Periodicals of Engineering and Natural Sciences ISSN 2303-4521
Vol. 9, No. 2, June 2021, pp.441-453

Performance analysis of B2B and B2C companies: A case study of selected Balkan countries

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ABSTRACT

The purpose of this paper is to analyze and compare two different business models called business to business and business to consumer in Western Balkan countries and Bulgaria. The first, model - business to business (B2B) is defined as the transfer of goods and services between businesses or firms without interference of consumer. The second model, business to consumer (B2C) is customer oriented in which the goods and services are sold immediately to customers in the market. This study focuses on the performance of these two business models in regional countries which are: Albania, Bulgaria, Montenegro, North Macedonia and Serbia. Our analysis intends to provide information regarding the countries' development on different sectors within B2B and B2C models that are affected by specific indicators such as net salaries, total employment level, investment and exports, and research & innovation. Using statistical methods such as *t*-test, *z*-test, *F*-test or ANOVA and regression, the data were analyzed and the results were compared among the listed developing countries. Finally, this dissection represents the relationship between two independent variables, Net Salaries and Employment where specific dependent variables significantly contribute in North Macedonia and Serbia.

Keywords: B2B, B2C, Innovation, Net salaries, Total employment, Investment, Exports

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Abbreviations

AGRI	Agriculture
B2B	Business-to-Business
B2C	Business-to-Customer
MIN	Mining
MFG	Manufacturing
NRG	Electricity
CNSTR	Construction
OEC	Observatory of Economic Complexity
EPIK	European Policy Insitute of Kosovo
TQM	Total Quality Management

1. Introduction

Quality and innovation have shown relationship between them as competing rather than supplementary purposes [1]. In today's business world firms have to face with a dynamic market, but not just only that, they have to know what is the right business model that will affect the performance at the end of the day. With the use

technology, companies realized that it is necessary to have an innovative business model in order to have better interaction with the customers [2].

Innovation is defined as the process which transforms ideas that are generated as inputs into outputs and it plays a crucial role in increasing customer value and competitive advantage [3]. Moreover, some suggested innovation, as the life blood of the businesses, determines its survival and winning [4]. Companies look for innovation for different studies, reasons, motivations and practices [5]. Supply chain is defined as set of activities in the organization that includes parties involved in delivering goods and services from the input until the output – customer, such as manufacturer, suppliers, transporters, warehouses and retailers [6].

The history of Total Quality Management (TQM) is made up to four phases which are: quality inspection, quality control, quality assurance and Total Quality Management [7]. The idea of the Total Quality Management is that its principles should be applied at every department of the organization, every level and every stage of it [7]. In the opinion of Demin, business problems occur within the management activity, and statistical tools and methods are those which help to identify the starting point of the obstacles [8]. In order to preclude any high cost that may occur in organization, it is very important business models need to apply instruments and principles of the TQM [9]. The innovation process in companies is enhanced by application of a TQM system due to its factors such continuous improvement [10]–[12]. In a company's performance both the TQM and innovation have the same goals, particularly in industry sector where they seek to unite the company objectives to increase competitive advantage and satisfy customer needs [13]. Moreover, both of them include workers in a company to take from part of business and management process [5]. The main goals in which TQM and innovation share together are meeting the customer satisfaction, continuous improvement and open culture [13]–[15]. The need of innovation and quality in service companies remained essential for their business perfection and to compute throghout tighten competitive advantage [16], [17]. This conclusion has motivated many researches to convey studies in connection between TQM and innovation [5] .

