables.

The literature highlights many limits of the Oaxaca-Blinder (O-B) decomposition:

- it considers only mean values (Di Nardo *et al.*, 1996);
- the comparison should be limited to individuals with comparable characteristics, otherwise there is a distortion of differential decomposition estimates (Barsky *et al.*, 2002);
- the relationship that links the characteristics of workers to wages is not necessarily linear (Ñopo, 2008).

A more general problem is heterogeneity: young and old workers (as well as females and males) engaged in large enterprises or in small and medium-sized enterprises are different. To deal with the issue of heterogeneity we recourse to the Nõpo approach. However, this approach can easily incur in a 'curse of dimensionality' (*id est* too many control variables in the model). The Ñopo approach does not require the estimate of income equations and divides the gap into four additional elements: two of them are similar to Oaxaca-Blinder decomposition elements (but calculated only on common support), while the other two consider the differences for subsets of comparable individuals. In the Ñopo approach the data (expressed in percentage values) indicate:

D = total gap;

D_0 = unexplained part of the gap;

D_G = differences between the two groups of elderly (those with characteristics comparable to those of young people and those who do not have these same characteristics);

D_A = differences between the two groups of young people (those with characteristics comparable to those of the elderly and those who do not have these same characteristics);

D_X = differences in the endowments of old and young employees for a subset of individuals that are comparable.

Below is a list of the variables used in our analysis:

Geographical location	North-West North-East Centre South Island
Gender	Males Females
Age	15-29 years 30-49 years 50+ years
Type of occupation	Managers Professionals Others
Highest successfully completed level of education and training	ISCED 1 = Pre-primary education and primary education ISCED 2 = Lower secondary education ISCED 3 = Upper secondary ISCED 4 = Post-secondary non-tertiary education ISCED 5 = Tertiary education - first stage ISCED 6 = Tertiary education - second stage
Length of service in enterprise	Job tenure (in years) Indefinite duration
Type of employment contract	Temporary/ Fixed duration Apprentice

3. Main results

3.1. Descriptive analysis

The first result that emerges from the descriptive analysis is a huge difference in the age composition of employees belonging to enterprises with and without SLB. The ratio of young employees (less than 30 years) to old employees (50 years and over) is higher in companies without SLB (Table 1). In addition, the ratio is higher in small and medium enterprises (SMEs) than large private enterprises (LPEs). This could mean greater job stability in unionized enterprises (i.e. with SLB), or a greater chance for young workers to get a job in non-unionized enterprises, especially in SMEs. We could infer that seniority mainly concerns unionized enterprises, although more evidence is needed.

In addition, the ratio is higher for females than males with the only exception of employees in LPEs without SLB.

Table 1 – *Ratio of young employees to old employees (percentage values)*

		Females	Males	Total
SME	With SLB	62.31	48.45	51.83
	Without SLB	128.88	87.47	98.25
LPE	With SLB	51.31	27.18	32.41
	Without SLB	77.80	84.45	81.78

Source: our elaboration on Istat, Structure of Earnings Survey, 2010

In LPEs the share of employees who enjoy SLB with respect to the total employees of the same class is much higher than in SME, which is especially true for males. In fact, about two thirds of the employees have a SLB contract in LPEs (Table 2).

With the partial exception of women employed in LPEs, the share of employees with SLB increases with age.

Working in enterprises with SLB allows employees to get higher earnings, both in SMEs and in LPEs.

In SMEs, the union wage premium increases with age, averaging 12.02% for young people at 25.38% for the elderly.

However in LPEs, the premium for old employees is lower than the premium for middle-aged employees.

Table 2 – *Ratio of employees in firms with SLB to the total employees (percentage values)*

Age class	SME			LPE		
	Females	**Males**	**Total**	**Females**	**Males**	**Total**
≤ 30	13.82	16.74	15.76	46.64	50.88	49.34
> 30 and ≤ 49	20.54	23.71	22.79	62.31	68.65	66.62
> 49	24.91	26.62	26.19	57.00	76.29	71.08
Total	20.04	23.25	22.31	59.10	68.75	65.74

Source: our elaboration on Istat, Structure of Earnings Survey, 2010

Old employees earn more than young ones; the differences fluctuate between 28.3% for females in SMEs without SLB and 70.1% for males in LPEs with SLB (Table 3).

In LPEs the difference in age pay gap between enterprises with and without SLB is narrower.

In other words, it seems that in enterprises with SLB employees tend to have higher job tenure which drives wages upwards.

Table 3 – *Ratio of old employees earnings on young employees earnings (percentage values)*

		Females	**Males**	**Total**
SME	With SLB	150.45	159.62	158.13
	Without SLB	128.25	144.83	141.28
LPE	With SLB	149.81	170.10	167.19
	Without SLB	159.69	166.47	163.65

Source: our elaboration on Istat, Structure of Earnings Survey, 2010

A useful indicator to measure earnings inequality is the ratio of deciles.

The ratio between the 9th and the 1st deciles (R9/1 as in Table 4) increases with age and is higher for males than females (with the exception of young workers).

In LPEs without SLB it has a value of 4.2 for old males.

Similar results are obtained when looking at the Gini inequality index: it takes the value 0.180 for young employees, 0.249 for middle-aged employees and 0.303 for old employees, i.e. increasing with age.

Table 4 – *Inequality of the distribution of earnings (R9/1)**

	Females		Males	
	With SLB	**Without SLB**	**With SLB**	**Without SLB**
		≤ 30 (young)		
SME	2.031	1.893	2.008	1.964
LPE	1.992	1.835	1.899	1.850
TOTAL	2.005	1.887	1.934	1.938
		> 30 and ≤ 49		
SME	2.440	2.313	3.387	3.047
LPE	2.580	2.509	3.934	4.221
TOTAL	2.541	2.385	3.840	3.439
		> 49 (old)		
SME	2.764	2.626	2.696	2.511
LPE	3.557	3.423	2.674	2.888
TOTAL	3.322	2.851	2.689	2,616

* Ratio between the 9th and the 1st deciles.
Source: our elaboration on Istat, Structure of Earning Survey, 2010

The raw wage differential by gender (gender pay gap) is higher in enterprises with SLB, especially in LPEs (Table 5). For young employees the differences are not very high (5-8%); on the contrary the differences increase with age reaching a values above 17% in LPEs with SLB for old employees. Again it seems that SLB and age are the factors associated with higher inequality.

Table 5 – *Gender pay gap by age (percentage values)*

Age class	**SME**			**LPE**		
	Total	**With SLB**	**Without SLB**	**Total**	**With SLB**	**Without SLB**
≤ 30	5.90	7.73	5.17	6.61	5.97	6.05
> 30 and ≤ 49	8.96	10.09	7.96	13.59	13.31	10.99
> 49	15.48	13.03	16.03	17.07	17.19	9.88
Total	10.85	11.28	9.97	15.43	15.77	9.69

Source: our elaboration on Istat, Structure of Earnings Survey, 2010

3.2 Oaxaca-Blinder decomposition and Ñopo approach

The O-B decomposition and the Ñopo approach show the persistence of a significant age wage premium (note that the outcome of O-B decomposition is expressed in ln-wage terms, whereas the outcome of Ñopo decomposition is expressed in percentage terms). Applying O-B technique to SMEs results in a relatively contained age wage premium. The highest value is actually observed for LPEs with SLB (Table 6). In most of the cases individual characteristics explain only small part of the observed wage differentials (with the only exception of LPEs without SLB). It could mean that either the analysis is not able to capture the reasons why employers are willing to pay higher wages for older employees, or the explanatory variables in SES are not enough to capture the productivity increase with age, if it exists.

Table 6 - *Decomposition of age wage differentials (old workers versus young workers)*

	SME			**LPE**		
	Total	**With SLB**	**Without SLB**	**Total**	**With SLB**	**Without SLB**
			O-B Decomposition			
Difference	0.241	0.257	0.226	0.475	0.448	0.423
Explained	0.095	0.123	0.077	0.180	0.084	0.257
Unexplained	**0.146**	**0.134**	**0.149**	**0.295**	**0.364**	**0.165**
			Ñopo Approach			
D	0.479	0.581	0.413	0.718	0.672	0.636
D_0	**0.342**	**0.415**	**0.340**	**0.444**	**0.574**	**0.197**

Source: our elaboration on Istat, Structure of Earnings Survey, 2010

The gender pay gap appears to be higher in enterprises with SLB, in addition it tends to be higher in SMEs (Table 7). In SMEs with SLB the gender pay gap is around 16%, whereas in LPEs without SLB it is below 10%.

When we consider only young employees, the gender pay gap tends to be higher in SME only when we consider the Ñopo approach (Table 8). There are not significant differences between firms with and without SLB (the only exception is SMEs, when the O-B decomposition is applied).The values are below 10% in LPEs and above this threshold in SMEs (when Ñopo approach is used).

Table 7 - *Gender pay gap* for all private employees*

	SME			LPE		
	Total	**With SLB**	**Without SLB**	**Total**	**With SLB**	**Without SLB**
			O-B Decomposition			
Difference	0.097	0.098	0.090	0.144	0.155	0.071
Explained	-0.030	-0.047	-0.031	0.025	0.019	-0.024
Unexplained	**0.127**	**0.145**	**0.121**	**0.120**	**0.136**	**0.096**
			Ñopo Approach			
D	0.122	0.127	0.111	0.182	0.187	0.107
D_0	**0.151**	**0.164**	**0.146**	**0.134**	**0.141**	**0.093**

* The (unadjusted) Gender Pay Gap is calculated as the difference between the average gross hourly earnings of male and female paid employees as a percentage of average gross hourly earnings of male paid employees.
Source: our elaboration on Istat, Structure of Earninsg Survey, 2010

Table 8 - Gender pay gap for young workers

	SME			LPE		
	Total	**With SLB**	**Without SLB**	**Total**	**With SLB**	**Without SLB**
			O-B Decomposition			
Difference	0,052	0,081	0,043	0,062	0,06	0,052
Explained	-0,02	-0,013*	-0,023	-0,014*	-0,019*	-0,022*
Unexplained	**0,072**	**0,094**	**0,066**	**0,076**	**0,079**	**0,074**
			Ñopo Approach			
D	0,063	0,084	0,055	0,071	0,064	0,064
D_0	**0,114**	**0,109**	**0,115**	**0,094**	**0,084**	**0,081**

Source: our elaboration on Istat, Structure of Earninsg Survey, 2010

For the old employees we have two different pictures for SMEs and LPEs. In the former case the wage gap is large and it is higher in enterprises without SLB, reaching the peak of 20% in SME without SLB. On the contrary, the gender wage gap tends to be very limited in LPEs without SLB, although we have problems of statistical significance[2] (Table 9).

