EMPIRICAL STUDY OF DIFFERENT FACTORS EFFECTS ON ARTICLES PUBLICATION REGARDING SURVEY INTERVIEWER CHARACTERISTICS USING MULTILEVEL REGRESSION MODEL

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Abstract:
The purpose of this research work is to evaluate the effects which some factors could have on articles publication regarding survey interviewer characteristics. For this, the author studied the existing literature from the various fields in which articles on survey interviewer characteristics has been published and which can be found in online articles database. The analysis was performed on 243 articles achieved by researchers in the time period 1949-2012. Using statistical software R and applying multilevel regression model, the results showed that the time period when the studied articles are made and the interaction between the number of authors and the number of pages affect the most their publication in journals with a certain level of impact factor.

Keywords: multilevel regression model, number of authors, number of pages, published articles, survey interviewer characteristics, time period.

1. Introduction

In the last years there has been an increasing attention to the study of survey interviewer characteristics (Moroşanu, 2010). This increasing attention may be explained by the need to assess the quality of data obtained after the achievement of an inquiry. Because the success of an inquiry is largely ensured by survey interviewers, many studies on this topic (Scherwitz, 1977; Singer, 1983; Berk, 1984; Lemay, 2002; Mierzwa, 2002; Hox, 2006; Sinibaldi, 2009) were realized among both researchers and practitioners. This proves that the number of articles/studies which treats the role and significance of survey interviewer characteristics is continuously increasing and that they gained popularity.

The publication of such articles in a journal with a certain impact factor value may be influenced by different factors. One category of factors may be represented by those criteria applied by editors in order to make manuscript evaluation. Generally, those criteria may be: concision and informative character of manuscript title, relevance of informations presented in the paper, structure of the article (abstract, keywords, introduction, content, conclusion), style, spelling and punctation, relevance and usefulness of research, accessibility and understanding of the statements, the number of citations from literature, compliance with all elements of ethics, emphasis on results, interpretations and conclusions (the creativity).

A second category of factors may be represented by external factors. Thus, in research literature are studies (Pillania, 2011; Pillania, 2012; Jaba, Morosanu, 2012) which emphasized significant connections between geographical area from which the author of an article is and the publication of his article in a journal.

This may indicate us that a different research culture specific to a certain geographical area can influence the progress of research in a field.

Other researchers (Nikzad, Jamali, Hariri, 2011; Jamali, Nicholas, 2010) showed in their studies that the number of authors of an article is a factor which may affect the quality of a paper and the publication of that paper in a prestigious journal. In this case, we may consider that the collaboration between researchers contribute to the quality improvement of scientific articles. As noted by Nikzad, Jamali and Hariri (2011, p. 314) "The literature has also suggested that coauthored
articles in the social sciences were more likely to be accepted for publication than single-authored papers (Presser, 1980), and that prestigious journals were more likely to contain multiple-authored articles than less prestigious journals (Beaver & Rosen, 1979)."

Another important factor with a significant influention on articles publication is the value of journals impact factor. The impact factor is "the oldest and the most widely used when it comes to evaluate journals" and "gives the mean number of citations received by papers published in a journal" (Bouyssou, Marchant, 2011, p. 75). According to Sarabia, Prieto, Trueba (2012), the study of impact factors and authors is one of the most relevant topics in the current informetric research.

The topic presented and the time period when research papers were made (Moroşanu, 2010; Jaba, Moroşanu, 2011) are other two factors that may affect the their publication of in a prestigious journal. Thus, those factors are very important in the study of the progress of research in a certain field.

Also, the number of pages of an article could affect his publication. Some journals require that the paper must have a certaine numer of pages. But, this rule may affect the quality of a paper because if the number of pages is too limited are not detailed enough elements like: the importance of the research, the methodology used or the results obtained. However, comparatively little is known about how those factors can affect the editor decision to publish in his journal articles which present a specific research topic.

Taking in consideration those aspects, the objective pursued in this research work is to evaluate the effects of factors like time period in which the research was made, geographical area from which the author is, topic approached, author number and pages number on articles publication in journals with a certain impact factor value.

In order to analyze those effects the researcher used Multilevel Models. Generally, Multilevel Models ,,assume that there is a hierarchical data set, with one single outcome or response variable that is measured at the lowest level, and explanatory variables at all existing levels" (Hox, 2002, p. 11).