The supply chain management concept is launched by Porter (1985) based on the notion of value chain [18]. Supply chain management is vital for the companies to sustain their competitive advantage in business models [19]. Another meaning of supply chain is given by Mentzer, Witt, Keebler, Min, Nix, Smith and Zacharia that define supply chain as "A set of three or more entities (organization orindividuals) directly involved in the upstream and downstream flows of products, services, finances, and or information from a source to a customer" [6]. According to Porter, a firm can perform value activities that are physically and technologically distinct [20]. It is believed that an organization can be multiple member of supply chain, a supply chain can be part of an another supply chain [21]. Management should actualize interconnected positions of supply chains, since every organization is part of one another supply chain [22]. This approach might bring a broader understanding when defining supply chain. Lambert, Cooper and Pagh and and Lambert and Cooper point that "Supply chain is not a chain of business relationship between one-to-one, business-tobusiness relationships, but a network of multiple businesses and relationships" [22], [23]. A strong supply chain which will fulfill a customer request is very important for both B2B and B2C business models. B2B business models are generally for the big corporations and these are the firms that market directly to other businesses and governments including suppliers, distributors and agencies rather than to individual customers [24]. The second model, B2C refers to the process of selling goods and services directly between a business and consumers who are the end users of these products or services [25]. Since we have two business models, it is important to distinguish between two of them, right business model will make the company more successful [1]. For every organization is important to be prepared to fail in some portions before it finally leads to optimize its business [18].

This research aimed to analyze the performance of B2B and B2C companies in Albania, Bulgaria, Montenegro, North Macedonia and Serbia with the aim to identify which business models will bring more benefit to the considered countries, by examining sectors of activity such as Agricultural, Construction, Energy, Manufacturing, and Mining. In order to determine the result of these sectors, companies are classed into two

categories. The first category is comprised of B2B firms, meaning companies that generally produce semi-finished products that will be used in supply chains. Researches conducted in these areas in order to show the fundamental importance of B2B and B2C exchange in management operations showed that particularly, B2B transactions occurs in supply chain process [26][27]. For instance, an aerospace company makes many B2B transactions such as buying engine, aircraft tires and seats before the final transaction takes place. The second category consists of B2C companies, in which goods and services are immediately sold to the consumers for consumption. Electricity, education, internet are some examples of business-to-consumer model.

There are many researchers tend to focus on production and innovation in business institutions [28]. According to Anthony, besides being focused on product or services, now innovations increasingly use on developing business models that enhance its center competency [29]. Damanpour and Schneinder stated that innovation is being studied in many disciplines and de-fined from different perspectives [30]. In addition to this, innovation is studied by scholars, as the key success factor for the companies' sustainability performance by many scholars [31][32][33][34]. Within the business models, innovation can be categorized into three ways which are technology-push, disruptive innovation and demand-full approach. Also, business model can itself characterize a form of innovation [35], without changing the substance of products and services' delivery and by editing the internal operations of the company [36]. Technology-push approach can be found in larger organizations which allow the organization to take an advantage by positioning itself as the first mover firm in the market [36]. Another way is known as disruptive innovation which refers to developing initiatives that helps the business to sustain leadership in the market such as editing the existing products or services and providing a secondary product to the market [37]. Lastly, the third way of innovation is so-called demand-pull approach in which the businesses shall consider the re-evaluation in order to meet the needs of customers and business environments [38]. However, there is a lack of studies conducted to note the role of B2B and B2C companies according to the sectors.

This study conducted to examine Agricultural [AGRI], Construction [CONSTR], Energy [NRG], Manufacturing [MFG], and Mining [MIN] sectors. Variables that are going to be measured within these sectors are as following**: exports, employment, net salaries,** and **investment.** Observed data is measured on 8 years average for **Albania, Bulgaria, Montenegro, North Macedonia,** and **Serbia.**

Therefore, the following hypothesis were tested for the countries mentioned above:

- H1: B2C is better-paid than B2B - *Net Salaries*
- H2: B2C has lower employment rate than B2B - *Employment*
- H3: B2C companies are more successful B2B - *Exports*
- H4: B2C companies' investments are higher than B2B - *Investment*