[2] One should keep in mind that the last results were obtained on a subsample of individuals.

Table 9 - *Gender pay gap for old employees*

	SME			LPE		
	Total	**With SLB**	**Without SLB**	**Total**	**With SLB**	**Without SLB**
			O-B Decomposition			
Difference	0,124	0,102	0,126	0,152	0,17	0,036
Explained	-0,03	-0,023*	-0,035*	0,049	0,042	-0,029*
Unexplained	**0,154**	**0,125**	**0,161**	**0,103**	**0,128**	**0,065***
			Ñopo Approach			
D	0,183	0,15	0,191	0,206	0,208	0,11
D_0	**0,183**	**0,092**	**0,201**	**0,104**	**0,122**	**0,000***

Source: our elaboration on Istat, Structure of Earnings Survey, 2010

4. Conclusions

The results show significant differences in wages between old and young employees in favour of the former. These differences are more pronounced in large firms and in those with the second level bargaining. It seems that wage increases with age both in enterprises with and without SLB and/or in SMEs and LPEs; but this increase is greater in enterprises with SLB, especially in the context of LPEs. The descriptive analysis has shown that the ratio of young employees to old employees is considerably higher in non-unionized firms and in SMEs. It could mean that the rules governing industrial relations in firms with SLB prevent the dismissal of older employees and it could deter the turnover.

However, the evidence provided in this paper is not sufficient to conclude that there is still a seniority mechanism in these firms. Further investigation is needed to infer this is the case. In particular, the recruitment and dismissal systems in these enterprises, as well as the career patterns, need to be analysed in more detail.

Conversely, SLB does not seem to be a factor influencing the magnitude of the gender pay gap, or rather the effect is not clear: on the one side, it seems that the gap increases in the presence of SLB in large firms, at the same time it diminishes in small and medium enterprises.

Finally, the gender pay gap seems to increase with age, but the differences between the young and old workers are not very high. In the LPEs without SLB the gender pay gap tends to zero for old employees.

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SUMMARY

Wage gaps by collective bargaining and firm size in italy

Collective bargaining is traditionally considered to be able to reduce wage gaps, whereas the union strength is increasing with the size of the firm. Despite these evidences the literature shows not clear conclusions on the effects of the second level of bargaining (SLB) on the wage gaps by age and gender.

The aim of this paper is to analyse the relationship between collective bargaining, especially SLB, firm size and wage gaps by age and gender in Italy. We focus on wage gaps between young and old employees, taking into account a gender perspective.

The analysis is based on information obtained from the Structure of Earnings Survey (SES) conducted by ISTAT in 2010, integrated with the SICA (Sistema Informativo sulla Contrattazione Aziendale) survey. The latter collects data on the consistency and dissemination of first and second bargaining.

Our empirical data analysis was performed in two steps. Firstly we carried out statistical descriptive analysis on working conditions of young as opposed to elderly employees; in addition we distinguish between workers employed in small-medium firms and in big firms in the private sector, with and without SLB. Secondly, in order to verify the impact of firm size and SLB on wage gaps (by age and gender), we use some decomposition techniques (Oaxaca-Blinder and/or Ñopo approach). This serves to identify which part of the differences in earnings is explained by observable characteristics such as the level of education, job tenure and sector of economic activity.

The wages increase with age both in enterprises with and without SLB and/or in SMEs and LPEs; but these increases are greater in enterprises with SLB, especially for the LPEs. Conversely, SLB does not seem to be a factor influencing the magnitude of the gender pay gap. The gender pay gap seems to increase with age, but the differences between the young and old workers are not very high

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THE POSSESSION OF NARCOTICS FOR PERSONAL USE IN THE PROVINCE OF SALERNO FROM 2010 TO 2016

Carmela Cuomo, Carlo Cusatelli, Massimiliano Giacalone

1. Introduction

Today, drugs legislation is covered in Title VIII of the D.P.R. 9 October 1990 n. 309, as amended by Law 49/2006. Administrative sanctions are governed by art. 75 D.P.R. 309/90: "Anyone who, for their own personal use, unlawfully carries on, acquires or possesses drugs that are narcotic or psychotropic ... shall be subject to an administrative sanction ..."; it consists in the formal call for no more use of narcotic drugs, or in the suspension of a document (license, gunnery, passport ...) from 1 month to 1 year. The administrative penalty is applied following the interview with the Operative center for drug addiction (N.O.T)[1] of the Prefecture of residence of the reported subject (D'Aiuto, 2008; Bassi, 2010).

The purpose of the statistical analysis of the data presented here is to acquire information about consumers and possessors of narcotics for personal use (Cusatelli et al., 2005), reported to the Prefecture - Territorial office of the government (UTG) of Salerno[2]. The field of observation and the data collected relate to the size and distribution of consumers and drug addicts, disaggregated by sex and age; the number of distinct signals for substance abuse; the measure adopted, that is the type of administrative sanctions discharged; particular attention has been given to identifying the towns of residence of the stakeholders with more reportings (Giacalone, 2009). Data was processed to convert the archive file to the Ministry of the Interior in a format that would allow statistical analysis. The processed data is made up of all users of the NOT in charge of the Prefecture of Salerno for the period from 2010 to 2016.

[1] N.O.T is the Office set up to pursue the purposes set out in the current drug-related regulations, which involve the initiation of an administrative procedure in cases of detention for personal use of drugs. The office is made up of psycho-social experts and administrative staff (Opilio et al., 2008).

[2] This work is born from a collaboration between the University of Naples Federico II and the Prefecture - UTG of Salerno. It is thanks to the availability of NOT of the Prefecture of Salerno which was possible to carry out this analysis.

2. The distribution of the reportings

From the examination of the information collected through the Prefecture of Salerno it has been found that in the last seven years, from January 1, 2010 to December 31, 2016, the reports for violation of art. 75 D.P.R. 309/90, of subjects in the area of competence, totaled 9,675 (Tab. 1). The number of "reportings" is to be distinguished from the number of "people reported": in fact, some people may have been involved in several violations in the course of the same year, so the number of reportings usually exceeds the number of people reported.

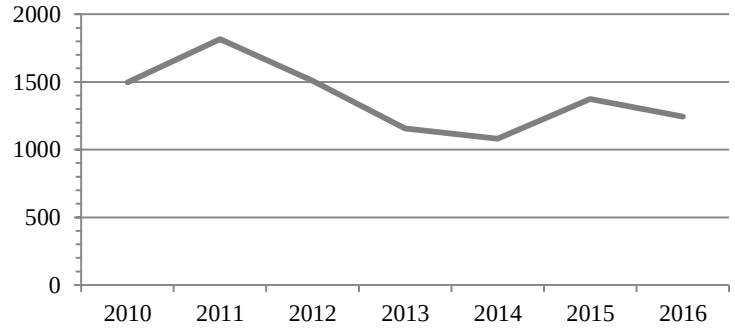
Table 1 – *Distributions of reported violations of art. 75 D.P.R. 309/90, by year, sex and recidivism.*

Year	Reportings	M	% M	F	% F	Recidivists	% recidivists
2010	1497	1441	96.3	56	3.7	100	6.7
2011	1817	1748	96.2	69	3.8	170	9.4
2012	1508	1439	95.4	69	4.6	96	6.4
2013	1156	1111	96.1	45	3.9	50	4.3
2014	1080	1023	94.7	57	5.3	46	4.3
2015	1374	1307	95.1	67	4.9	39	2.8
2016	1243	1183	95.2	60	4.8	53	4.3
Total	9675	9252	95.6	423	4.4	554	5.7
Average	1382	1321	95.6	60	4.4	79	5.7

Source: processing of data recorded at N.O.T. UTG - Salerno.

The average was 1,382 annual reportings, but with a noteworthy year-to-year variation, which reached the highest number in 2011 with 1,817 reported and the lowest number in 2014 with 1,080 (Fig. 1).

Figure 1 – *Reports received for violating art. 75 D.P.R. 309/90, by year.*



Source: processing of data recorded at N.O.T. UTG - Salerno.

2.1. Reportings by sex

Of the total number of reportings, 95.6% of those concerned are of masculine sex, which remains constant for all the years in question. This is in line with data from all Territorial Government Offices on the national territory, as evidenced by the Annual Reports on Parliament on the state of drug addiction in Italy published on the website of the Senate of the Republic[3].

2.2. Reportings by age

The age of subjects reported for drug use is between 14 and 67 years, although only three subjects who committed the offense were older than sixty years: in 2014 there was a reported case whose age was 61 years, in 2015 a subject of 63 years and in 2016 a reported age of 67 years. Tab. 2 shows the distribution according to the different age ranges in the years of detection.

Table 2 – *Distributions of reported violations of art. 75 D.P.R. 309/90, according to age.*

Age in years	14-17	%	18-21	%	22-25	%	26-29	%	30-39	%	≥ 40	%	Tot. %
2010	58	3.9	404	27.0	308	20.6	231	15.4	340	22.7	156	10.4	100.0
2011	52	2.9	437	24.1	413	22.7	277	15.2	421	23.2	217	11.9	100.0
2012	40	2.7	350	23.2	338	22.4	235	15.6	357	23.7	188	12.5	100.0
2013	45	3.9	319	27.6	267	23.1	170	14.7	250	21.6	105	9.1	100.0
2014	48	4.4	288	26.7	237	21.9	160	14.8	239	22.1	108	10.0	100.0
2015	68	4.9	345	25.1	318	23.1	206	15.0	297	21.6	140	10.2	100.0
2016	51	4.1	308	24.8	288	23.2	198	15.9	237	19.1	161	13.0	100.0
Total	362	3.7	2451	25.3	2169	22.4	1477	15.3	2141	22.1	1075	11.1	100.0

Source: processing of data collected at N.O.T. UTG - Salerno.