2. Research methodology

In order to achieve our objective, we use data collected in September, 2012, for articles realized during 1949-2012 and published on the online databases like Science Direct, CSA Research Pack, Springerlink-Journals, Oxford Journals Online, Cambridge University Press Journals, Emerald Journals, Journals Sage and JSTOR. In order to collect those data, we classified the articles according the topic approached using a combination of the following key terms: survey interviewer characteristics, analysis of survey interviewer characteristics, survey interviewer behavior, survey interviewer personality, the impact of survey interviewer characteristics on on-response rate, the impact of survey interviewer characteristics on response

rate, interviewer performance, interviewer variance or interviewer selection. In our approach was used a query syntax. An example is the following syntax:
Publication Name=(PUBLIC OPINION QUARTERLY) OR Publication Name=(PUBLIC OPINION RESEARCH) OR Publication Name=(QUALITY AND QUANTITY) AND Topic=(survey interviewer characteristics)
Refined by: Languages=(English) AND Countries/Territories=(Europe)
Timespan=All Years.

After the key words search where found documents like published articles in journals, books, editorials, reviews or reports from various fields, written in different languages (English, German, Finnish, French, Japanese etc.). For analysis where recorded the research articles published in different languages, in areas such as statistics, sociology and psychology.

Each outcome was looked into manually and 243 results were found to be relevant for the study. We introduced the data thus obtained in a database in the statistical program R. The variables taken into consideration are the following: the period of time when the article was published (Time_Period), the geographical area from which the author came from (Continent), the journal in which the studied articles were published (Journal), the journal impact factor value (Impact_factor), the topic approached in the paper (Topic), authors number of the article (Authors_number) and the article pages number (Pages_number). Those variables are presented in Table 1.

Table 1

Studied variables

Variables	Categories Labels
After_2000	0= The article was published before 2000 1 = The article was published after 2000
Continent	1= America (Continent1) 2 = Europe (Continent2) 3 = Other
Topic	1 = The effect of the survey interviewer characteristics on the non-responses rate (Topic1) 2 = The effect of the survey interviewer characteristics on the responses rate (Topic2) 3 = The survey interviewer behavior (Topic3) 4 = The analysis of the survey interviewer characteristics (Topic4) 5 = Other
Journal	1 = Public Opinion Quarterly (POQ) 2 = Public Opinion Research (POR) 3 = Quality and Quantity (QQ) 4 = Other
Impact_Factor	Continuous
Authors_number	Continuous
Pages_number	Continuous
Article_publication	0 = The article was not published in POQ, POR or QQ 1 = The article was published in POQ, POR or QQ

In Table 1 we observe that for variables like “Continent”, “Journal” and “Topic” we have the category “Other”. In this category are included articles with a low frequency in terms of other continents than America and Europe, other journals than Public Opinion Quarterly, Public Opinion Research or Quantity and Quality or other topic than the effect of the survey interviewer characteristics on the non-responses rate, the effect of the survey interviewer characteristics on the responses rate, the survey interviewer behavior or the analysis of the survey interviewer characteristics. We proceeded in this way to ensure a smaller dispersion of the data. The structuring of the analyzed articles according to their topic is highlighted in Figure 1.

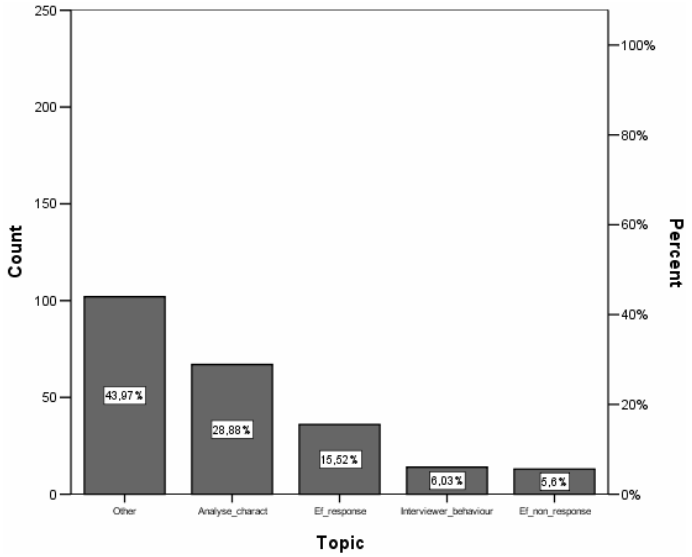

Figure 1. The analyzed articles according to their topic

From Figure 1 we observe that on the level of analyzed articles 43.97% treat other topics, 28.88% treated the analysis of survey interviewer characteristics, 15.52% treat the effect of survey interviewer characteristics on response rate, 6.03% treat the survey interviewer behavior and 5.6% treat the effect of survey interviewer characteristics on non-response rate.

Also, in Table 1 are presented variables like “Impact_Factor”, “Authors_number” or “Pages_number”. These variables are continuous. Variables like “After_2000” and “Article_publication” are nominal. They are coded with 0 and 1, as the characteristic of interest for the selected articles occurs or does not occur.

