Available online at www.sciencedirect.com

ScienceDirect

Procedia Environmental Sciences 32 (2016) 337 – 343

Procedia Environmental Sciences

International Conference – Environment at a Crossroads: SMART approaches for a sustainable future

An Exploratory Analysis of the Profitability of Small and Medium Firms using Panel Data: The Case of the Greater Bucharest Metropolitan Area

Călin Vâlsan[a], Elena Druică[b]*, Radu-Daniel Pintilii[b]

[a]*Bishop's University, Sherbrooke, J1M 1Z7, Quebeck, Canada*
[b]*University of Bucharest, 4-12 Regina Elisabeta Avenue, Bucharest, 030018, Romania*

Abstract

This study attempts to predict aggregate profits for small and medium Romanian firms using a relatively naïve model. We use a dataset consisting of 4,519 observations spanning a period of eleven years, from 2001 to 2011. Each observation is obtained by aggregating the data associated with all small and medium firms that can be found for a given NACE and SIRUTA code in the greater Bucharest metropolitan area. Our sample includes a number of more than 1,514 observations that correspond to firms with aggregate zero turnover and aggregate zero number of employees. These are in fact shell companies, firms that are inactive, but somehow remained in the evidence of the Romanian Trade Register Office. We split our sample into two distinct periods, using the 2008 financial crisis as the dividing point. We fit a simple prediction model of aggregate total profits as a function of four variables, using the pre-financial crisis period. We test the predictions of our model using the post-crisis period. The results are imparting three important lessons. First, by allowing shell companies in our sample, the prediction accuracy of our model appears to weaken. Many surveys and economic policy studies conducted by the Romanian government take into account all companies in the evidence of the Trade Register Office, whether active or not. We thus strongly recommend that policy initiatives be based solely on statistical surveys that include only firms in operation. Second, we do not need very detailed information, a large number of explanatory variables, or a very sophisticated model in order to achieve a good prediction power. Using only four variables, our naïve prediction model boasts an impressive out-of-sample R-square of almost 62%. Third, the 2008 financial crisis that wreaked havoc in Western Europe and North America, represented a true tipping point for the economy of the greater Bucharest metropolitan area as well.

Peer-review under responsibility of the organizing committee of ECOSMART 2015

Keywords: prediction model; profits; Romanian small and medium firms;

* Corresponding author.
E-mail address: elena.druica@faa.unibuc.ro

Peer-review under responsibility of the organizing committee of ECOSMART 2015
doi:10.1016/j.proenv.2016.03.039

1. Introduction

Small and medium firms represent approximately 99% of all business enterprises in the European Union, and are responsible for employing up to 67% of the workforce, and generating up to 60% of the economic value added [1]. There is no question that entrepreneurship is one of the main forces driving economic growth and ensuring a dynamic and vibrant society [2, 3]. In Romania, small and medium firms have an average of 2.64 employees each and struggle to survive in a harsh, highly unstable, and unpredictable economic and political environment. The Global Competitiveness Report 2012-2013 [4] suggests that Romania and Bulgaria are still in the early stages of capital accumulation. It is not yet clear to what extent the reallocation of economic and financial resources ensures a healthy competition aimed at selecting the most productive and profitable firms [5, 6] nor is it clear the impact that labour and product market regulation have on innovation and overall profitability [7, 8].

This exploratory study attempts to explain aggregate profits for small and medium Romanian firms using a relatively naive model. We use a dataset consisting of 4,519 observations spanning a period of eleven years, from 2001 to 2011. Each observation is obtained by aggregating the data associated with all small and medium firms that can be found for a given NACE and SIRUTA code in the greater Bucharest metropolitan area. Our sample includes a number of more than 1,514 observations that correspond to firms with aggregate zero turnover and aggregate zero number of employees. These are in fact shell companies, firms that are inactive, but somehow remained in the evidence of the Romanian Trade Register Office. We split our sample into two distinct periods, using the 2008 financial crisis as the dividing point. We fit a simple prediction model of aggregate total profits as a function of four variables, using the pre-financial crisis period. We test the predictions of our model using the post-crisis period.

The results are imparting three important lessons. First, by allowing shell companies in our sample, the prediction accuracy of our model appears to weaken. Many surveys and economic studies conducted by the Romanian government take into account all companies in the evidence of the Trade Register Office, whether active or not. We thus strongly recommend that policy initiatives be based solely on statistical surveys that include only firms in operation. Second, we do not need very detailed information, a large number of explanatory variables, or a very sophisticated model in order to achieve a good prediction power. Using only four variables, our naïve prediction model boasts an impressive out-of-sample R-square of almost 62%. Third, the 2008 financial crisis might have wreaked havoc in Western Europe and North America, represented a true tipping point for the economy of the greater Bucharest metropolitan area as well. The paper is organized as follows. Section 2 presents our data set and the methodology, together with the results of our regression models. Section 3 summarizes our findings and concludes.