It is thus possible to point out that from 2010 to 2016 the age range with the highest number of reportings is that of subjects aged between 18 and 21 (2,451 reportings, equal to 25.3%), also a high percentage of users are found even in the age group 22-25 years (22.4%). If we add to this data also that 15.3% (range 26-29 years) are subject to an age that does not exceed 30 years, we can conclude that the age of the reporters analyzed in this work is certainly more concentrated in range 18-29 years (63%), age of "young adults".

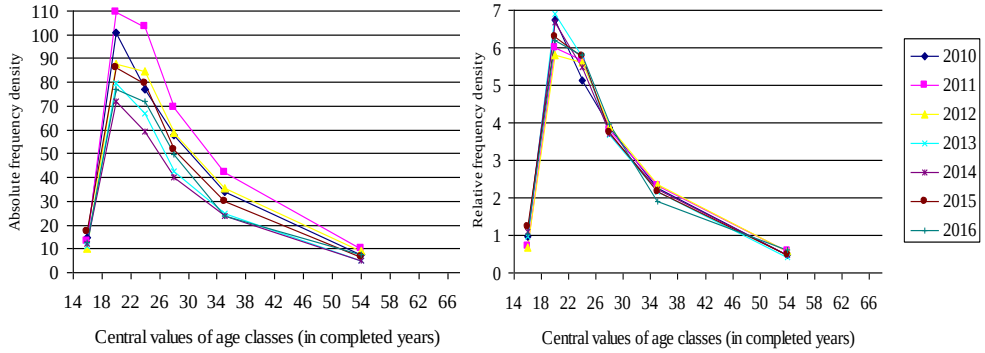
The average number of reported subjects of lower age (14 to 17 years), after

[3] The Annual Report on the Status of Drug Addiction in Italy is the official governmental document drawn up pursuant to art. 131 of D.P.R. n. 309/90, from the Anti-Drug Policy Department of the Presidency of the Council of Ministers.

reaching the maximum number of reportings in 2015 (68, equal to 4.9%), seems to be slightly declining (51 reportings, 4.1%).

In addition, as shown in Fig. 2 by the absolute and relative frequency densities (Cicchitelli, 2008) reported at the central values of the age classes (having last closed the age of 68, given that the highest age observed in the seven years considered here is of 67 completed years but not knowing by how many months), it should be noted that if absolute distributions vary quite over the years (decreasing over time especially in non-extreme age classes), the relative ones are more overlapping, indicating a very similar functional form.

Figure 2 – *Reports received for violating art. 75 D.P.R. 309/90. Frequency densities.*



Source: processing of data collected at N.O.T. UTG - Salerno.

2.3. Reportings by type of narcotic substances

We chose to analyze the data on the type of drugs consumed by the reported subjects and seized by the Forces of the Order, grouping these substances into different categories: cannabinoids and derivatives (marijuana and hashish), cocaine and derivatives (cocaine, crack, amphetamines), opiates (heroin, morphine, methadone), synthetic drugs (ecstasy, LSD, MMDA, ketamine) and finally we classify subjects that have more substances at the time of reporting and therefore they claim to use more than one type of substance (poly-substances consumers)[4].

As shown in Tab. 3, the steady data in the years under consideration is that the largest number of reported subjects are in possession and declare themselves using

[4] Among the changes made by Law n. 49/2006 there is the unification of the punishment provisions for all illicit drugs, irrespective of the type of the narcotic substance, thereby abolishing the former distinction between light drugs and heavy drugs (Viglione, 2014).

personal cannabinoids and derivatives. Out of a total of 9,675 reportings, 7,206 are related to this type of drug (74.5%). Looking at the data, it also emerges that from 2010 to 2016 there was a significant increase, ranging from 66.7% of cannabinoid reportings to 83.2% in 2016.

Table 3 – *Distributions of reported violations of art. 75 D.P.R. 309/90, according to type of drug.*

Drugs	Canabinoids and derivatives	%	Cocaine and derivatives	%	Opiates	%	Synthetic drugs	%	Poly-substances consumers	%
2010	998	66.7	269	18.0	158	10.6	4	0.3	68	4.5
2011	1185	65.2	254	14.0	256	14.1	3	0.2	119	6.6
2012	1055	70.0	237	15.7	148	9.8	2	0.1	66	4.4
2013	914	79.1	115	10.0	87	7.5	1	0.1	39	3.4
2014	861	79.7	135	12.5	54	5.0	5	0.5	25	2.3
2015	1159	84.4	135	9.8	52	3.8	8	0.6	20	1.5
2016	1034	83.2	151	12.2	40	3.2	4	0.3	14	1.1
Total	7206	74.5	1296	13.4	795	8.2	27	0.3	351	3.6

Source: processing of data collected at N.O.T. UTG - Salerno.

Tab. 3 shows that 13.4% of reportings refer to the consumption of cocaine and derivatives, and it is significant that in 2015 these reportings decreased compared with the whole previous period, but in 2016 indications for the use of this substance have risen again (though they remain below the average value since 2013). The consumers of opiates (heroin, morphine, methadone) are significantly decreased over the years, going from 10.6% in 2010 to 3.2% in 2016. In decrease also the consumers of several substances, from 4.5% in 2010 to 1.1% in 2016. The synthetic drug users continue to be a small percentage (0.3% on average): this data may be related to the type of control that the Forces of the Order exert on the territory, mainly roadside checks, but it has a low probability of stopping consumers of certain types of substances, such as synthetic ones, which are usually used in places closed as disco, private parties, nightclubs (Fig. 3).

2.4. Reportings by measure adopted

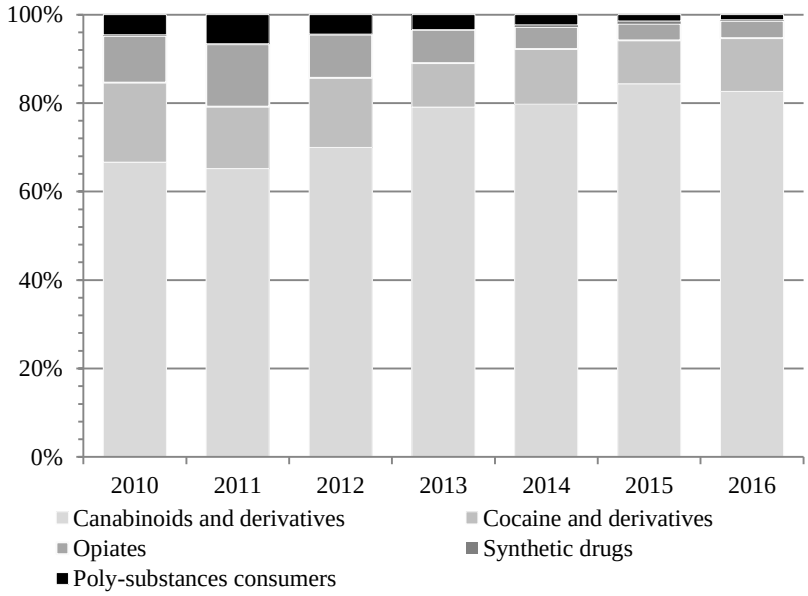
After the interview with the N.O.T. Office, the administrative procedure ends with a decree of the prefect who may define it, pursuant to art.75 D.P.R. 309/90, with:

- a formal invitation to no longer use narcotics, the so-called "warning", which can be applied only in the event of a first violation, for minor acts, and if the inter-

view reveals elements such as to suggest that the person concerned may "refrain" from using astonishing substances in the future, or

- the application of an administrative sanction: suspension of driving license, firearms license, passport and any other equivalent document or prohibition of such documents for a period not less than one month and not exceeding one year (Prina, 2011; Cardile, 2012).

Figure 3 – *Reports received for violating art. 75 D.P.R. 309/90, according to type of drug.*



Source: processing of data collected at N.O.T. UTG - Salerno.

Tab. 4 shows what were the measures adopted following the talks with the Social workers of N.O.T., for the last seven years: it can be observed that for a large number of cases, namely for an average frequency of 60.1%, the interview ended with the sole warning of the prefect, that is, the formal invitation to stop using drugs, without the suspension of documents. From 2010 to today, this type of administrative measure has increased a lot: it has gone from formal warning applied in 50.6% of cases in 2010 to 85.6% in 2016.

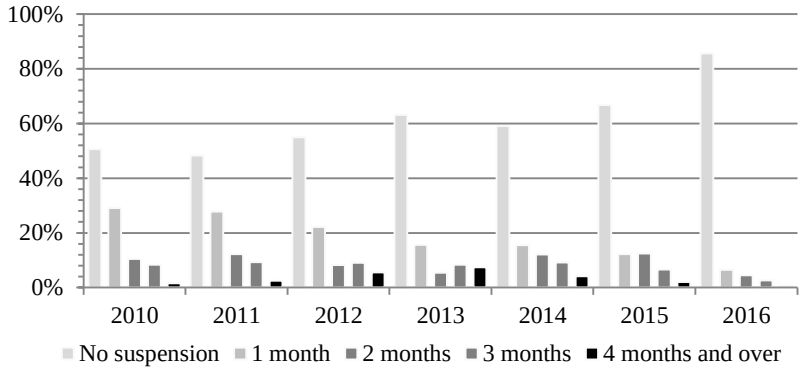
As shown in Fig. 4 (were data are reported as ordinal categories), there has been a decrease of cases where a patent suspension or other document is applied, especially as regards the suspension exceeding three months: in fact, in 2016 these cases concerned only 0.7% of reported subjects.