The importance of this paper is to detect the problems in the considered countries and within their local labor markets and discussing possible solutions. One of the biggest problems these countries are facing is the brain-drain, which is increasing across and affecting the labor market in a negative way [39]. Also, another subject of this paper is to clarify which model, either B2B or B2C is more successful and tempting in the workforce. Skilled people are leaving the countries, especially youth, for better working conditions and salary. For instance, according to EPIK (European Policy Institute of Kosovo) reports, Albania is the leading country in the Balkans with 1.25 million people leaving the country in the last 10 years. Results also estimated that in the same period 258.000 people moved out of North Macedonia while Montenegro had the lowest emigration numbers which is almost 36.000 people. Therefore, there is a need for B2B and B2C companies to be more attractive for local workers in these countries.

As restriction, throughout the research we have faced may obstacles, such limited data of statistical agencies, related to different countries, years and sectors. Thus, each data was analyzed based on year average for each country.

2. Research method

Hypothesis testing is chosen as a research method for our analysis. T-test helps us to identify if hypothesis is failed to reject or rejected. *T*-test is used to determine whether statistical data is significant between two sample means. In our study we used independent samples *t*-test to compare two different groups in which the data of two populations are not related to each other. Independent samples t-test will tell us whether there is a significance difference between B2B and B2C, or not. Observed *t*-test is determined with the following formula:

$$t_o = \frac{\bar{x}_1 - \bar{x}_2 - \Delta_0}{\sqrt{\frac{{s_1}^2}{n_1} + \frac{{s_2}^2}{n_2}}} \quad (1)$$

where, t_o is observed *t*-test which means the data that we will observe during the statistical testing, $\bar{x}_1$ and $\bar{x}_2$ represent the average value of both groups, Δ_0 represents the hypothesized mean difference, s_1 and s_2 stands for the variances of two groups, and the sample size of the both groups is represented by n_1 and n_2.

When conducting two sample t-test the first step is to determine the hypothesis, which are null and alternative hypothesis [40]. As Marilyn and Theresa stated, null hypothesis is labelled as H_0 which indicates that there is no statistically significant difference between two sample averages, while alternative hypothesis which is labelled as H_1 shows that there is statistically difference between two sample averages [41]. The following step is to state the significance level, α which is the maximum probability that is allowed for the rejection of the null hypothesis [41]. The third step is computing the observed t-test, which tells us whether we should accept or reject the null hypothesis [41]. After comparing the value from observed t-test and the one taken from the statistical t table we make conclusions based on these values [41]. In general, after the calculation of the test statistic (t_o), if the value of t_{cr} is greater than the value of t_o we conclude that there is enough statistical difference between the groups. In our study, the hypothesis that we have tested using t-test method is listed below:

- H1: B2C has is better-paid salary than B2B ($\mu_1 > \mu_2$) - *Net Salaries*
- H2: B2C has lower employment rate than B2B ($\mu_1 > \mu_2$) - *Employment*
- H3: B2C companies are more successful B2B ($\mu_1 > \mu_2$) - *Exports*
- H4: B2C companies' investments are higher than B2B ($\mu_1 > \mu_2$) - *Investment*

where μ_1 represents the B2C business model, and μ_2 is meant for the B2B business model.
ANOVA or Analysis of Variance is used as the second method for our research to calculate the statistical data. It's as similar as t-test, but the difference between them is that in t-test we analyze whether statistical data is significant between two sample means. However, ANOVA is used to calculate and analyze whether statistical data is significant for more than two groups or treatments [42].

In the following we will present the steps and formulas for calculating the ANOVA.

Firstly, mean of squares due to treatments is computed which is denoted as MSTR, and its general formula is shown below:

$$MSTR = \frac{SSTR}{k-1} \quad (2)$$

The numerator *SSTR* is called the *sum of squares due to treatments* and in the denominator of equation, k-1, represents the degrees of freedom related with *SSTR* [43]. SSTR is calculated as following:

$$SSTR = \sum_{j=1}^{k} n_j (\bar{x} - \bar{\bar{x}})^2 \quad (3)$$

where, n_j is the number of observations for treatment j, $\bar{x}$ is the average for treatment j and $\bar{\bar{x}}$ represents the overall average which is the sum of all observations divided by the total number of observations [43].

