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FDI and Human Capital: Gender Effects and Education Spillovers in European Union

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Abstract

The objective of the present paper is to examine how gender education disparities and democracy shape inward FDI in EU countries. We basically build upon Dunning's and Lundan (2008) extension of determinants of FDI including policy-induced effects generated by institutions by incorporating institutional effects (gender education disparities) as a significant location factor. Specifically, we investigate how the location behavior of Multinational Enterprises (MNEs) is shaped by gender educational disparities in EU countries. Since the impact of gender related education disparities on inward FDI is theoretically ambiguous, the results of empirical investigation require special attention. The analysis covers different gender related human capital measures to capture the multidimensional nature of human capital and education concerning level and type with respect to gender. Using panel data estimations, we conclude that the reduction of gender educational gaps in both sub-regions facilitates the absorption of inward FDI. It appears that gender equality might constitute a particular element of the institutional context of a country signaling devotion towards qualitative institutions shaping the overall investment environment. In this respect, policymakers should enhance gender equality in tertiary education in Western EU countries while attention should be given in gender equality in secondary education in the CEE countries.

JEL classifications: F23, I21

Keywords: FDI, Human Capital Measures, Gender Education, Democracy, Institutional Theory, Cross-country analysis.

1. Introduction

Human capital, education and skills represent a major determinant for the multinational enterprises (MNEs) to invest in the European Union states and are considered the leading resources of those firms that want to remain and/or to become globally competitive (Kedia et al, 2012). Although the relationship between human capital and inward FDI has been widely discussed (Nicoletti et al., 2003; Axarloglou, 2005; Agiomirgianakis et al., 2006), little attention has been devoted on the role of gender differences in terms of different types and levels of education on FDI inflows. We thus take this as an invitation to contribute to this

literature by analyzing the effect of gender educational disparities on FDI inflows in EU countries decomposed into EU-15 and CEE countries.

In the 21st century, there has been a significant progress towards gender equality in developed countries (Europa, 2014). While this can lead to better opportunities for females, it still remains an abstract goal. Gender bias and discrimination may reduce economic growth (Dollar and Gatti, 1999; Klasen, 2002) and discourage workers with appropriate qualifications from entering in a suitable job. What is more, sex-based education disparity means less educated females with less skills and competencies (European Commission, 2009) while disadvantages in education translate into lack of access to skills and limited opportunities in labor market. Lower human capital levels may lead to lower output (Busse and Spielmann, 2003) and therefore to lower inward FDI. On the other hand, gender related-education disparity may affect the competitiveness of a country by lowering females' wages and therefore creating a more friendly-FDI environment (Braunstein, 2002). Thus, investors may be interest in gender education disparities in order to exploit highly educated females at a lower cost. Although a majority of studies in the literature focuses on aggregate levels of educational attainment, a growing number of evidence identifies females' educational attainment relative to males as a crucial variable in explaining the wide variation in economic growth. Though there exists partial evidence on the links between gender inequality and trade (Seguino, 1997; Busse and Spielmann, 2006), the role of gender differences in terms of education in FDI attraction has been ignored so far with few exceptions (Busse and Nunnenkamp, 2009; Brzozowski, 2013; Blanton and Blanton, 2015). Consequently, there is room for investigating whether foreign investors care about gender educational disparities; policymakers should take into account if equal benefits between males and females in terms of education increase the effectiveness of activities and create a friendly FDI environment.

As noted by Hillman (2005), aspects of globalization, like forced labor, that adversely affect females, reflect the inadequacies of domestic institutions and policies of governments rather than being inevitable attributes of globalization. Social norms are also involved: for example, the social norm may be for parents to take advantage of the labor of their children (Katav-Herz, 2003). Persistent discriminatory social institutions restrict the economic and social role of females around the world. Although institutions vary within and across countries, and are constantly evolving, they are embedded in relational hierarchies of gender, class and other fault lines, which define identities and distribute power[1]. These institutional rules constraint the ability of countries to challenge gender-biased institutional norms. Putting social institutions at the core of the policy response can open new and sustainable vistas to promote gender equality in national and international development agendas. Discriminatory social institutions have attracted increased attention from the development community in appreciation of their role in explaining gender inequalities. Based on the above, in the present paper we assume that gender inequality reflects the existence of institutional problems in a country.

At the same time, the literature on the relationship between political regime and FDI is more recent, and there are relatively few studies that examine it within the wider scope of the institutional determinants of FDI. Governments are placing additional emphasis on policies that create favorable investment climates for foreign investors. There is a best case scenario in which increased democratization can lead to higher levels of FDI inflows while it is impossible to ignore the possibility of a negative relationship between democracy and FDI. For example, using both cross-section and panel data analysis, Busse (2003) finds that democracy raises FDI inflows in emerging countries. Busse and Hefeker (2007) show that

[1] http://worldbank.mrooms.net/file.php/349/references/rao-kelleher.pdf

government stability, absence of internal conflict, and basic democratic rights are significant determinants of foreign direct investment inflows. Benassy-Quéré et al. (2005) examine the institutional determinants of FDI, mainly focusing on 'institutional quality' and 'institutional distance' concepts. They find that 'good institutions' almost always increase the amount of FDI. This effect, they argue, is independent of the effect of GDP per capita. Méon and Sekkat (2007) find that institutional quality enhances FDI inflows, although reverse causality might be responsible for the weakening of the statistical relation. In an earlier paper, Méon and Sekkat (2004), focusing on MENA countries, also examine the relationship between institutions and FDI.