Table 4 – *Distributions of reported violations of art. 75 D.P.R. 309/90, according to the administrative measure adopted.*

Administrative measure	Warning	%	1 month suspension	%	2 months suspension	%	3 months suspension	%	4 or more months suspension	%
2010	758	50.6	435	29.1	156	10.4	125	8.4	23	1.5
2011	877	48.3	504	27.7	221	12.2	169	9.3	46	2.5
2012	829	55.0	335	22.2	124	8.2	136	9.0	84	5.6
2013	730	63.1	180	15.6	63	5.5	97	8.4	86	7.4
2014	638	59.1	167	15.5	131	12.1	99	9.2	45	4.2
2015	917	66.7	168	12.2	171	12.5	90	6.6	28	2.0
2016	1064	85.6	81	6.5	56	4.5	33	2.7	9	0.7
Total	5813	60.1	1870	19.3	922	9.5	749	7.7	321	3.3

Source: processing of data collected at N.O.T. UTG - Salerno.

Figure 4 – *Reports received for violating art. 75 D.P.R. 309/90, according to the administrative measure adopted (suspension).*



Source: processing of data collected at N.O.T. UTG - Salerno.

2.5. Reportings by municipality of residence

The province of Salerno is located in the southern part of Campania. It is the first in extension (4,917 km^2) of the region and second, after the province of Naples, by number of inhabitants (1,106,506). It includes 158 municipalities, which makes it the first province of Campania for the number of municipalities. The capital, Salerno, with its 139,000 residents is the second most populous city in Campania.

From the data analysis of the reportings carried out taking into account the city of residence of the reported subjects, it emerges that not all areas in the province of

Salerno are affected equally by the phenomenon of detention, for personal use, of drugs (Tab. 5). A ranking of the first thirty municipalities (out of a total of 158) was compiled with more reportings in terms of "incidence" evaluated in relation to the population (Culley et al, 2012), taking into account the reportings over the seven years recorded. Also, Tab. 5 shows the population density data of each single city, in order to highlight whether the most at risk locations are those with a high density of housing.

Table 5 – *Distributions of reported violations of art. 75 D.P.R. 309/90, according to the first 30 municipalities per incidence on the active population.*

Municipality of residence	Reportings	Residents	Incidence on Residents	Active population	Incidence on Active population	Density
Amalfi	58	5149	1.13	3317	1.75	903
Angri	392	34,002	1.15	22,770	1.72	2470
Ascea	74	5820	1.27	3819	1.94	155
Casal Velino	42	5268	0.80	3431	1.22	166
Castel S.Giorgio	134	13,702	0.98	9515	1.41	1009
Cava de' Tirreni	581	53,659	1.08	35,309	1.65	1469
Corbara	30	2545	1.18	1647	1.82	378
Giffoni Valle Piana	124	12,001	1.03	8060	1.54	135
Maiori	59	5573	1.06	3622	1.63	334
Mercato San Severino	234	22,322	1.05	14,981	1.56	736
Montecorvino Rovella	133	12,739	1.04	8767	1.52	302
Nocera Inferiore	628	46,043	1.36	30,828	2.04	2198
Nocera Superiore	248	24,263	1.02	16,958	1.46	1645
Pagani	540	35,834	1.51	24,097	2.24	2992
Pellezzano	98	10,965	0.89	7371	1.33	781
Ravello	23	2490	0.92	1639	1.40	314
Roccapiemonte	75	9060	0.83	6046	1.24	1705
S. Egidio del Monte Albino	97	8909	1.09	5997	1.62	1230
S. Marzano sul Sarno	162	10,442	1.55	7126	2.27	2012
S.Valentino Torio	143	10,947	1.31	7665	1.87	1196
Sala Consilina	107	12,664	0.84	8435	1.27	212
Salerno	1348	135,261	1.00	86,725	1.55	2260
Santa Marina	27	3243	0.83	2111	1.28	114
Sanza	23	2608	0.88	1746	1.32	20
Sapri	86	6770	1.27	4414	1.95	477
Sarno	293	31,529	0.93	21,375	1.37	788
Scafati	486	50,787	0.96	34,766	1.40	2553
Vallo della Lucania	94	8531	1.10	5717	1.64	337
Vibonati	29	3293	0.88	2179	1.33	160
Vietri Sul Mare	65	7902	0.82	5187	1.25	830

Source: processing of data collected at N.O.T. UTG - Salerno.

The municipalities in the province of Salerno who are most interested in the drug addiction phenomenon are mainly concentrated in the northern area, bordering on the province of Naples, an area characterized by high density of housing. It is interesting that among the first 30 municipalities, there are all 12 municipalities of the Agro-Nocerino-Sarnese area[5].

3. Conclusions

Statistical analysis of data received from N.O.T. of the Prefecture of Salerno, regarding all subjects reported under art. 75 D.P.R. 309/90, from 2010 to 2016, indicated that in the territory of the province of Salerno the phenomenon of the consumption of narcotic substances exists and it is significant. The average of the reportings that come to the attention of the Institution every year, through the work of the Police, is equal to 1,382.

The phenomenon is present mainly in the north-west area of the province of Salerno, a border area with that of Naples and characterized by the high density of housing. The analysis also made possible to outline a general profile of subjects who are closer to drug use: they are young adult males who in most cases use marijuana and hashish.

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[5] Municipalities of Angri, Castel San Giorgio, Corbara, Nocera Inferiore, Nocera Superiore, Pagani, Roccapiemonte, San Marzano sul Sarno, Sant'Egidio del Monte Albino, San Valentino Torio, Sarno, Scafati.

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SUMMARY

The possession of narcotics for personal use in the province of Salerno from 2010 to 2016

The core of the analysis presented here is the article n. 75 of D.P.R. 309/90 with subsequent modifications, and therefore the administrative sanctions applied for the personal use of narcotic substances. The analysis was made observing the problem through the data collected at the office N.O.T. of Salerno.
The data concerned the subjects reported for the use of narcotic substances from the year 2010 to 2016, residing in the province of Salerno: the statistical analysis indicated that on the territory the phenomenon of consumption of drugs exists and is considerable, and also made possible to outline a general profile of subjects closest to the use of narcotics.

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DRIVERS OF BRAIN DRAIN PHENOMENON: POSSIBLE ASSOCIATION BETWEEN MACROECONOMIC VARIABLES IN THE INTERNATIONAL FRAMEWORK [1]

Vincenzo Marinello, Guglielmo L.M. Dinicolò

Introduction

Migration issues, especially the one related to mobility (whether internal or external) are of a vital importance in the economic and social sphere as well as institutional policy relevance. The interest on science is demonstrated by numerous contributions that have analyzed how brain drain has effects especially on human capital between origin and host countries.

According to Beltrame (2007), the brain drain phenomenon survey can not ignore a primary definitional effort. The abundance of definitions used to describe the qualified mobility is indicative of the presence of factors and phenomena that characterize the same result, namely mobility, while on the other hand it diverges substantially on the assumptions, on the qualification of the subjects involved as well as on the purposes.

The classical approach to phenomenon focuses on a possible gap, in terms of capability, between origin and destination countries. According to this view, brain drain could produce negative externalities in origin countries, affecting their potential growth, their human capital allocation, reducing productivity and especially the cost opportunity for public investment in research and development (Armando, Garcia, 2015). However, recent contributions show how the cause-effect relationship, between human capital and migration skill, are not so obvious. The new approaches, therefore, show that mobility, to satisfy wage levels and job opportunities, serves as an incentive to acquire higher educational levels. The underestimated aspect of classical theory concerns the possibility to consider the phenomenon in a circular view, rather than a one-way perspective, i.e. by analyzing the positive impact of qualified mobility return or even the amount of remittances that are drained from host to origin countries.

[1] Vincenzo Marinello wrote the Introduction, the third paragraph and conclusion; Guglielmo L.M. Dinicolò wrote the Paragraph 1 and the Paragraph 2. In any case, this essay is the result of a common commitment by the two Authors.

1. Qualified mobility and brain drain: *literature review*

By brain drain term is generally indicated a complex phenomenon characterized by the abandonment of home country in favour of another one by persons with a high level education in order to obtain a better socio-economic condition (Zurla, 2014). Changes on competitive environment, as a result of globalization, pushed to a tertiarization of economy with a constantly increased demand of high skilled workers against secondary sector and in particular manufacturing sector; this has led to a greater mobility of labor factor accompanying human capital in search of a new employment or new training opportunities. Due to its idiosyncratic characteristics, the so-called brain drain could be framed in migration flows and persons mobility. It becomes essential to try to understand which is the size and the relative impact played, in qualitative and quantitative terms, by this phenomenon on population and relative human capital.

The analysis of migration flows has a great impact on the composition of populations, as stated by Castles and Miller (2012) the migration aspect tends to produce intergenerational effects; despite the wideness of high skilled flows, measurements on brain drain are rather fragmentary including inhomogeneous information that, sometimes, are inadequate to satisfy the researcher's interest (Giovannini, 2011). Informational differential, if on the one hand is the result of different information collection criteria, on the other one is a direct consequence of the study approach of this phenomenon in literature.

According to the deductions of Docquier&Rapoport (2012) and Beltrame (2007), the field of study on this subject can be framed in three different historical moments: following neoclassical theory, this approach considered the neutrality of brain drain as a result of equality between negative externalities produced on human capital and those positively linked to the entry of a net money flow (Berry and Solingo, 1969). In this respect, migrant knowledge contribution was emphasized as a form of "international public goods" and there were underestimated losses for the origin countries (Grubel and Scott, 1966).

The second moment has been contextualized since the '70s, when the consequences of brain drain on different welfare state systems areas, such as labor market, information asymmetries, loss of tax revenue, were analyzed, focusing on the negative aspect of the phenomenon. This "*standing views*", prevalent in scientific community for a long time, observed how the drainage of human capital, as a result of international mobility, led to a general depletion of origin countries, which were often developing countries with, therefore, a clear economic gap than a developed one (Miyagiwa, 1991).