Secondly, we calculate sample variance within treatments in which the estimate of it is called *mean square due to error* or MSE [44], which is calculated with the following formula:

$$MSE = \frac{SSE}{n_T - k} \tag{4}$$

SSE is known as *sum of squares due to error* in equation (5), and $n_T - k$ is the degrees of freedom related to the SSE. SSE is calculated with the formula below:

$$SSE = \sum_{j=1}^{k} (n_j - 1)\, s_j^2 \tag{5}$$

where, n_j is the number of observations for treatment and s_j^2 is the sample variance for treatment.
Finally, we can calculate F statistic with the $k - 1$ degrees of freedom in the numerator and $n_T - k$ in the denominator:

$$F_o = \frac{MSTR}{\text{MSE}} \tag{6}$$

After the calculation of the test statistic (F_o) in equation (6), if the value of F_{cr} (the value from F-distribution table) is greater than the value of F_o we conclude that there is at least one significant difference between the groups, which means the mathematical model is significant.

Multiple regression method was used to analyse and discover whether there is a relationship between response (dependent) variables denoted by $\boldsymbol{y}$, and explanatory (independent) variables denoted by $\boldsymbol{x_1, x_2, \dots, x_n}$ [45].
By applying assuming different hypothesis, we have used multiple regression to understand whether independent variable(s) are significant contributor to the dependent variable. Multiple linear regression model can be stated as following:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_n x_n + \varepsilon \tag{7}$$

where, y is dependent variable, $\boldsymbol{\beta_0, \beta_1, \beta_2, \dots, \beta_n}$ are regression coefficients, $\mathbf{x_i}'\boldsymbol{s}$ are the independent variables in the model and $\boldsymbol{\varepsilon}$ which is the error term.
The matrix of multiple regression analysis is stated as follows [45]:

$$\begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_n \end{bmatrix} = \begin{bmatrix} 1 & x_{11} & x_{12} & \cdots & x_{1k} \\ 1 & x_{21} & x_{22} & \cdots & x_{2k} \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 1 & x_{n1} & x_{n2} & \cdots & x_{nk} \end{bmatrix} \begin{bmatrix} \beta_0 \\ \beta_1 \\ \vdots \\ \beta_k \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \vdots \\ \varepsilon_n \end{bmatrix} \tag{8}$$

The least square estimation of β is solved with the least squares formula [46]:

$$\hat{\beta} = (X'X)^{-1}X'Y \tag{9}$$

The significance of relationship between dependent and independent variables states that at least one β parameter diverges from the others.

$$H_0: \beta_1 = \beta_1 = ... \beta_k = 0$$
$$H_a: \beta_j \neq 0 \text{ for at least one } j. \quad (10)$$

Hence, the hypothesis that we have tested using a linear multiple regression method is listed below:

H5: At least one independent (explanatory) variable (exports, investments, investments, research&innovation) is a significant contributor to the net salary and employment.

- H5.1: At least one independent variable is a significant contributor to the net salary in North Macedonia
- H5.2: At least one independent variable is a significant contributor to the net salary in Serbia.

3. Results and discussion

We have tested hypothesis (H5) using a multiple linear regression model in which we have generated two models. The first model was to investigate and analyze whether any of the independent variables (exports, investments, education, and research&innovation) is a significant contributor to the dependent variable, net salary. In the second model, independent variables were generated as same as in the first model which we have investigated whether any of them is a significant contributor to the employment level. Discussion is analyzed in two parts including North Macedonia and Serbia with an 8-year average data analysis per country.
F-test was the first test that we have performed in our analysis to check whether B2C and B2B sectors have equal/unequal sample variances. Using Microsoft excel we have simulated the ANOVA from the Data Analysis tool. With the level of significance $\alpha = 0.05$ we have rejected the null hypothesis and concluded that B2C and B2B sectors have unequal sample variances with as *p*-value is equal to 1.96E-04.

