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## Does ISO 9001 Quality Certification Influence Labor Productivity in EU-27?

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### Abstract

Labor productivity stands between the main indicators assessing national economic conditions and contributing to the economic growth and welfare. This paper adds to the literature investigating the macroeconomic determinants of labor productivity, focusing on the role of the International Organization for Standardization (ISO) quality certification standards. For this purpose we employ a panel data framework for EU-27 countries for the period 2000-2013 and we address potential endogeneity and heteroskedasticity issues, resorting to a two stages least square (2SLS) analysis and to the Generalized Method of Moments approach (system-GMM) proposed by Blundell & Bond (1998). Our findings show no impact of ISO 9001 quality certification on the labor productivity in EU-27 countries. The results remain unchanged when we compare the pre- and the post-crisis periods.

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### 1. Introduction

The growth of labor productivity is absolutely necessary for reducing poverty rates, for increasing the quality of public services and for improving living standard (Krugman, 1992; Blinder & Baumol, 1993). At the same time, the

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role of quality certification standards cannot be neglected in enhancing business performance, offering a framework for cost savings, for improvement of customers' satisfaction, and favoring the companies' access to new markets. Although the importance of quality certification has long been recognized, its impact on the productivity growth has seldom been examined, with few exceptions.

Several studies investigated the impact of quality standards' adoption on the firms' performance, with an accent on financial results (Lafuente, Bayo-Moriones & García-Cestona, 2010; Heras-Saizarbitoria, Molina-Azorín & Dick, 2011; Ullah, Wei & Xie, 2014). Other studies focused on the role of quality certification on the labor productivity, assessing the role of environmental standards (García-Pozo, Sánchez-Ollero & Marchante-Mera, 2014), safety standards (Abad, Lafuente & Vilajosana, 2013) or quality management standards (Ílkay & Aslan, 2012; Lakhali, 2014; Sánchez-Ollero, García-Pozo & Marchante-Lara, 2015).

Firms which adopt quality management schemes (such as ISO 9001) improve their performance due to the fact that they will continually monitor and manage quality across all operations. In this light, firms better meet customers' needs, cut errors, motivate and engage staff to increase the efficiency of internal processes, placing the quality in the center of their business. The literature provides two explanations about how quality management practices improve business's performance (Lafuente, Bayo-Moriones & García-Cestona, 2010). On the one hand, the operational view underlines that firms adopting quality management schemes better address risks and improve their performance, preventing production processes' failures. On the other hand, the strategic approach emphasizes that quality standards' adoption costs can be seen as investments, bringing further benefits to companies.

Despite these arguments, the empirical research examining the impact of the ISO 9001 certification is not conclusive<sup>1</sup>. While several papers document a positive contribution on labor productivity (Lakhali, 2014; Sánchez-Ollero, García-Pozo & Marchante-Lara, 2015), other papers show no significant influence (Ílkay & Aslan, 2012). Consequently, in consonance with the arguments supporting the role of quality management standards in enhancing the labor productivity, our main objective guiding this paper is to examine how the growth rate of ISO 9001 certifications influences the labor productivity growth rate in a panel framework. While previous papers perform a firm-level analysis and focus on single countries, the two novel contributions of this article are: (1) we test the impact of quality certification on labor productivity at macro-level, focusing on European Union (EU) countries (EU-27) and considering a large set of control variables; (2) we address endogeneity and heteroskedasticity problems which may appear in panel analyses and we compare the results of 2SLS and system-GMM models.

The remainder of the paper is organized as follows. Section 2 presents the literature on labor productivity's determinants, underlining the studies which investigate the role of quality certifications. Section 3 presents the data, methodology and results. The last section concludes.

## 2. Related literature

The literature assessing the labor productivity's determinants is exhaustive. They are usually associated with the capital intensity, the educational level, the trade volume, the foreign direct investment, the ownership structure, the regulatory reform, the real exchange rate and the innovation performance. Most of existing papers focus on one or another category of determinants. For example, the linkages between innovation and productivity are underlined *inter-alia* by Álvarez, Bravo-Ortega & Zahler (2015) and De Fuentes, Dutrenit, Santiago & Gras (2015). While the first paper empirically analyzes the firm-level relationship between innovation and productivity in the Chilean service sector, the second one draws on survey statistics about firms in Mexico, acting in the services sector also. Crespi & Zuñiga (2012) show in their turn that increased innovation intensity foster innovation outputs and thereby the labor productivity.

A distinctive category of labor productivity determinants, associated with the capital intensity, is the Information and Communication Technology (ICT). On the one hand, the total factor productivity (TFP) is higher in ICT sectors.

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<sup>1</sup> ISO 9001 certification is part of the ISO 9000 family of standards that describe a Quality Management System. In the past, ISO 9002 and ISO 9003 were also member of this family, but they became obsolete when the 2000 revision of the standards was released. Starting with 2008, ISO 9001 certification was in force, and recently suffered new revision, in September 2015.

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