3. Research Results

In order to study the effects of variables “Topic”, “Pages_number”, “Authors_number”, “Continent” and “After_2000” on “Article_publication” we used a Multilevel Model. In literature (Goldstein, 1995; Bryk and Raudenbush, 1992) such model is known as hierarchical linear model, mixed model, random effects model or variance components model.

A Multilevel Model may be selected using an exploratory procedure. According to Hox (2002) “this procedure is to start with the simplest model, the intercept-only model, and to include the various types of parameters step by step. At each step, we inspect the

results to see which parameters are significant, and how much residual error is left at the two distinct levels". Taking into consideration this procedure, we started with the simplest multilevel model (null model) with only an intercept and impact factor value effects. For our data, the intercept-only model was written as

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \beta_0 + u_{0j} \quad (1)$$

The intercept β_0 is shared by all analyzed articles published in journals with a certain level of impact factor value while the random effect u_{oj} is specific to article *j*. The random effect is assumed to follow a normal distribution with variance σ^2_{uo}. Because it was necessary to emphasize that the between-articles variance is non-zero, we estimated the corresponding single-level model without the level 2 random effects. The results obtained by estimating these models are presented in Table 2.

Table 2

Intercept- only and corresponding single-level model

Model	**M0: Intercept only**				**M1: Single-level model**			
Fixed part								
Variable	**Estimate**	**Std. Error**	**z value**	**Pr(>|z|)**	**Estimate**	**Std. Error**	**z value**	**Pr(>|z|)**
Intercept	-1.6357	0.3663	-4.466	7.98e-06 ***	-0.1035	0.1315	-0.787	0.431
Random part								
σ^2_{u0} (Intercept variance)	2.8909	1.7003	-	-	-	-	-	-
Deviance	221.6	-	-	-	-	-	-	-

*** (p value < .001), ** (p value < .05) * (p value < .10), . (p value> 0.10)

From the results obtained in Table 1, we can say that the log-odds that an article can be published in a journal with an "average" impact factor is estimated as $\hat{\beta}_0 = -1.6357$. The intercept for article *j* is *-1.6357* + u_{oj} and the variance of u_{0j} is estimated as $\hat{\sigma}^2_{uo} = 2.8909$. The likelihood ratio statistic for testing the null hypothesis, it was calculated by comparing the two-level model, with the corresponding single-level model without the level 2 random effects. The test statistic is 99.39346 (-2*(-49.69673)) with 1 degree of freedom, so there is strong evidence that the between-article variance is non-zero. In order to examine the estimates of the journals impact factor effects ($\hat{u}_{oj}$) obtained from the null model, we produce a 'caterpillar plot' (Figure 2).

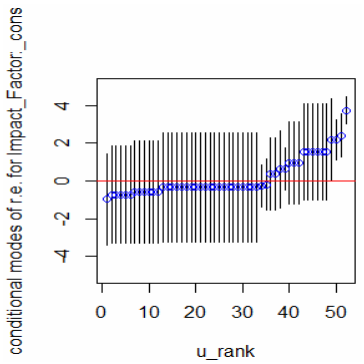

Figure 2. The journal impact factor effects shown in rank order together with 95% confidence intervals

From Figure 2 we observe that for a substantial number of articles, the 95% confidence interval does not overlap the horizontal line at zero, indicating that publishing an article in a journal is significantly above average (above the zero line) or below average (below the zero line).

Next, we included the articles topic as an explanatory variable in the model. This model can be written as

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \beta_0 + \beta_1 Topic_{ij} + u_{0j} \qquad (2)$$

Although we know from Table 1 that variable "Topic" is categorical and will be transformed into 4 new, alternative, dummy-type variables (D_Topic1, D_Topic2, D_Topic3, D_Topic4). In this case, model (2) has the following form:

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \beta_0 + \beta_1 D\_Topic1_{ij} + \beta_2 D\_Topic2_{ij} + \beta_3 D\_Topic3_{ij} + \\ + \beta_4 D\_Topic4_{ij} + u_{0j} \qquad (3)$$

The results obtained after we estimated the 2 models are presented in Table 3.