3.1. Comparative performance evaluation

Comparative results for each hypothesis and per each country are shown in the tables below and discussed.

Table 1. H1: B2C is better-paid sector than B2B – Net Salaries

Country	Mean Difference (B2B-B2C)	P(T≤t) One-tail	P(T≤t) Two-tail
Albania	94.53	9.63E-07	1.93E-06
Bulgaria	-1319.25	1.18E-02	2.37E-02
Montenegro	2.32	4.15E-01	8.30E-01
North Macedonia	-60.18	1.37E-21	2.74E-21
Serbia	-25.72	3.09E-01	6.19E-01

Since *F*-test proved that B2C and B2B sectors have unequal sample variances, the second test to be used was t-test assuming unequal sample variances, using Microsoft Excel. In this step, we have analyzed the first comparison hypothesis for the Balkan regional countries and Bulgaria, which became a member of European Union on January 10, 2007. Null Hypothesis (H1) states that B2C is better-paid sector than B2B. After running the *t*-test using the Microsoft Excel for the five countries, we have inserted the results into the Table 1. where the *p*-value for Albania is 9.63E-07 and for Bulgaria 1.18E-02 assuming the the level of significance $\alpha = 0.05$ which is greater than the p-values we reject the null hypothesis. Moreover, *p*-values for Montenegro 4.15E-01, North Macedonia 1.37E-21 and for Serbia 3.09E-01, considering the level of significance $\alpha = 0.05$ we fail to reject the null hypothesis and conclude that B2C sectors are better paid than B2B in Montenegro, North Macedonia and Serbia.

Table 2. H2: B2C has lower employment rate than B2B – Employment

Country	Mean Difference (B2B-B2C)	P(T≤t) One-tail	P(T≤t) Two-tail
Albania	-	-	-
Bulgaria	61623	1.64E-02	3.28E-02
Montenegro	-41858	4.08E-07	8.15E-07
North Macedonia	379	4.78E-01	9.57E-01
Serbia	-359940	2.18E-04	4.35E-04

The second hypothesis in the Table 2. above for the t-test indicates that B2C sectors in compared countries have lower employment rate than B2B. As it can be seen on the table above we could not gather statistical data from the Institute of Statistics regarding the Employment rate in Albania. T-test results show that Bulgaria has p-value of 1.64E-02, Montenegro 4.08E-07, and Serbia 2.18E-04 we reject the null hypothesis since the value of $\alpha = 0.05$ is greater than the p-values, and conclude that B2B sectors have lower employment rate compared to B2C sectors in those countries. However, as it's shown on the table, North Macedonia has the p-value 4.78E-01 which is greater the value of $\alpha = 0.05$, we fail to reject the null hypothesis and conclude that B2B sectors have higher employment rate. It is important to state that, the brain drain phenomenon – where skilled people especially the youth are leaving the countries to other countries for a better job and salary, help two business models to face lower employment. As stated in the introduction, North Macedonia is the second country in the Balkans with the highest number of people leaving the country after Albania in the last ten years.

Table 3. H3: B2C companies are more successful than B2B – Exports

Country	Mean Difference (B2B-B2C)	P(T≤t) One-tail	P(T≤t) Two-tail
Albania	-	-	-
Bulgaria	12898552800	8.47E-07	1.69E-06
Montenegro	245918475	4.18E-08	8.36E-08
North Macedonia	4830640100	2.60E-07	5.19E-07
Serbia	4811321988	3.05E-05	2.09E+00

