A Study on the Relationship between Fiscal Pressure and the Business Confidence Index

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Abstract

In the current economic context, taxation impacts all aspects of the business environment. Using the business confidence index as an estimation of the expected evolution of the manufacturing sector and fiscal pressure as the result of taxation of companies, this study analyses the relationship between the two variables. Our conclusions are based on data collected from the OECD member states, analysed using regression estimation. The results of our research reveal the influence of taxation on business confidence.

Key words: business confidence, fiscal pressure, taxation

JEL codes: H20, H32, G38, F30

Introduction and Literature Review

Taxation had an undeniable impact on our day to day life. If this statement holds true for people, it is equally true for companies. However it is much more difficult to pinpoint the influence taxation has on the business environment. The current study is our attempt to analyse the relationship between the business confidence index and fiscal pressure.

The business confidence index is calculated by the OECD based on the answers managers of companies give to questions that are part of business confidence surveys. The goal is to see what the managers believe is the current state of their company and what their expectations are for the future. The fiscal pressure we analyzed is only related to the companies. Thus we have considered corporate tax revenues, taxes on production and sales, social contributions paid by the employer and customs and import duties.

Business confidence has also been an issue of great interest amongst researchers. Jacobs (1988) and Quinn (1989) both studied business confidence models and class power. And recently, Darling (1955) published a study on measuring business confidence using the relationship between corporate dividends and earnings as a surrogate. The mentioned author also did a statistical analysis of the covariation between business confidence and stock market prices. The idea was further developed recently. Collins (2001) used the Granger Causality to analyse the relationship between business confidence surveys and stock market performance. His conclusion was that business confidence surveys are not a predictor of stock market performance, but that stock market performance is a
predictor of business confidence surveys. Other authors have focused on business confidence indexes in a specific country (Ece, Turknur & Ece, 2005; Carnazza & Parigi, 2003; Kershoff, 2000), while other authors have researched business confidence in a broader context. Ng, Y.K. (1992) tried to answer the question of whether a collapse in business confidence could lead to economic depression, using nonperfect competition as a background. More recently, business confidence has been linked with the impact of possible political, economic and legislation changes on the foreign direct investment intentions of major companies around the world (Kearney, 2005).

Our study aims to analyse the relationship between taxation and business confidence indexes. We will first analyse data from the OECD as an aggregate zone and estimate regression models with the business confidence index as a dependent variable. The current study is also a continuation and expansion of previous research published by the authors regarding this issue (Vintilă & Tibulcă, 2013).

Research Methodology

One of the main variables used in our study is the Business Confidence Index (BCI). It is one of the indicators calculated by the OECD and included in its Main Economic Indicators publication. The BCI is a standardised set of business tendency time series, calculated according to a standardised methodology published by the OECD. One of the benefits of this standardised confidence indicator is that it makes data comparable across countries and also facilitates the calculation of geographical zone aggregate confidence indicators which was not previously possible.

The standardised method of calculating BCI is based on business survey data, collected by each country and then converted to a specific number of points, according to each answer given by the members of the target group. The number of points attributed to the BCI as a result of this procedure is usually compared to a value of 100 points. The business tendency surveys on which the BCI is based, are also called business opinion or business climate surveys, and their main purpose is to ask company managers questions about the current situation of their business and about their plans and expectations for the near future1.

The standardised BCI represents only the manufacturing sector. Other sectors (construction, retail trade and services) were not included since data availability is scarce among Non-European Union OECD member countries. In order of preference the following types of business survey data have been used to calculate the standardised indicators by country: the harmonized industrial confidence indicator, business confidence indicators (national definition), business situation or business sentiment indicators.2

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2 According to Introducing OECD Standardised Business and Consumer Confidence Indicators and Zone Aggregates, Main Economic Indicators, OECD, December 2006
The BCI is calculated on a monthly basis for a few of the individual member states of the OECD, such as Germany, Japan, the United States and the United Kingdom, but also for the European Union and for the OECD member states (as aggregate zones). In our research we have used the BCI calculated for the entire OECD and we have converted the monthly data to annual data using a simple average.

The other main variable used in our study is the fiscal pressure, which we have considered to be the revenues obtained from a certain type of tax, measured as percentage of the GDP. Consequently, we have considered more than one kind of fiscal pressure: the corporate fiscal pressure (CT) is the corporate tax revenue as percentage of GDP, the employer’s fiscal pressure (SC) is the revenue collected from social contributions paid by employers as percentage of GDP, the sales and production fiscal pressure (PST) is the revenue obtained from taxes on production, sales, transfers as percentage of GDP, the custom duties fiscal pressure (CID) is the revenue collected from customs and import duties as percentage of GDP. All of these variables were used as annual data calculated for the OECD as an aggregate zone.

Our study focuses on the OECD as an aggregate zone. We have tried to estimate regressions using Eviews in order to establish if there is a direct relationship between the fiscal pressure and the business confidence index. The first regression estimated is a simple regression, with one independent variable (CT) and one dependent variable (BCI). The second regression is a multiple one, with the same explained variable (BCI) and four explanatory variables (CT, SC, PST and CID).