The last evolutionary phase of study on this phenomenon has taken place since the '90s. In this strand of studies, the various contributions have shown that in some

cases brain drain could be the basis of positive externalities, both in terms of technological and fiscal spill-over, for the origin countries of migrants; underlying factors of endogenous growth theory, hence the increase in productivity related to qualified mobility, are considered. This course has allowed a counterbalance of negative effects/aspects that were analyzed from previous contributions, but above all it has stimulated new empirical researches on the subject. Even within this study approach, however, there remain differences between different authors on possibility of considering brain drain as beneficial. The positive impact of migration perspective on human capital formation is shown by many authors who have analyzed the phenomenon both from the empirical and the theoretical point of view (Lodigiani, Marchiori and Shen, 2016). According to Lien and Wang (2005) the migration prospects of people living in developing countries pushes these same persons into accumulating linguistic skills rather than technical ones. At the base of the authors' study, there is the evidence that skilled migrants prefer to complete their cultural heritage in host countries also acquiring relevant technical skills. This assumption appears to be quite acceptable especially when qualified mobility refers to figures having advanced educational levels (undergraduate, master, PhD) and not a professional profile. A solution to the problem of correctly identifying qualification of work comes from the contribution of Vinkur (2006), which suggests a primary distinction between commercial and non-commercial business sectors, allowing to visualize the large variability of brain drain within the different areas of scientific knowledge. However, this approach tends to show some elements of deficiency when it tries to consider the universality of knowledge and above all, the existence of heterogeneous institutions and groups of research. In this regard, it seems more appropriate to replace brain drain concept with migration skills (Milio et al., 2012) or brain circulation. The latter focuses more on the temporal aspect of qualified mobility, considering brain drain as temporary and subjected to cyclical fluctuations; this concept would seem more appropriate to describe those exchange-rate flows related to training and / or to study programs that are useful in increasing the human capital available to the individuals.

The study approach to skilled migration, especially those having an international character, should be reformulated on the basis of the effective marketability of qualification in the global scope; according to Brown et al. (2001) it creates a competitive duality between the two broad categories of skilled workers, on the one hand there are those who have gained a truly expendable human capital in international contexts, on the other hand, there are individuals who have a qualification anchored to the labor market of origin country.

A further critical analysis parameter can not underestimate the danger induced by the so-called brain waste. This expression refers to deskilling process that relates migrants in foreign countries who take up labor intensive jobs or

employments relevant to their professional qualification. A typical case of brain waste is linked to migratory flow coming from developing countries: often skilled workers of these countries decide to migrate to OECD countries by accepting underutilization of their skills. The motivations behind these choices are often of a social nature and connected to the particular origin country living conditions. The effects of brain waste tend to show differences in the level of the education possessed, Ozden et al. (2005) in a comparative analysis that showed how, in the case of the USA, for the same origin country, there was a lower deskilling for migrants possessing advanced education titles.

Despite the importance of this issue for developing countries, it can not be underestimated the political and social-economic implications that this phenomenon also has for Italy; "*the brain drain problem then becomes a political problem that goes beyond empirical determination of escape effects*" (Beltrame 2007). The Italian case is characterized, in fact, by a dual migration trend of high skilled people: on the one hand the traditional route that goes from the southern regions of the country towards the northern ones, on the other instead we are witnessing a transnational and transcontinental migration.

2. Brief analysis of qualified mobility across countries

Population migration is a multifaceted phenomenon that arises from a variety of reasons which affect both individual level and institutional one of the origin and destination countries. Migration process has then rapidly accelerated as a result of globalization; the latter impacted decisively on workforce mobility and associating that also to the steady decline of fertility many economies of developed countries tend to have strong support from immigrants. According to data released by United Nations Population Fund (UNFPA), labor mobility is the largest form of migration both for absolute value and percentage growth.

Analyzing data from OECD, foreign incoming flows can primarily determine the most attractive countries both for global and continental area. The countries that have recorded a higher inflow of foreign worker population are show in Table 1.

Table 1 - *Inflows of foreign population by nationality (per thousands) (Our elaboration on: OECD. Stat International Migration Database, 2017)*

Year / Country	2006	2007	2008	2009	2010	2011	2012	2013	2014
Australia	176.205	189.490	203.874	222.572	206.714	210.704	242.385	251.850	236.559
Canada	251.640	236.753	247.244	252.170	280.686	248.747	257.905	259.024	260.411
France	159.391	145.876	146.964	149.603	145.831	142.125	151.599	160.653	168.123
Germany	558.467	574.752	573.815	606.314	683.529	841.695	965.908	1.108.068	1.342.529
Italy	254.588	515.201	496.549	406.725	424.499	354.327	321.305	279.021	248.360
Japan	325.621	336.646	344.509	297.092	287.071	266.867	303.926	306.742	336.525
Korea	302.963	300.360	302.174	232.844	293.070	307.249	300.177	360.473	407.063
Spain	802.971	920.534	567.372	365.367	330.286	335.893	272.489	248.350	265.757
UK	451.702	455.000	456.000	430.000	459.000	453.000	383.000	406.000	504.000
USA	1.266.264	1.052.415	1.107.126	1.130.818	1.042.625	1.062.040	1.031.631	990.553	1.016.518

The data shown in Table 1 tend to confirm the traditional migratory flow that is directed mainly to the developed economies. The data refer to population flows in possession of residence or a valid residency / work permit; all those flows related to temporary mobility, or at least less than one year, are therefore excluded from general counting.

The country with the highest influx in absolute terms of legal immigrants appears to be USA, although it shows a slight decreasing trend; new scenarios can also be considered as a result of the more nationalist policies announced by the Trump administration. As far as Europe is concerned, countries that have historically had greater openness to labor migration are: the United Kingdom with flow rate at 31 December 2014 amounted to 504,000 units, an increase over 2006 of approximately + 10.38%, Germany, instead, showed an increase in number of legal immigrants equal to +58, 4% compared to 2006; Italy, Spain and France, on the other hand, show a growth trend, conversely, much smaller than other European partners; the reason for the lesser exposure to the labor migration phenomenon by these latter countries can be attributed to a lower growth in social-economic conditions.

However, for a more complete analysis of highly skilled mobility, the most qualified component should be separated from regular workers total flow; in order to try to overcome the traditional definitive problems of qualification concept, it was decided to use international standard of education level by UNESCO, ISCED, which identify four different macro groups. At the end of a more correct reading of the data is necessary to highlight how the reaggregation of flows has been carried out taking into consideration only the ISCED 5 / A, 5 / B and 6. This choice

reflects the research aim of highlighting how the most qualified component, i.e. one having a professional title or a university degree, moves internationally to underline contacts and / or similarity points, among the most attractive countries; the inclusion of this variable also makes possible to eliminate problems associated with brain waste.

In Table 2 it is shown the set of qualified labor force employed, broken down by geographical area of origin and of residence. The table highlights those who have been traditionally the direction of qualified mobility; in addition to the historical migratory path in north-south direction of the world it is possible to analyze how the higher skilled workers flow (holding a title into ISCED class 5 or 6) comes from Asia and Europe but lower, instead, it was the share from Oceania and North America.

As already seen in the previous case, USA globally absorbs almost 47.2% of all qualified mobility, while Europe, the UK and Germany tend to be the reference nations.

Table 2 - *Foreign population employed (ISCED 5/6) (Our elaboration on: OECD.Stat International Migration Database, 2017)*

Country of birth	Africa	Asia	Europe	North America	Oceania	South and Central America	All countries of birth
Country of residence							
OECD - Total	1.196.763	4.140.338	4.214.909	577.540	243.245	1.866.697	12.433.562
United States	297.588	2.562.453	1.316.564	244.275	57.928	1.390.455	5.869.302
Canada	101.945	552.385	512.250	89.045	15.170	153.075	1.429.920
United Kingdom	207.437	279.018	287.702	69.967	63.677	51.845	965.702
Germany	12.740	90.593	480.499	18.030	..	6.090	780.518
Australia	45.320	227.183	273.548	26.421	64.726	13.366	650.567
France	323.151	77.603	204.651	17.932	1.611	17.156	642.104
Spain	23.900	9.420	99.300	5.700	680	93.300	232.300
Switzerland	11.300	15.338	153.550	10.603	1.343	9.101	205.403
Japan	1.726	132.099	13.593	22.340	4.938	28.520	203.216
Netherlands	18.421	43.948	77.013	5.772	3.364	36.369	187.585
Italy	22.886	19.102	80.696	9.547	1.714	21.032	154.977
Belgium	34.126	10.791	77.567	3.635	358	3.363	129.843
Sweden	5.780	27.550	79.430	3.755	725	8.030	125.270
New Zealand	11.031	26.337	60.066	6.357	18.423	858	123.072
Greece	8.957	7.660	73.510	6.050	3.768	911	100.856

A comparative analysis of tables 1 and 2 shows the importance of divergences for certain countries on the type of migration flow and consequently on the

acceptance policy adopted; in particular, countries such as Italy and Australia, although having a high level of regular immigration for work purposes, on the other hand, they tend to have particularly low skilled mobility flows. Conversely, Japan has a stream of immigrants that is almost completely qualified.

Based on evidence highlighted, it should be emphasized how the same differences occur, even if we analyze data on employment rate and participation rate in workplace for the same countries.

3. Qualified mobility: analysis of some significant variables

This study aims to understand the possible associations between macroeconomic variables of the most attractive countries of qualified mobility. The decision to use a qualitative / descriptive survey method largely reflects the desire to overcome an inferential empirical approach that could be overly local, trying to create a conceptual theoretical framework that can be used as a base for further investigation studies.

Alongside the traditional macroeconomic variables such as GDP, employment rate was analyzed: Better Index Life, employment rate in high skill positions on total employment, GDP invested in R&D activities per capita income of skilled workers compared to average income, the resident population. The main literature on the subject, first of all Docquier and Rapoport (2012), has repeatedly emphasized the importance of considering such variables for qualified mobility analysis. A comparative analysis of these variables has been made for countries that are part of G7, namely: USA, Canada, United Kingdom, Germany, France and Japan.

To analyze the growth level of the sample countries a brief examination of GDP trend was made. GDP definition is taken from the World Bank, which considers the sum of values added produced net of intermediate goods and services consumption in production. From the analysis of the OECD database, it emerges that GDP annual growth rate shows significant differences between the selected countries. In particular, it is possible to divide countries into three distinct groups: limited growth countries (Japan, Italy and Canada), low growth (France and Germany) and sustained growth ones (UK and USA). One of the most particular aspects of this variable analysis concerns the fact that Italy and Canada tend to have an annual GDP growth rather homogeneous despite the gap in skilled mobility flow being remarkable. For other countries, it is possible to confirm a general alignment between skilled people flow and annual GDP growth, in fact, both USA and UK show a sustained growth of GDP and a high qualified mobility flow.