Exports play an important role in a country's development and economic growth. Because of that, we have tested the null hypothesis to conclude if B2C companies are more successful than B2B ones. The null hypothesis is stated the same for all countries. In this analysis it is needed to say that in none of the countries B2C companies are more successful than B2B. Looking into the more details, after running the t-test assuming unequal variances, the p-value for Bulgaria which is 8.47E-07, Montenegro 4.18E-08, North Macedonia 2.60E-07 and the p-value 3.05E-05 for Serbia are significantly lower than the $\alpha = 0.05$. Here, the results of the null hypothesis give the same conclusion for all the above-mentioned countries in which the null hypothesis is rejected, and concluded that B2B companies are significantly more successful than B2B in these countries. Accordingly, B2B companies are significantly more successful than B2C, with a much higher mean difference than B2C. It is believed that Bulgaria is ranked as the 63 out of 222 countries, with the value of $34B, to the main export partners Germany, Italy, Romania, Turkey and Greece. Serbia is a leading country with the highest export rate in the Balkan countries to Germany 12%, Bosnia and Herzegovina 10.1%, making it as 71st largest exporter in the world according to OEC. North Macedonia is placed as the 99th largest exporter in the world and the main export partners are Germany, Serbia, Bulgaria, the Czech Republic and Greece. However, compared to these countries, Montenegro is placed at the 164 of 222 countries, being the less developed country in terms of exports with only $475M value of exports in which Serbia is main export partner, following Bosnia and Herzegovina, Slovenia, and Russia.

Table 4. H4: B2C companies' investments are higher than B2B – Investment

Country	Mean Difference (B2B-B2C)	P(T≤t) One-tail	P(T≤t) Two-tail
Albania	1607253	2.29E-04	4.59E-04
Bulgaria	-700868	6.04E-02	1.21E-01
Montenegro	-	-	-
North Macedonia	242838	6.31E-03	1.26E-02
Serbia	-450199	9.37E-02	1.87E-01

The last variable that we have tested using the comparison t-test in both countries was investments. The null hypothesis is stated that B2C companies invest more than B2B in Albania, Bulgaria, North Macedonia and Serbia. In this stage, according to the data from the t-test on Table 4. we have a difference between these countries where Albania has a p-value of 2.29E-04 and North Macedonia the p-value 6.31E-03, these values are significantly lower than the level of significance $\alpha = 0.05$ in which we reject the null hypothesis and state that there is enough significant data that B2B companies invest more than B2C companies in Albania and North Macedonia. However, Bulgaria has the p-value of 6.04E-02, and Serbia 9.37E-02, which are higher than the the actual $\alpha = 0.05$ hence, the null hypothesis is accepted after the positive attempt of the t-test, and state that B2C companies invest more than B2B in Bulgaria and Serbia.

3.2. Relationship analysis

After the comparison t-test with the help of Microsoft Excel, we have performed the multiple regression analysis with the two regression models as follows:

1. Net Salary = Export + Education + Investment + Research&Innovation
2. Employment = Export + Education + Investment + Research&Innovation

where, net salary and employment are dependent variables, however export, education, investment and research&innovaton are independent variables. In this test, we check, for the significant relationship in the model and significant contributor between independent variables, rather than the comparison. Here two tests are being performed. F-test is used to analyze whether a significant relationship between the dependent and independent variables occur which is called overall significance. If F-test shows an overall significance then t-test is used to determine the significant contributor in the independent variables which is called individual significance [43].

3.2.1. North Macedonia

Table 5. Net Salary= Export + Education + Investment + Research&Innovation

	Coefficients	Standard Error	t Stat	P-value
Intercept (Net Salary)	3.39E+02	6.95E+01	4.87E+00	8.23E-03
Export	1.45E-08	4.11E-09	3.54E+00	2.41E-02
Investment	1.47E-09	1.52E-08	9.66E-02	9.28E-01
Education	-4.53E-04	8.17E-04	-5.54E-01	6.09E-01
Research&Innovation	2.91E-07	2.91E-07	9.99E-01	3.74E-01