Table 3

Results obtained for estimated models

Model	**M2: + original variable**				**M3: + dummy variable**			
Fixed part								
Variable	**Estimate**	**Std. Error**	**z value**	**Pr(>|z|)**	**Estimate**	**Std. Error**	**z value**	**Pr(>|z|)**
Intercept	-0.5128	0.6711	-0.764	0.4448	-2.0371	0.4511	-4.516	6.3e-06 ***
Topic	-0.2999	0.1519	-1.974	0.0484 *	-	-	-	-
D_Topic1	-	-	-	-	1.5838	0.8196	1.933	0.0533.
D_Topic2	-	-	-	-	0.7110	0.5959	1.193	0.2328

D_Topic3	-	-	-	-	0.2770	0.8297	0.334	0.7385
D_Topic4	-	-	-	-	0.4103	0.4815	0.852	0.3941
Random part								
σ^2_{u0} (Intercept variance)	2.9626	1.7212	-	-	3.1408	1.7722	-	-
Deviance	217.8	-	-	-	217.2	-	-	-

*** (p value < .001), ** (p value < .05), * (p value < .10), . (p value> 0.10)

The estimates for the fixed coefficients in Table 3 are larger for model (3) but only one is significant (D_Topic1). Since this variable is coded 0 = no, 1 = yes, this means that on average the number of articles which treat this topic is with 1.58 points higher. Also, we observe that there is little change in the estimate of the between-articles variance, suggesting that the distribution of topics is similar across articles. Comparison of the other results between two models shows that the variance component for intercept grows from 2.96 to 3.14. Apparently, model (2) fits better than model (3). For these models the plots of the new predicted variable of probabilities (predlogit) versus articles topic is presented in Figure 3 and Figure 4.

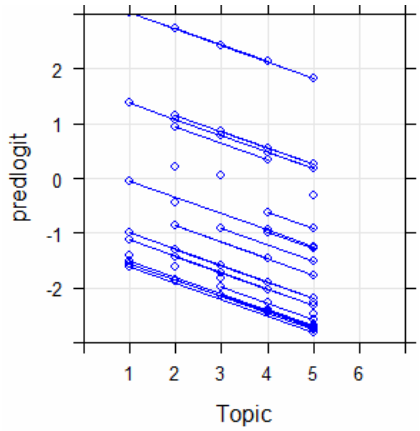

Figure 3. Predicted probabilities for model (2)

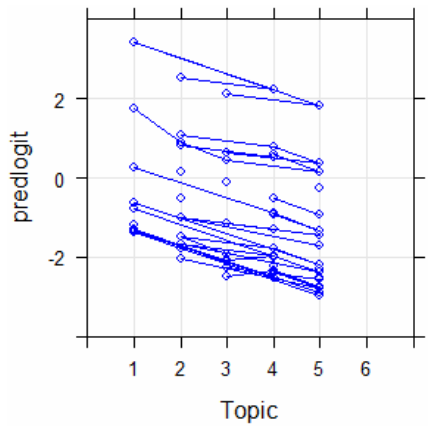

Figure 4. Predicted probabilities for model (3)

From Figure 3 we can see that for analyzed articles, the log-odds of beeing published in a journal ranges from about -2.2 to 3.5 depending on which is the value of journal impact factor. This translates to a range in probabilities of exp(-2.2)/[1 + exp(-2.2)] = 0.10 to exp(3.5)/[1 + exp(3.5)] = 0.97, so there are strong effects of the journal impact factor values. In Figure 4 we notice that the prediction 'lines' are now slightly curved because we worked with dummy variables, but the curves are still parallel because the relationship with topic is assumed to be the same for each article.

In the next step of our analysis, we refit the estimated multilevel model (M3) with variables that designates article's page number ("Pages_number) and author's number ("Authors_number") without giving up on dummy variables.

We proceeded in this way, because in literature (Stanghellini, 2009) it is considered that the model which explains the best the data structure is a model which includes all studied variables, called saturated model. This aspect is important because an independent variable with no significant influence may condition the influence of other independent variables included in the model. Also, the explanation of a phenomenon is not limited only to the estimation of a single model. For this reason, we will estimate several models that together will provide useful information for the publication of considered articles.

Taking in consideration those aspects, the new estimated model has the following form:

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \beta_0 + \beta_1 D\_Topic1_{ij} + \beta_2 D\_Topic2_{ij} + \beta_3 D\_Topic3_{ij} + \beta_4 D\_Topic4_{ij} +$$
$$+ \beta_5 Pages\_number_{ij} + \beta_6 Authors\_number_{ij} + u_{0j} \qquad (4)$$

Also, we fitted the single-level version of model (4) with the same predictors but no impact factor random effects. The results obtained after we estimated the 2 models are presented in Table 4.