In detail, the result of variables analyzed was exposed in Table 3, which summarizes the most significant data obtained by the sample.

Table 3 - *Variables analyzed (Our elaboration on: OECD.Stat - World Bank Data - Eurostat, 2017)*

Variables	Canada	France	Germany	Italy	USA	UK	Japan
Population *(per million)*	*35,85*	*66,54*	*81,68*	*60,73*	*321,42*	*65,13*	*127,14*
Inflow High Skilled *(per million)*	*2,03*	*1,01*	*1,17*	*0,25*	*8,20*	*1,37*	*0,28*
High Skilled Inflow / Population *(percentage)*	*5,67*	*1,52*	*1,44*	*0,41*	*2,55*	*2,11*	*0,22*
Better Index Life	*7,8*	*6,6*	*7,2*	*5,5*	*7,6*	*6,9*	*5,8*
Employment rate	*60,80*	*49,40*	*57,70*	*42,70*	*58,90*	*59,60*	*57,20*
High Skilled Employment rate	*73,53*	*45,70*	*79,92*	*70,11*	*68,65*	*80,7*	*82,29*
High Skilled Unemployment rate/Country Unemployment rate	*5,05*	*6,3*	*2,35*	*7*	*1,35*	*2,95*	*2,7*
GDP on R&D *(percentage)*	*1,79*	*2,23*	*2,87*	*1,33*	*2,79*	*1,70*	*3,30*
GDP per capita *(per thousand)*	*43,32*	*36,35*	*41,18*	*29,99*	*56,12*	*43,93*	*41,47*
Inflation rate	*1,43*	*0,18*	*0,48*	*-0,09*	*1,26*	*0,70*	*-0,12*
Average Wage *(per thousand)*	*34,98*	*30,44*	*34,79*	*24,42*	*48,68*	*37,44*	*28,10*
Average Wage High Skilled / Average Wage Low Skilled	*1,2124*	*1,2651*	*1,6341*	*1,5796*	*1,3783*	*1,2112*	*1,2690*

As it can be seen from the table above, the country that was the most attractive in relation to resident population was Canada, with an influx of qualified people equal to 5,67% of population; datum is well above the average of other sample countries, which instead confirmed a trend between 1,44% in Germany and 2,55% in USA, with the exception of Italy and Japan that show a low attractiveness of qualified individuals with an only 0,41% and 0,28% respectively.

Observing High Skilled employment rate the country with the highest percentage is Japan with about 82,29%, followed by: UK with 80,70%, Germany with 79,92%, Canada with 73,53%, USA with 68,65% and finally France just

under 46%. Looking to the relationship between qualified unemployment and country's general unemployment, we observed two trends for the sample: the USA, Germany and Britain having some of the lowest ratios values prove attractive for skilled individuals demonstrating more inclusion possibility in workplace, while conversely Canada, France and Italy show lower values representing a scarce factor in attractiveness compared with other international competitors.

Among the elements considered as "pull" factors of qualified persons for countries, a primary role is played by the average income. Except for Italy and Japan, having the worst performance with an average annual income in PPS just over $ 28.000, all major OECD countries register higher values, such as France with $ 30.443, Germany with $ 34.789, Canada with $ 34.975; USA shows average per capita income higher than the other sample countries with a higher value of + 38% than the average of countries considered. However, in order to test data significance it was decided to consider the relationship between the earnings amount of individuals with tertiary education (ISCED 5-6 and up) compared to those received by the whole working population, by doing that it was possible to observe, in sample, how highly skilled workers are paid. In order to maintain uniformity among the studied data it was decided to consider the year 2010, i.e. latest data available for the entire sample. The data illustrated in Table 3 are used to note some peculiarities: while Canada and the UK show a lower pay gap, around 1,21, France, Japan and USA tend to have more balanced ratios equal to 1,26 and 1,37 for the third; finally, Italy and Germany, recorded the highest ratio with 1,57 and 1,63, respectively. The latter data highlights a general institutional willingness to increase this differential in order to be able to hold qualified individuals within national boundaries to avoid brain drain phenomenon.

A further variable analyzed was the comparison of *Better Index Life*, a composite index, elaborated on an annual basis by the OECD, incorporating a number of aspects, such as housing aspect, quality of social relations, work-family balance, health and security. The countries with the highest index were Canada and USA with a slightly lower value than 8, Germany and Great Britain with a value of around 7, France, Italy and Japan had a score ranging between 5 and 6.

In order to test the evidence above, it was decided to implement an econometric model. With a view to describing and analyzing empirical phenomena it is appropriate to introduce a statistical relationship, since it is not possible to know the exact relationship between variables.

Following Beine, Docquier and Rapoport (2008) and Monteleone, Torrisi (2010) approach, a linear model was developed that can be expressed as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_k X_K + \varepsilon \qquad (1)$$

where β_0, β_1, ..., β_k are the coefficients and X_1, X_2, ... X_k variables that influence the responsive (Y). In detail, β_0 represents Y value when the variables are irrilevant,

while βj coefficients (with j = 1,2,3 ..., k) express corresponding Y variation to a unit increase of Xj fixing the other variables.
Verification of statistics and regressors goodness can be applied, within multiple linear regression, through R^2 (correct) for the model as a whole and with p-value for model's individual predictors.

Table 4 – *Model results*

Covariates	**Covariates**	**Standard Errors (ε)**
GDP per capita (per thousand)	-0,5367*	0,0493
Inflation rate	0,4910**	0,4235
Average Wage (per thousand)	0,3804	0,0553
Population (per million)	0,8738***	0,0026

*p< 0,10; **p<0,05; ***p<0,01
Corrected R^2: 0,989093517

Information in Table 4 shows a significant relationship between GDP per capita, Inflation rate and Population; in detail, from p-value it can be noted as an increase (per million) of resident population causes an increase in high skilled inflow of more than 870.000 units. The model instead expresses a negative relationship between GDP per capita and HS inflow. These conclusions are partly supported by the study conducted by Dimant, Krieger and Meierrieks (2013), which shows such type of linkage between variables examined. Inflation rate analysis, despite having a high confidence interval, needs to be dampened due to the low sample size and the presence of two countries on seven in a deflationary state.

Conclusion

The importance of qualified mobility and the constant growth of economic integration between countries makes it necessary to analyze the impact that macro-economic variables have on attracting flows of highly qualified individuals. Based on heterogeneity of different countries analyzed in the sample, this work has tried to investigate how the attractiveness of a country can be influenced decisively by the main economic indicators.

The econometric model results allow to observe a direct relationship between three of the variables analyzed and country High Skilled inflow. Further investigation margins can be achieved by extending the analyzes carried out on a higher sample size; the sample size increase could also allow, for a cluster subdivision, to give more robustness to the primary evidence obtained.

In order to analyze these variables, including empirical and social survey, is of fundamental importance to ensure that these indicators can be manipulated with a view to increasing annual qualified mobility net flow and, consequently, the share capital of countries concerned.

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SUMMARY

Drivers of brain drain phenomenon: possible association between macroeconomic variables in the international framework

Brain drain phenomenon has reached a high level of importance in current socio-economic context also for policy choices related; for this reason, the aim of this survey is to provide a general framework, overcoming traditional "mediatic" approach, trying to achieve a description of its nature and the main variables that could affect it.

After a brief presentation of the most important contributions in literature, in order to reach a theoretical framework, this paper shows a primary description of brain drain trends and directrices. According with Beltrame (2007) and his approach, there was a general absence of homogeneity between various scientific disciplines involved on studied phenomenon. For this reason, it seems appropriate to make a primary research and description of brain drain drivers trying to highlight similarities between different host countries; one of the most important aspects that is related to the analysis of brain drain perception and its causes with associated policy implication.

For what has been said, research question implies the existence of a relationship between main social-economic variables and skilled mobility. Starting from this feedback the purpose of this work is to outline this association and the reasons attributable to such evidence.

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TRANSPARENCY AND COUNTERING OF CORRUPTION IN PUBLIC ADMINISTRATION: STRATEGIES AND POLICY CONCERNING PUBLIC CONTRACTING[1]

Vincenzo Marinello, Guglielmo L.M. Dinicolò, Mariano Cavataio

1. Introduction

Reform's success also depends on the ability of governments to restore a country's confidence by leading it towards sustainable economic growth. Concerns about public integrity, transparency and corruption are the basis of the lack of trust in Public Administration (PA), and therefore transparency is the most important bargain for corruption (ANAC 2016b). In this context, the establishment of National Authority Anti-Corruption (ANAC) has represented for our country an opportunity to introduce new measures and improve existing ones, with coordinated action, to implement effective prevention strategies and dealing with corruption and lawlessness in PA.

In this context, adoption and implementation of anti-corruption law (Law N. 190/2012, as subsequently amended and supplemented) represents for Italy the opportunity to align itself with the international best practices, introducing into its system new instruments aimed at strengthening policies for prevention and counter-corruption in line with policies urged by international organizations for countries that are part of, such as: GRECO (*Groupe d'Etats contre la Corruption*), WGB (*Working Group on Bribery*) by OECD and IRG (*Implementation Review Group*) for the implementation of UN Convention against Corruption (Dipartimento della Funzione Pubblica 2013).

After a brief literature review on the main approaches to corruption study, this paper aims to analyze anti-corruption strategies and policies adopted in Italy. Specifically, referring to the latest data from ANAC and Guardia di Finanza (Italian financial police), we will look at contrast abuse in public spending and illegal actions in public administration, starting with those affecting public procurement system.

[1] Vincenzo Marinello wrote the Introduction, the second paragraph and conclusion; Guglielmo L.M. Dinicolò wrote the Paragraph 1 and Mariano Cavataio the Paragraph 3. In any case, this essay is the result of a common commitment by the three Authors.