Firstly, with the use of Microsoft Excel, we have run the first model stated above with the net salary as the dependent variable in North Macedonia to check whether there is a significant relationship between independent variables, if so, at least one the independent variables would be a significant contributor in this country. In multiple linear regression analysis, the multiple R is the coefficient of multiple correlations, where R square is the coefficient of determination. In this model R square is 0.94 or 94% in which we are pleased to find such a

good model fit for the estimated regression equation. Using the level of significance is $\alpha = 0.05$ and the p-value for overall significance was 1.09E-02 indicates that we can reject the null hypothesis because the p-value is less than $\alpha = 0.05$, hence in this model, there is at least one significant contributor related to the net salary.

Since ANOVA shows that the multiple regression relationship is significant, then we use the t-test to determine the significant contributor of each of the individual parameters. When we conducted t-test for individual significance among the four independent it shows that only the Export is significant contributor related to the net salary in North Macedonia since p-value=2.41E-02 is less than $\alpha = 0.05$, hence we reject the null hypothesis. Since only the Export is significantly related to the Net Salary, the following regression model can be used for estimation the Net Salary:

1. Net Salary = (3.39E+02) + 1.45E-08*(Export in years).

However, the other three independent variables Investment, Education, and Research&Innovation are not significant contributors since their p-value is much higher than the significance level, so we cannot estimate any other regression equation model except the Export. Moreover, according to the statistical data, North Macedonia invests very less to the Research&Innovation, thus cannot be a significant contributor to the response variable, the Net Salary.

Table 6. Employment = Export + Education + Investment + Research&Innovation

	Coefficients	Standard Error	t Stat	P-value
Intercept (Employment)	3.18E+05	8.28E+04	3.85E+00	1.83E-02
Export	2.66E-05	4.89E-06	5.45E+00	5.52E-03
Investment	7.00E-05	1.81E-05	3.87E+00	1.80E-02
Education	-1.73E+00	9.72E-01	-1.78E+00	1.50E-01
Research&Innovation	-2.46E-04	3.47E-04	-7.08E-01	5.18E-01

Applying the same principle for the second model with employment as its dependent variable, some differences can be shown. We were excited to check whether there is a relationship between independent variables and employment as a response variable. We believe that this model has a very strong relationship between independent and dependent variables since the R square is equal to 0.98 or 97% which represents a good model fit. Next, with the level of significance $\alpha = 0.05$ which is smaller than the F-test or overall significance value 1.37E-03, we reject the null hypothesis and we conclude that there is a significant relationship or at least one of independent variables is significant contributor related to the Employment in North Macedonia.

Now, we discuss parameters which one significantly contribute to employment. Compared to the first model in which there was only one significant contributor, here there are two variables, Export with the p-value 5.52E-03 and Investment 1.80E-02 in which both of them significantly contribute to the Employment in North Macedonia. Moreover, since two of the variables are contributors to the response variable – Employment, we bring the following regression models which can be used to estimate the Employment:

1. Employment = (3.18E+05) + 2.66E-05*(Export in years)
2. Employment = (3.18E+05) + 7.00E-05*(Investment in years)

However, Education and Research&Innovation have much higher p-value than the significance level, therefore they are not contributors to the employment level in North Macedonia.

3.2.2. Serbia

Table 5. Net Salary = Export + Education + Investment + Research&Innovation

	Coefficients	Standard Error	t Stat	P-value
Intercept (Net Salary)	-8.32E+02	4.27E+02	-1.95E+00	1.23E-01
Export	2.10E-08	5.16E-09	4.08E+00	1.51E-02
Investment	7.92E-09	9.87E-09	8.02E-01	4.67E-01
Education	4.30E-03	1.74E-03	2.47E+00	6.90E-02
Research&Innovation	2.38E-07	1.22E-07	1.95E+00	1.24E-01

Multiple regression analysis showed that the two regression models as the first having the net salary its dependent variable and the second model with the employment as the dependent variable, both have a significant relationship to the independent variables (Export, Education, Investment, and Research&Innovation) in Serbia as well. In the first model, we have got a very good model fit with R square of 0.95 or 95%. With the level of significance is $\alpha = 0.05$ and the p-value for overall significance was 4.85E-03 indicates that we can reject the null hypothesis because the p-value is less than $\alpha = 0.05$, hence in this model, there is a significant relationship between dependent and independent variables.