Table 4

Results obtained for estimated model (4) and model (5)

Model	**M4: multilevel model**				**M5: single-level model**			
Fixed part								
Variable	**Estimate**	**Std. Error**	**z value**	**Pr(>|z|)**	**Estimate**	**Std. Error**	**z value**	**Pr(>|z|)**
Intercept	-1.93583	0.65796	-2.942	0.00326**	-0.60162	0.3842	-1.566	0.1174
D_Topic1	1.72153	0.83865	2.053	0.04010*	0.66487	0.5970	1.114	0.2655
D_Topic2	0.92006	0.61371	1.499	0.13383	0.86139	0.4064	2.119	0.0340*
D_Topic3	0.20661	0.85515	0.242	0.80908	0.01634	0.6017	0.027	0.9783
D_Topic4	0.45071	0.48770	0.924	0.35541	0.60195	0.3290	1.829	0.0674.
Pages_number	0.03140	0.02725	1.152	0.24927	0.04281	0.01800	2.379	0.0174*
Authors_number	-0.22611	0.16476	-1.372	0.16994	-0.17393	0.10964	-1.586	0.1126
Random part								
σ^2_{u0} (Intercept variance)	3.0691	1.7519	-	-	-	-	-	-
Deviance	214.3	-	-	-	-	-	-	-

*** (p value < .001), ** (p value < .05), * (p value < .10), . (p value> 0.10)

Comparing the two sets of results obtained in Table 4, we observed that, the coefficients of the topic dummies (D_Topic1, D_Topic2, D_Topic3) increase when the random effect is added. In contrast, the coefficient of "Authors_number" and "Pages_number" decreases when the journal's impact factor random effect is added.

The corresponding relationship between the random intercept and single-level coefficients is

$$\hat{\beta}_1^{RI} \approx \hat{\beta}_1^{SL}\sqrt{(\sigma_u^2 + 3.29)/3.29} = 1.390$$

. But, this relationship is approximate and only applies when articles publication has exactly the same distribution for each journal with a certain impact factor value. In this case we might expect that, the number of authors of an article to be associated with unobserved journal's impact factor value-level. The variance partition coefficient (VPC) is calculated as 3.0691/(3.0691+3.29) = 0.4826. Thus 48.26% of the residual variation in the propensity to publish an article (y*) is attributable to unobserved journals characteristics.

The next step of our analysis is to refit the multilevel model estimated with article's page number, author's number, geographical area from which the researcher is and time period when the article was made as predictors. Because the variable "Continent" is categorical, we have created two new dummy-type variables (D_Continent1, D_Continent2). For variable "Pages_number" we observed that his values don't describe a linear trend, but a quadratic one. In this case we choose to centre of ,,Pages_number" value so that the model intercept can be interpreted as the probability of beeing published for an article with mean pages number. We also define a squared variable "Pages_number_csq" and add this to the model. We will now extend the random intercept model to allow both the intercept and the coefficient of one and two of the explanatory variables to vary randomly across journals. The new models have the following form:

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \beta_0 + \beta_1 D\_Topic1_{ij} + \beta_2 D\_Topic2_{ij} + \beta_3 D\_Topic3_{ij} + \beta_4 D\_Topic4_{ij} +$$
$$+ \beta_5 Pages\_number\_c_{ij} + \beta_6 Pages\_number\_csq_{ij} + \beta_7 Authors\_number_{ij} +$$
$$+ \beta_8 D\_Continent1_{ij} + \beta_9 D\_Continent2_{ij} + \beta_{10} After\_2000_{ij} +$$
$$+ u_{0j} + u_{10j} After\_2000_{ij} \qquad (6)$$

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \beta_0 + \beta_1 D\_Topic1_{ij} + \beta_2 D\_Topic2_{ij} + \beta_3 D\_Topic3_{ij} + \beta_4 D\_Topic4_{ij} +$$
$$+ \beta_5 Pages\_number\_c_{ij} + \beta_6 Pages\_number\_csq_{ij} + \beta_7 Authors\_number_{ij} + \beta_8 D\_Continent1_{ij} +$$
$$+ \beta_9 D\_Continent2_{ij} + \beta_{10} After\_2000_{ij} + u_{0j} + u_{10j} After\_2000_{ij} + u_{7j} Authors\_number_{ij} \qquad (7)$$

The results obtained estimating the two models described by equation (6) and (7) are presented in Table 5. From the results obtained in Table 5 we observe that for the two models (M6, M7) the parameter estimates are changed. Comparing the two models, we see that the difference between the estimated coefficients for time period when the articles were made is very small and in favour of those published "After_2000" at a significance level less than 5%. The linear pages number term ("Pages_number_c") is significant in both models, but we cannot retain it because this would imply an unrealistic relationship between this variable and the probability of articles publication in journals like POQ, POR or QQ.