2. Corruption in Public Administration of OECD countries: literature review and analysis of the critical indicators used.

The different definitions of corruption, present in literature, show a general tendency to associate corruptive phenomenon as a set of acts and malpractices perpetrated by individuals who can boast a coercive power in order to gain an unfair advantage at the detriment of one or more individuals in a community. From this vision a definition of corruption related to a predominantly psychological and social aspect emerges, rather than to a phenomenon of general worth which afflicts all advanced economic systems. Following Scott's approach (1972), corruption is any deviation from standard conduct followed into a community. In this view, corruption can be studied in a multidimensional aspect as the commission of unlawful act should be linked to a set of heterogeneous variables comparable across countries. Nevertheless, it should be noted as in prevalent literature the approach is focused on a legal criterion for the analysis of this phenomenon. This approach is the only one able to give a greater certainty, because it is based on a system of norms and rules that can better qualify the different assumptions of offense, although it possesses comparative problems which can not be easily eliminated, especially among countries with a common law system.

The contribution of Becker (1968) on this phenomenon was characterized by the use of the Agency cost theory. The author argues that each operator will tend to make a constant trade-off evaluation between potential costs and real benefits derivable from unlawful activity execution. However, in this perspective it should be emphasized that an aspect of primary importance is covered by c.d. "state of the art", that is the set of exogenous factors that may affect individual behavior. In the latter macro-category, it is possible to denote, for instance, all aspects related to the main macro-economic variables such as: country’s economic size expressed by GDP, the level of per capita income, the bureaucratic and administrative dimension of a country. In the latest report on identification of corruption risk indicators, prevention and control in public administrations elaborated for implementation of the European Action and Cohesion Programme of PON GAT 2007/2013 elaborated by ANAC (2017) with the Presidency of the Council of Ministers, corruption phenomenon approach is analyzed from three different perspectives: economic, sociological and cultural and eventually neo-institutionalist ones.

In the first of the above set-ups, the main contributions can be traced back to the studies of Klitgaard (1978) and Vannucci (2012), which state that the general corruption level is the result of a rational calculation by the corrupted and the corruptors. Fundamental determinants of corruption depend on: public intervention

monopoly degree, discretionary application of rule, transparency of procedures and finally accountability.

The sociological culturalist approach rather than analyzing costs and benefits of corruption phenomenon focuses on ethical value analysis, i.e. the "moral costs" of corruption (Pizzorno 1992). In this view, there is therefore a strong reference to citizenship and belonging to local community, although it is a more difficult assessments and quantification of aspects and characteristics it is thus subjective. Rule transgression is perceived as a social problem experienced by corrupted individuals both in terms of misalignment between morality of community and their own ethics code and as fear of exclusion from society.

The study approach linked to neo-institutionalist theory mainly analyzes presence and effectiveness of appropriate governance and control structures arranged at the state level (Lambsdorff 2006). In this sense, corruption is seen as an organized exchange of resources and means in a wider and varied community, but above all is characterized by strong roots within the administrative apparatus.

In dealing with illicit phenomena, statistic creation and dissemination on the subject can never be considered exhaustive and reliable, merely analyzing the validity of scientific methodology used for collection and subsequent data processing.

Among the most trusted measures, it is possible to include the Corruption Perception Index (CPI) developed by Transparency International on a heterogeneous sample of countries. As confirmed by the last report produced by the organization, a strong link between corrupt phenomenon and social inequality in OECD countries has also been registered in 2016. The synthetic index published by the agency is calculated on the basis of thirteen indicators from different institutions in order to obtain a value scale, from 0 to 100, expressing of corruption perception. The validity of this indicator is also evidenced by the fact that most of the other subjective indicators in the scientific context are taken into consideration. Nevertheless, it is important to emphasize the weakness derived from using these subjective indicators. In detail, the attribution of a value of 0 is the highest perception of corruption; conversely, the award of an increasing score, up to the achievement of 100, is expressed by the absence of corruption in the country. The analysis of the latest report for 2016 shows there is a percentage of about 70% of countries that have a score less than 50, demonstrating a strong pervasiveness of the corrupt phenomenon both at a political-institutional and administrative level.

For the year 2016 with respect to OECD countries, very different values are observed in the perception of corruption at a general level. In particular, it is worth underlining the particularly low value of Italy and Greece that are ranked among the last euro-zone countries with values similar to those of the former communist block countries. For Italy, an indicator improvement should be reported compared

to the previous year, reflecting a general upward trend after the negative peak recorded during the recession years. To be noted is the data on Scandinavian countries that obtained scores close to "zero perception" of corruption, a phenomenon that highlights high value and civic sense shown in public administration (Transparency International Italia 2017).
An objective indirect method of corruption measurement is the use of proxies, for instance market or statistical indicators related to this phenomenon, such as input prices purchased by public administration, discrepancies between administrative data sources. The main limitations of this approach are related to: homogeneity lack of administrative data, accounting quality of different government levels and bureaucratic inefficiency forms (Olken e Pande, 2011; Sequeira, 2012).

3. Strategies and policies adopted by ANAC on anti-corruption in public administration.

In Italy, ANAC is the national authority in adopting strategies and transparency policies for the prevention and repression of corruption and illicitities in PA. The authority was instituted by law no. 190 of 6 November 2012, subsequently, with the decree-law no.114 of 2014, laying down urgent measures for administrative simplification and transparency, its institutional mission has been redesigned with the centralization of public procurement supervisory powers following the abolition of Autorità per la Vigilanza sui Contratti Pubblici di Lavori, Servizi e Forniture (AVCP); moreover, ANAC's expertise has been further expanded by the new "Procurement Code" established with Legislative Decree No.50 of 18 April 2016.

For the legal framework outlined above, ANAC is becoming the primary authority in prevention of corruption in PA in Italy, through the supervision of public contracts, assignments and in every sector that potentially can develop corruption phenomena, avoiding aggravating procedures with negative effects on citizens and enterprises, directing behavior through interventions in an advisory capacity and regulation. The mission of "new" ANAC is to ensure firstly, the prevention of corruption, creating a network of collaboration within public administration; while at the same time, Authority is committed to increase resources efficiency, reducing formal controls that involve procedural burdens that are likely to result in higher PA costs to citizens and businesses.

From this point of view, priority is given to ANAC's actions regarding transparency obligations such as those related to the National Anti-Corruption Plan (PNA), approved in 2013 on proposal of the Public Function Department of the Minister for Public Administration and Simplification, pursuant to art. 1, paragraph

2, letter b, of Law of 6 November 2012, no. 190; PNA, drawn upon the basis of the directives contained in Interministerial Committee's Guidelines (updated in October 2015), contains specific governmental targets for the development of central prevention strategies providing guidelines and support to local administrations for the implementation and drafting of the Triennial Plan of Corruption Prevention. For all these reasons, PNA (2013, 2015) is the tool that identifies priority strategies for preventing and combating corruption in PA at national level. It does not qualify as a task with a final completion term, but as a set of prevention tools progressively refined, modified, or replaced in relation to the feedback obtained from their application (Dipartimento della Funzione Pubblica, 2013).

Overall, ANAC, with the adoption of PNA, has now become a solid benchmark for transparency and anti-corruption in Italy, so that its best practices are also viewed with greater interest by other countries, especially in regards to the activity of supervision over public contracts. This is demonstrated by the proposal law by which France intends to have an anti-corruption authority, it is largely inspired for its structure and powers by ANAC model, as the latter it is considered to be an example of international best practice (ANAC 2016b).

4. Illegalities in Public Administration. The case of public contracts.

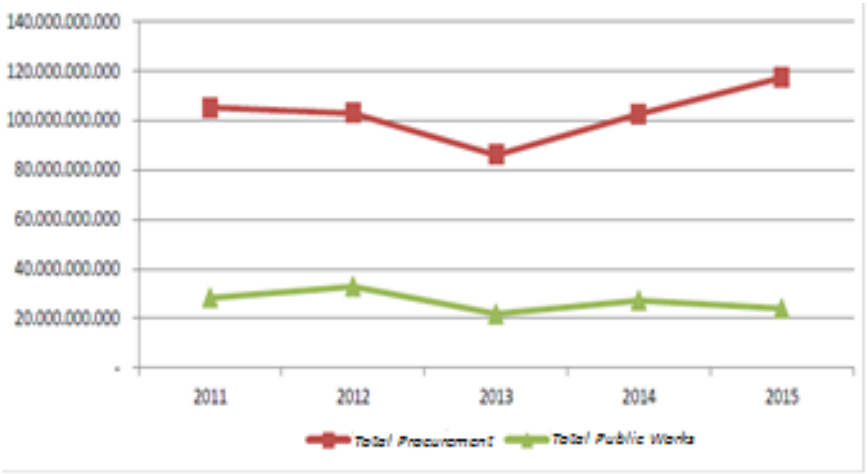
Corruption in public procurement has serious consequences for the economy and, more generally, for countries, given the fragility that this sector faces as a result of the continuing episodes of waste and inefficiencies in public procurement (ANAC 2016a).

The 2015 update of PNA provided operational guidance for all public administrations to prepare and manage corruption prevention measures in the “risk area” related to public work, service and supply contracts. It has highlighted the need to focus attention on the correct identification of processes and the corresponding predisposition of measures to prevent corruptive risks (ANAC 2015); from this point of view, the enactment of the new "procurement code" in 2016 was a "Copernican revolution" in this regard. With reference to supervisory activity, it should be noted that 2015 was characterized by intense inspection activity conducted by ANAC in collaboration with the "Special Anti-Corruption Core" of GDF, which is responsible for execution and operational management relation with ANAC regarding public sector procurement (ANAC 2016b).