Since ANOVA proved that this model has a significant relationship, we performed a further analysis with the other test or t-test for individual significance among the four parameters. Compared to North Macedonia, in Serbia, too, the export parameter is the one with a significant contributor related to the net salary p-value was 1.51E-02. Also, education is nearly a second contributor related to the net salary with its p-value 6.90E-02, but still, we cannot say that it's significant since the p-value is higher than $\alpha = 0.05$. Furthermore, the regression model can be used to estimate the Net Salary, since Export is a significant contributor to it:

1. Net Salary = (-8.32E+02) + 2.10E-08*(Export in years)

The other three control variables Investment, Education, and Research&Innovation are not significant contributors to the Net Salary in Serbia.

Table 6. Employment = Export + Education + Investment + Research&Innovation

	Coefficients	Standard Error	t Stat	P-value
Intercept (Employment)	4.09E+06	1.03E+06	3.97E+00	1.65E-02
Export	-2.22E-05	1.24E-05	-1.79E+00	1.48E-01
Investment	-2.50E-06	2.38E-05	-1.05E-01	9.21E-01
Education	-1.01E+01	4.20E+00	-2.41E+00	7.38E-02
Research&Innovation	2.38E-04	2.95E-04	8.09E-01	4.64E-01

On Table 6, we have used the multiple regression analysis for the second model related to Employment as its dependent variable. Similarly, as the first model, the second one has a significant relationship between parameters and dependent variable. The R square has a value of 0.89 or 89% which represents the coefficient determination and shows a good model fit. However, Multiple R is 0.94 or 94% which is the correlation between actual and predicted values of the dependent variable. The overall significance value was 3.45E-02, leading to reject the null hypothesis with $\alpha = 0.05$. Interestingly, in this model, we have faced a small change in which none of the parameters is an exactly significant contributor to the employment, except the Education which is near with a p-value 7.38E-02, since $\alpha = 0.05$ we cannot still conclude that this parameter is a significant contributor related to this model. Similarly, as in North Macedonia, in Serbia Research&Innovation does not contribute to any of the models, Net Salary and Employment, which indicates that Serbia has to invest more in this field for a country's better development and economic growth.

4. Conclusion

The analysis of this paper shows that there are differences between net salaries, total employment, investments, exports, education and research&innovation within North Macedonia and Serbia. B2C model or business-to-consumer model means that goods and services directly are sold to the consumer. However, B2B or business-to-business states that there is no relationship between goods/services being sold to the consumer immediately, hence is the transfer of them without the interference of consumer. The comparison t-test helped us to compare these two business models in both countries testing four hypotheses within net salaries, employment, exports and investments.

Secondly, we have used multiple linear regression analysis for two countries, North Macedonia and Serbia to check for the relationship between the dependent and independent variables and here we have added one more independent variable which is research & innovation. The results show that they are differences between the two business models in the listed countries. However, there is a relationship between the dependent and independent variables on both models in two countries. In the first model, education is the dependent variable and in the second it is employment. In both models, there is a significant relationship between the two countries. The main problem these countries face is the brain drain phenomenon where the highly qualified workers, especially youth, are leaving their countries for a better job and salary.

One of the developmental solutions is Innovation which is one of the most important factors for a company's performance and as well as for a country's development. Secondly, Industry attractiveness is equally important. Hiring high performing employees would not only increase productivity and sale, but the company's growth as well. I firmly believe that if these two countries focus on the last two solutions emphasized, they would solve main problem and improve in the two business models, as well as in the country.

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