Table 5

Results obtained for model (6) and model (7)

Model	**M6**				**M7**			
Fixed part								
Variable	**Estimate**	**Std. Error**	**z value**	**Pr(>|z|)**	**Estimate**	**Std. Error**	**z value**	**Pr(>|z|)**
Intercept	-6.044683	1.87123	-3.230	0.0012**	**-7.535616**	2.1512	-3.503	0.00046***
D_Topic1	0.809961	0.77540	1.045	0.29622	0.806694	0.7747	1.041	0.297749
D_Topic2	0.788756	0.62343	1.265	0.20580	0.719104	0.6167	1.166	0.243662
D_Topic3	-0.011288	0.97357	-0.012	0.99074	-0.130246	0.9447	-0.138	0.890347
D_Topic4	0.294995	0.53074	0.556	0.57834	0.233785	0.5361	0.436	0.662787
Pages_number_c	0.079290	0.03864	2.052	0.04020*	0.094128	0.0391	2.405	0.016170*
Pages_number_c sq	-0.001674	0.00256	-0.654	0.51328	-0.002217	0.002	-0.877	0.380757
Authors_number	-0.233051	0.16833	-1.384	0.16621	-0.075641	0.1688	-0.448	0.654084
D_Continent1	2.524198	1.65446	1.526	0.12708	3.669387	1.9150	1.916	0.055349.
D_Continent2	2.684750	1.68140	1.597	0.11032	3.911959	1.9481	2.008	0.044644*
After_2000	3.179914	0.88435	3.596	0.00032***	3.302230	0.8982	3.676	0.00023***
Random part								
σ^2_{u0} (Intercept variance)	15.0628	3.8811	-	-	16.3742	4.04650	-	-
σ^2_{u1} (After_2000 variance)	9.3395	3.0561	-	-	8.0430	2.83602	-	-
σ^2_{u2} (Authors_number variance)	-	-	-	-	0.0265	0.16279	-	-
σ^2_{u01}	-1.000	-	-	-	-1.000	-	-	-
σ^2_{u02}	-	-	-	-	1	-	-	-
Deviance	195.9	-	-	-	193.8	-	-	-

*** (p value < .001), ** (p value < .05), * (p value < .10), . (p value> 0.10)

Because the effect of the pages number of studied articles is represented by a quadratic term, it is difficult to assess the nature of this variable effect by examining the coefficients. In the second estimated model (M7) we identified a significant influence for the articles made by American (Continent1) and European (Continent2) researchers. Also, we note that the values of variance (level1) and deviance obtained for the first model (M6) are higher than the values obtained for the second model (M7). This result may indicate us that the first model (M6) fits better than the second model (M7). In order to choose between those two models (M6 and M7), we used a likelihood ratio test. Applying this test we obtained that the likelihood ratio test statistic is 0.3313 while the p-value is 0.954. This result confirms that the first model from Table 5 (M6) is indeed significant. For this model we examined the intercept and slope residuals for journals impact factor value (Figure 5) and the predicted "Impact_Factor" values lines (Figure 6).

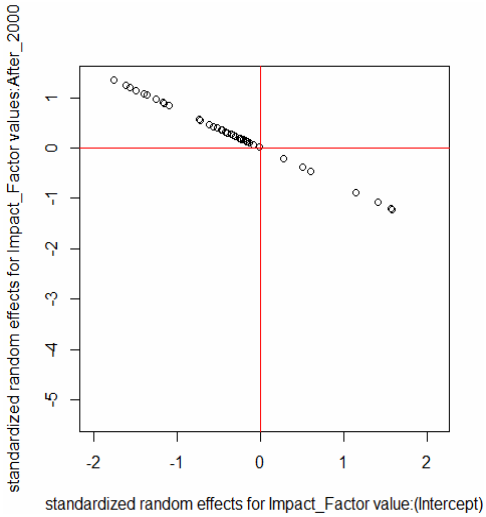

Figure 5. Intercept and slope residuals

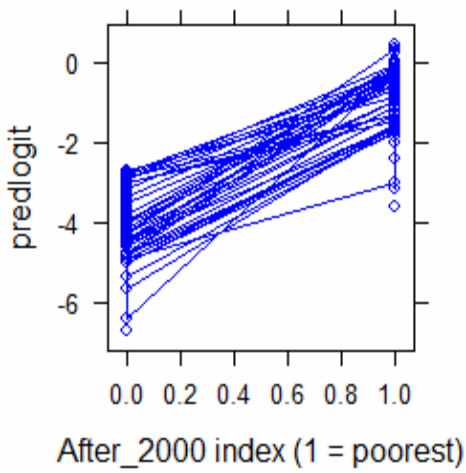

Figure 6. Fitted regression lines

From Figure 5 we observe that if we knew the time period when the articles were made, it might be possible to identify articles published in journals with low uptake and steep impact factor gradients (in the top left hand quadrant). This information is useful for improve the publication of articles in such journals. From Figure 6 we notice that some lines are shorter than others because not all studied articles made after 2000 are published in journals with a high impact factor value. We can also see that the time period lines are 'fanning in' as impact factor value increases. This is expected because of the negative correlation between the intercept and slope residuals.