**Research Results**

As previously mentioned, the results refer to the OECD member states as an aggregate zone. Our aim was to see if there is a direct relationship between the business confidence index and the fiscal pressure that a company faces as a result of the corporate taxes it pays. Therefore, the first regression we estimated was a simple regression:

\[ BCI = \alpha_1 + \alpha_2 \cdot CT + \varepsilon \]

In the results presented in Table no.1, both the \( R^2 \) coefficient with a value of 0.162612 and the adjusted \( R^2 \) coefficient with a value of 0.126204, reach relatively low values which are not quite adequate to say that the regression model is an acceptable one. Approximately 16% of the variation of the business confidence index is explained through the model.

**Table no.1 – Eviews output for simple regression**

Included observations: 25 after adjustments

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-0.002403</td>
<td>0.003278</td>
<td>-0.733200</td>
<td>0.4708</td>
</tr>
<tr>
<td>CT</td>
<td>0.102759</td>
<td>0.048623</td>
<td>2.113378</td>
<td>0.0456</td>
</tr>
</tbody>
</table>

R-squared 0.162612 Mean dependent var -0.001608
Adjusted R-squared 0.126204 S.D. dependent var 0.017416
S.E. of regression 0.016280 Akaike info criterion -5.321089
Sum squared resid 0.006096 Schwarz criterion -5.223579
Log likelihood 68.51361 F-statistic 4.466365
Durbin-Watson stat 2.576257 Prob(F-statistic) 0.045627

The t-statistic test for coefficient α₁ shows the fact that this coefficient is not different from 0, as the null hypothesis of the test cannot be rejected. The result suggests that the model does not need a free coefficient. The same t-statistic test for the other coefficient shows that it is statistically significant. The null hypothesis for the test which says that all the coefficients are equal to 0 is rejected. The f-statistic has a value of F=4.466365, reveals as true the H₁ hypothesis (α₂<>0). The p-value, of 0.045627, shows the very low risk that the rejection of the null hypothesis (H₀: α₂=0) could be a wrong decision.

However, we cannot overlook the fact that the regression model is not adequate. This could be corrected by the introduction of further explanatory variables. The results for the second regression we estimated are presented below. This is a multiple regression:

\[ \text{BCI} = \alpha_1 + \alpha_2 \times \text{CT} + \alpha_3 \times \text{SC} + \alpha_4 \times \text{PST} + \alpha_5 \times \text{CID} + \epsilon \]

The value of R² has improved, which means that up to 41% of the variation of the business confidence index is explained by the evolution of the independent variables. Strictly statistically speaking, it is still not a high enough value to consider the model adequate. But form a economist’s point of view, taking into account the staggering number of variables that influence the business confidence index, to say that almost 40% can be explained by the changes in the different types of taxes, is a very high number. The conclusion is that the influence of taxation on the business confidence index in the OECD member states is strong.

Table no.2 – Eviews output for multiple regression

Dependent Variable: BCI
Method: Least Squares
Date: 02/08/13  Time: 21:10
The free coefficient \( \alpha_1 \) should still be removed from the model, as it is not statistically significant. The other coefficients are statistically different from 0, as shown by the F-statistic value and the associated probability. The only exception is the last coefficient, which according to the t-statistic test is not significant statistically, which also means that the last variable could be excluded from the model.

Given the value of the estimated coefficients, we may conclude that the influence of the taxes on sales and production is greater than that of the corporate taxes as far as the business confidence index is concerned. One surprising result is the positive value of the coefficients preceding the corporate fiscal pressure and the pressure due to taxes on production and sales. These results suggest that an increase in corporate taxes or in taxes on sales and production, would lead to an increase in business confidence. Economically speaking, such a result is difficult to justify.

Given the value of \( R^2 \), the positive values of some of the estimated coefficients and the low number of observations used, it is difficult to say with certainty what the impact of taxation is on the business confidence index. Therefore, further development of our research methods is necessary if we want to establish whether the relationship between the two variables is one of causality.

**Conclusions**

The current study confirms the findings of other studies in the available literature, as well as our own expectations in regard to the business confidence
index and the possible use of corporate fiscal pressure to predict or anticipate the evolution of business confidence.

Our study has led us to conclude that there is a definite relationship between the business confidence index and fiscal pressure, in its many forms. The level of corporate taxes, the amount paid by the employer as social contributions, as well as the taxes on production and services, all influence the business confidence index for the OECD member states. The same conclusion is not accurate for the customs and import duties, as their influence on the business confidence index has proven to be negligible. Therefore, any change in the taxation of companies will be reflected in the expectations of the managers regarding the business environment and the evolution of their own company.

References


OECD (2006). Introducing OECD Standardised Business and Consumer Confidence Indicators and Zone Aggregates. Main Economic Indicators


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