On this front, GDF departments are engaged in synergy with ANAC for overseeing the application by public entities for corruption prevention structures. Cooperation in this area is governed by a memorandum of understanding, which is

based on the specific legal provisions that envisage institutional support to ANAC in its activities making the GDF the principal operating officer of the Authority led by Raffaele Cantone. Recently, the GDF has embarked on a process of strengthening anti-public law offense action, which has, however, determined the adoption of new and important organizational measures. In order to increase legality and transparency of public procurement system, the GDF - through a specific operational plan - provides important safeguards for developing judicial police investigations, autonomous administrative controls and collaborate with the supervisory authorities such as ANAC; The role of GDF as ANAC's chief operating officer in public procurement oversight has also been fully confirmed in the "Procurement Code" of 2016. The operational support for judiciary and ANAC in the field of expertise is ensured by the appropriate organizational device established at a central level by the Special Anti-Corruption Core (GDF 2017a).

Figure 1 – *Total value of competing procurement procedures: amount of tender exceeding € 40.000, ordinary and special sectors, 2011-2015 (Source: Annual Report 2015 by ANAC (2016a)*



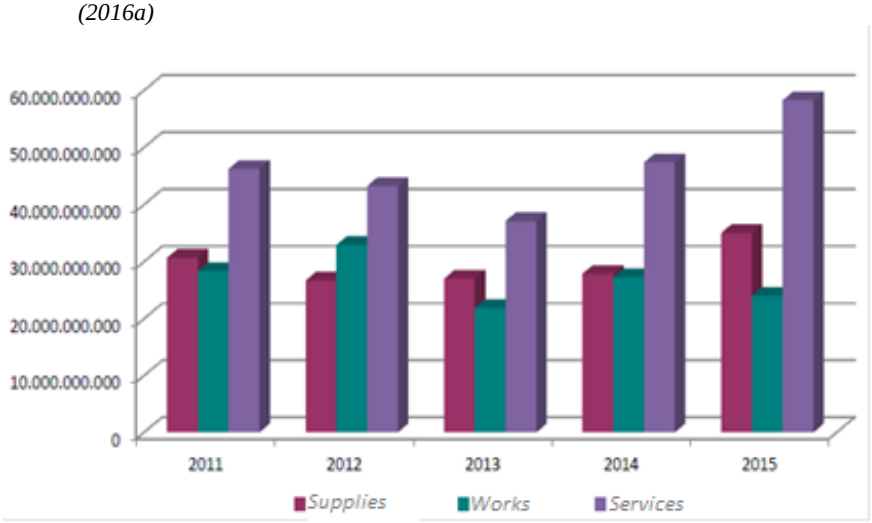
The National Database of Public Contracts (BDNCP), in addition to representing an indispensable element for supervising public sector contracts, has a strong strategic relevancy at a national level for prevention and repression of corruption, as well as for the containment of public spending. The database information is often used to trigger general investigations, as well as for carrying out studies on particular phenomena or cases.

Referring to the public contracts, this sector is exposed to corruption risks; 2015 has been characterized by many activities carried out by ANAC, which are added

to those currently associated with the implementation of the new "Procurement Code". In fact, according to the latest Authority's Annual Report for the year 2015, signaling of anomalies on contract work, service, and supplies have more than doubled, from about 1.200 in 2014 to nearly 3,000 in 2015, generating also opening approximately 1,880 inquiries dossiers, with a value of + 50% compared to 2014 (ANAC 2016b). More than 600 were investigations into special cases in 2015; the significant increase recorded is mainly attributable to the increase in number of complaints made by external parties, as well as the completion of investigations into particularly relevant sectors, areas and cases (ANAC 2016a).

In 2015, the total value of contracts of € 40,000 or more, for ordinary and special sectors, amounted to 117.3 € billion, showing an increase of more than 14%, following a slight contraction recorded in 2012 and the "peak" of 2013, which saw total demand at a value of just over 86 billion euros, as can be seen in Figure 1.

Figure 2 – *Total value by tender procedure by sector: summons of over € 40.000, type of contract, ordinary and special sectors, 2011-2015 (Source: Annual Report 2015 by ANAC (2016a)*



In Figure 2 analysis, it is possible to highlight how the general increase in procurement, compared to the year 2014, is mainly due to the growth in services (+ 23.0%) and supplies (+ 25.5%). Public works contracts, which amounted to around € 24 billion in 2015, declined by 12% compared to the previous year, down by up to 27.1%, considering the recorded value in 2012 (32.9 billion euros). Figure 2 also shows that supply contracts, which remained relatively stable over the three-year period 2012-2014, are expected to increase in 2015 by 14 percent, compared with

the positive value recorded in 2011 (about 30.6 billion euros). Service contracts, despite ups and downs, continue to expand; in 2015, the related contracts amounted to approximately 58.2 billion euros (the highest point recorded over the last five years). The loss of services was therefore recovered in 2012-2013, absorbing almost half (49.7%) of the total value of the 2015 contracts (ANAC 2016a).

In all cases, control over contracts also confirmed the historical disadvantages and criticalities for 2015, including: shortcomings in design, high frequency of variants and reserves, repeated use of extensions in many healthcare services and waste management. Another critical issue was the failure to respect the principles of competition and transparency in many procedures, including areas of particular importance such as port and airport services (ANAC 2016a).

Table 1 – *Results achieved in 2016 by GDF*

Type of illicit	Inspections conducted* (N)	Checks performed (N)	Subjects denounced (N)	Impound (per billion €)	Contribution irregularity received (per billion €)
Offenses against PA[a]	3.947	1.680	4.031	86	-
Offenses in public procurement	1.341	521	1.866	3.390	-
Fraud on national and local authorities budget	189	634	2.170	115	437
Fraud on EU budget	182	1.121	896	20	340

*Note: [a] = Public Administration; * = It including also judicial police activities;*
Source: Our elaboration on Guardia di Finanza (2017a)

Referring to the latest data available from GDF Annual Report 2016, with regard to the contrast of illicit in public procurements and lawlessness in PA, Table 1 shows how, in 2016, GDF has conducted about 1,300 inspections amd over 500 checks/controls; during the same time, financial police denounced: more than 1.800 subjects, illicit in public procurement for over 3 billion euros (this data indicate a positive trend compared to 2015) (GDF 2017a, 2017b).

5. Conclusion

The regulatory action taken in Italy in recent years has strongly affected the institutional corruption bribery system (ANAC 2015). Nevertheless, it is clear that corruption can not be tackled by unilateral action, requiring multidimensional and contextual intervention. In addition to repressive activity carried out by judiciary, it is required a cultural change by citizens, businesses and public administrations. For this reason, ANAC has structured a network of institutional relations over the year, both internationally and nationally, to promote exchange of information, more

effective prevention and anti-corruption action (ANAC 2016b). Being aware of the importance of prevention in order to foster the diffusion of a culture of legality to lead society, ANAC continued to use collaborative vigilance to support public administrations in adopting procedures and choices in line with legislation (ANAC 2016a).

Within this framework, the adoption and the updating of PNA provides operational support to public administrations and other legal entities, making corrections that aim to improve overall system efficiency and effectiveness, starting from public procurement (ANAC 2015). By the updating of PNA, measures were taken in some areas at high risk so that analysis had shown shortages, in such cases as public contracts. With the approval of "Procurement Code", ANAC provides public authorities with possible solutions for dealing with public contracts in order to ensure the competitiveness of the system, while respecting transparency and impartiality reducing disadvantages and corruption caused by hyper-regulation (ANAC 2016b).

Between 2015 and 2016 new tasks and functions have been assigned to ANAC, especially in public procurement sector; however, the new competencies assigned to the Authority led by Raffaele Cantone still require a full application (ANAC 2016b) and no missing gaps (Vannucci 2016). In recent times, there has been a problem of delimiting ANAC expertise, as it is always the responsibility of the judiciary to ascertain and suppress corrupt phenomena, especially in the field of public contracts. Over the next few years, the BDNCP set-up will need to be further revised in order to meet growing transparency requirements and to comply the new institutional tasks attributed to ANAC by "Procurement Code" (ANAC 2016a). A proper implementation of “new Code” will contribute to stimulate investment and redress public spending even though many critical points remain (Nannariello 2016, Olivieri 2016).

According to the latest ANAC Annual Report of 2015, there are several critical points on which this Authority is working to improve the activities of public administrations, both in implementation of measures to prevent corruption and transparency and public contracts management. From the actions taken in 2015, the numerous exhibitions and reports received by citizens show some positive signs that suggest a greater propensity to denounce the criticality and dysfunction, coupled with ANAC's ability to influence the behaviors of entities supervised. With regard to public contracts, it is noted that many criticisms can be attributed to: organizational problems of public administration, shortcomings in planning and management of measures to prevent corruption in procurement and constant administrative changes; regulatory uncertainties, not allowing easy application of rules to ensure the proper functioning of administrative activity, giving space to corruption and favoritism. In 2015, the numerous audits carried out by ANAC in

collaboration with GDF confirmed the historical criticality of public contracts with regard to execution of work, to services provision and supply of goods. The hope is that simplifications made by the legislator will help to outline a clearer and more easily enforceable system of rules that will prevent regulatory hypertrophy, often caused by episodes of corruption; it is necessary to make available to public administrations, systems and tools necessary to ensure availability of works and services for social and economic development of the country in a reasonable and cost-effective manner (ANAC 2016a).

Despite ANAC's activity, corruption is a widespread phenomenon for two fundamental causes: the whistleblower (protection lack for those who denounce corruption cases) and the absence of lobbying activities; however, on whistleblowing it should be noted approval of Businarolo Decree Law, instead, on lobbying still a long way from a form of regulation.

Ultimately, as highlighted by Chon-Kyun (2014), clear and transparent administration will have a greater impact when accompanying the adoption of repressive instruments, including pro-active use of ICT tools, in order to increase the quality of bureaucratic output as is the case of Sweden and Switzerland.

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SUMMARY

Transparency and Countering of Corruption in Public Administration: Strategies and Policies concerning Public Contracting

Vincenzo Marinello, Guglielmo L.M. Dinicolò, Mariano Cavataio

Lawfulness, integrity and transparency in public administration, especially in public contracting, are a paramount for the economic development of a country and for the improvement of the quality of services aimed at the community. This essay aims to analyze the Italian anticorruption strategies and policies. By making reference to data from the National Anticorruption Authority (also known as ANAC) and the Guardia di Finanza (GDF), this work will examine countering of crimes related to public spending and unlawful deeds in public administration.

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