Turning to the linearity of the effect of topic, time period and geographical area, we simplified the model by replacing the dummy variables with the original variables. Therefore, the multilevel regression models will look as follows:

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \beta_0 + \beta_1 Topic_{ij} + \beta_2 Pages\_number_{ij} + \beta_3 Authors\_number_{ij} + \beta_4 Continent_{ij} +$$
$$+ \beta_5 After\_2000_{ij} + u_{0j} + u_{5j} After\_2000_{ij} \qquad (8)$$

This model assumes that the contextual effect of considered factors is the same for all studied articles. We modified this assumption including in the model the interaction between the number of authors (Authors_number) of an article and variables like topic (Topic), pages number (Pages_number), continent (Continent) and time period (After_2000), a cross-level interaction. The fitted model is

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \beta_0 + \beta_1 Topic_{ij} + \beta_2 Pages\_number_{ij} + \beta_3 Authors\_number_{ij} + \beta_4 Continent_{ij} + \beta_5 After\_2000_{ij} +$$

$$+ \beta_6 Authors\_numberxTopic_{ij} + \beta_7 Authors\_numberxPages\_number_{ij} +$$

$$+ \beta_8 Authors\_numberxContinent_{ij} + \beta_9 Authors\_numberxAfter\_2000_{ij} + u_{0j} + u_{5j} After\_2000_{ij} \quad (9)$$

The results obtained estimating the two models described by equation (8) and (9) are presented in Table 6.

Table 6

Results obtained for model (8) and model (9)

Model	**M8**				**M9**			
Fixed part								
Variable	**Estimate**	**Std. Error**	**z value**	**Pr(>|z|)**	**Estimate**	**Std. Error**	**z value**	**Pr(>|z|)**
Intercept	-2.92909	1.22135	-2.398	0.016474*	-2.27139	3.40233	-0.668	0.5043
Topic	-0.30026	0.13734	-2.186	0.028795*	-0.13703	0.32686	-0.419	0.67505
Pages_number	0.04775	0.02877	1.660	0.096919.	-0.20862	0.09861	-2.115	0.0343*
Authors_number	-0.19851	0.16496	-1.203	0.228850	-1.69379	1.08128	-1.566	0.11724
Continent	-0.03813	0.36478	-0.105	0.916744	0.12848	0.97389	0.132	0.89505
After_2000	3.08198	0.88181	3.495	0.000474 ***	5.03437	2.44067	2.063	0.0391*
Authors_numberX Topic	-	-	-	-	-0.07380	0.12080	-0.611	0.54126
Authors_numberX Pages_number	-	-	-	-	0.10592	0.04038	2.623	0.00871 **
Authors_numberX Continent	-	-	-	-	-0.04442	0.38730	-0.115	0.90869
Authors_numberX After_2000	-	-	-	-	0.40000	0.59823	0.669	0.50373
Random part								
σ^2_{u0} (Intercept variance)	14.300	3.7815	-	-	60.838	7.7999	-	-
σ^2_{u1} (After_2000 variance)	8.091	2.8445	-	-	46.449	6.8154	-	-
σ^2_{u01}	-1	-	-	-	-1	-	-	-
Deviance	194.7	-	-	-	178.8	-	-	-

*** (p value < .001), ** (p value < .05), * (p value < .10), .(p value > 0.10)

The estimates for the fixed coefficients obtained in Table 6 are close for both models (M8 and M9), except the regression slope for time period ("After_2000"), which is considerably larger in the cross-level model. This result confirms that the articles concerning survey interviewer characteristics made after 2000 are more popular than those made before 2000. Taking in consideration the evolution and development of interview techniques specific to an inquiry and the need to obtain precise and accurate data, this result is not surprising. In time, many researchers (Herseni, 1940; Moser, 1967; Jaba, 2002; Chelcea, 1975; Chelcea, 2006; Rotariu, Ilut, 2006) looked to answer through their research results on problems encountered in practice regarding the human resource used by Public Opinion Research Institutes to make data collection. After 2000 this process is more obvious. Other results obtained for the first model (M8) shows that "Topic" has a negative significant effect on studied articles publication in journals

like POQ, POR or QQ. For the same variable, in the second model (M9) was obtained a negative insignificant effect. This means that the values of regression coefficients and of corresponding p-values are changing if we insert new explanatory variables in the model.

The regression coefficients obtained for the second (M9) shows that the variable "Pages_number" has a negative significant effect on studied articles publication. In contrast, the interaction between the number of authors of an article and the number of pages ("Authors_numberXPages_number") has a positive significant effect. This result means that, for the studied articles, the difference between pages number is greater as the number of authors increases.

Comparison of the other results between the two models shows that the deviance goes down from 194.7 in the direct effects model (M8) to 178.8 in the cross-level model (M9), which may indicate that the second model fits better than the previous model.

In order to see which model explains better the data, we used the likelihood ratio test. Applying this test we obtained that the likelihood ratio test statistic is 15.866 while the p-value of 0.003204. These results confirm that se second model (M9) is significant. For this model (M9) we examined the intercept and slope residuals for journals impact factor value (Figure 6) and the predicted "Impact_Factor" values lines (Figure 8).

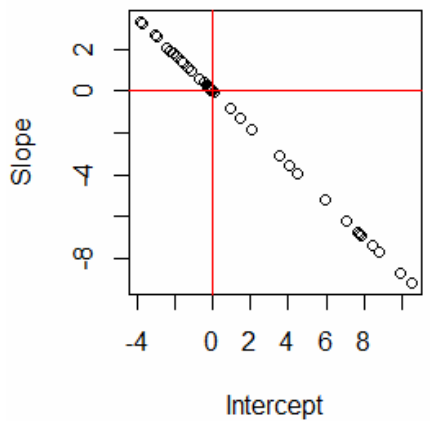

Figure 7. Intercept and slope residuals for journals impact factor value

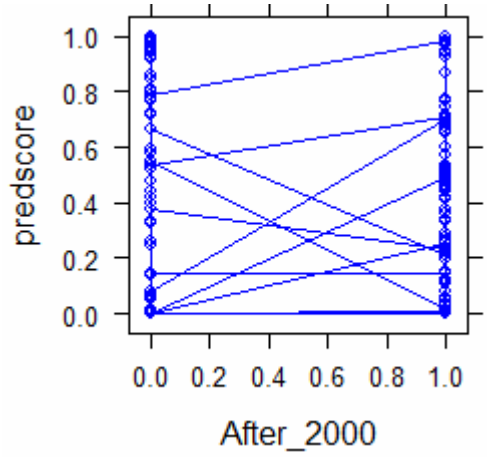

Figure 8. Fitted regression lines

From the plot obtained in Figure 7 it is possible to identify those articles published after 2000, in journals which had a lower value of impact factor than average attainment but a better than average improvement. Articles in the top left quadrant are such articles while articles in the bottom left quadrant had a below average mean attainment after 2000.

Figure 8 plots the regression slopes for the explanatory variable "After_2000". For the most articles the effect is positive: the articles realized after 2000 are more popular than those made before 2000. Most of the regression slopes are not very different from the others, although there is one slope that appears to be much steeper than the others are. The predicted intercepts and slopes for the studied

articles are not identical. This is because the multilevel estimates of the regression coefficients are weighted (Hox, 2002).

Based on the presented results, the evaluation of the effects generated by considered factors on the publication of studied articles in journals like POQ, POR or QQ, our objective is achieved.

Conclusion

The results obtained from the data analysis answered to the objective established on the publication of articles which treats the survey interviewer characteristics in journals like Public Opinion Quarterly, Public Opinion Research or
Quality and Quantity. We assumed that the publication of an article on this topic in such journals is influenced by variables like “Topic”, “After_2000”, ”Continent”, “Authors_number”, “Pages_number”. In our analysis were used 243 articles which can be found in the online articles database. We wanted to verify if there are statistical connections between considered variables and the importance of their influence.

Our study shows that, articles that treats a topic like the analysis of survey interviewer characteristics prevail. One of the factors identified as having a significant influence on the publication of studied articles in a journal with a certain level of impact factor is the time period when the research is made. The same factor was identified and by other researchers (Jaba, Morosanu, 2012) and this confirms us that, in time, papers which treats a topic regarding the survey interviewer characteristics are gained popularity, especially after 2000. This popularity can be explained by the need of researchers and practitioners to obtain precise and accurate data.

Also, our analysis showed that the interaction between factors like the number of authors of an article and the number of pages has a positive significant effect on the studied articles publication. On the other hand, a limitation from this point of view is that every journal has a rigorous policy regarding the number of pages allowed for an article. Another aspect is the fact that a reviewer cannot know the number of authors during the evaluation process because this is a blind process. Under these conditions, the editor decision to publish or not an article with a certain topic depends on paper quality. In order to improve the quality of scientific articles, the collaboration between researchers (Nikzad, Jamali and Hariri, 2011) and the clear description of elements regarding the importance of the research, the methodology used or the results obtained are necessary. Besides those factors, the appropriate research methodology or the software programs used by researchers to fulfill their research objectives are other aspects that may affect the quality of an research article and the editor decision of acceptance for publication.

Despite its high degree of objectivity, such analysis has a subjective dimension because many new journals are not part of ISI Web of Knowledge. Nevertheless, such an analysis may be useful in the management of the author’s concern as well as in the management of a journal.

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