In this paper, we test for the isolated effects of both gender education disparities and democracy on inward FDI, taking also into consideration that a joint effect on FDI may exist. Our analysis is carried discriminating between the EU-15[2] and the CEE EU members in order to detect any potential variations and hence be able to lay down policy recommendations towards market equalization and competitiveness improvement of the whole region. Specifically, we take one step further by extending the analysis using two different gender educational disparity measures of human capital in the attractiveness of MNEs in order to be able to include specific skills in our analysis. In this context, we extend existing literature in several ways. Firstly, we confirm that education as a central component of a country's institutional profile plays an important role as a location factor for MNEs. Secondly, we provide evidence of gender related education disparities effects on inward FDI by using different level and types of education. Thirdly, we explain the theoretical framework on which the present analysis is based, something that until now according to our knowledge has not done before. Finally, we examine whether democracy and its joint effect with gender education disparity impacts inward FDI in European Union countries.

The rest of the paper is organized as follows: the next section outlines the theoretical basis of investigation and briefly discusses the empirical literature of human capital with respect to gender as a determinant of inward FDI. Data analysis and the econometric model are presented in section three. Section four presents econometric results from FDI panel regressions. We conclude by discussing the policy implications of our study, note some limitations and provide concluding remarks.

2. Theoretical Background and Literature Review

Various theoretical models have tried to explain the location decisions of foreign investors (Faeth, 2009). Dunning (1981) developed the eclectic paradigm to explain why MNEs undertake FDI and stated that three conditions must be present simultaneously for FDI to take place. The firm must possess an ownership (O) and an internalization (I) advantage[3] while the foreign (host) market must offer a location (L) advantage. The latter includes the presence of human capital in the foreign country among others factors. In 1993, Dunning combined the OLI parameters with an extension of Behrman's (1972) taxonomy of MNE's internalizational activities. MNE's activities are classified into four types, namely resource seeking, market seeking, efficiency seeking and strategic asset seeking[4]. Of the above, efficiency seeking FDI

[2]EU-15 countries are the EU member countries before the largest enlargement of the EU on May 1st 2004, while EU-11 (or CEE) countries comprise new EU member countries of the EU after 2004 apart from Malta and Cyprus.

[3]Internalization advantages influence how a firm chooses to operate in a foreign country, selecting among different entry modes like FDI, exports, licensing or joint venture.

[4]The resource-seeking type is mainly to acquire specific resources at a lower cost than it would cost at home. Market-seeking type aims to sustain existing markets and exploit new ones. Efficiency-seeking investment is mainly to restructure and rationalize existing investments in order to optimize the allocation of their international economic activities. For the strategic

is asserted to be more responsive to differentials in labor productivity, of which one of the significant determinants is human capital.

The FDI literature illustrates that the importance of location advantages has increased[5], with the emphasis changing from natural and cost-related input endowments to knowledge-based competencies. Over the recent decades, the composition and significance of competitiveness-enhancing assets have changed (Dunning and Lundan, 2008b), from pure production-capability related assets such as technology to more institutionally related assets such as human capital (Hao et al., 2011). As the available tangible resources and intangible capabilities have become more knowledge-intensive and relationally based (Dunning and Lundan, 2008b), these have largely led to the development of institutional-related theories for MNEs. Thus, Dunning and Lundan (2008) extended the determinants of inward FDI by including policy-induced effects generated by institutions. Their work combines institutional analysis with international business studies and incorporates institutions into the OLI paradigm, emphasizing the role of various institutions in shaping OLI. Based on the extension, we incorporate institutional effects captured by gender education disparities as an important location factor. In other words, the present study is developed under this theoretical framework where gender related education disparities as part of institutional quality are seen as providing location specific cost and advantages to potential foreign investors.

Institutions are considered an important factor explaining development outcomes; they guide human behavior and shape human interaction (North, 1990). Although social institutions influence managerial actions through a variety of processes, previous research and theory often begins with the assumption that institutions fit neatly into a typology, with each type having a unique process of affecting outcomes. Perhaps the most well-known of these typologies is Scott's (1995) cognitive, normative, and regulative 'pillars' of institutional structure. Borrowing from Scott's institutional approach, Kostova (1997) applied the pillars at the country level to produce a three-dimensional country institutional profile, consisting of a country's governmental policies (regulative dimension), widely shared social knowledge (cognitive dimension), and value systems (normative dimension).

Although formal rights may be established, females in many countries do not have equal access to inheritance, cannot own land or property, suffer from domestic violence, and need to be accompanied by a male member of the family when leaving the house (OECD, 2016). Discriminatory social institutions underlie across all stages of females' life, reducing their access to fairness, rights and empowerment opportunities and undermining their decision-making authority over their life choices. As underlying drivers of gender inequalities, discriminatory social institutions retain gender gaps in development areas, such as education, and prevent progress towards social transformation in terms of rights that benefits both females and males.[6] We conceive these discriminatory social institutions as formal and informal laws, social norms and values that shape or restrict the decisions and choices of females. They have gained a prominence as a useful analytical framework to illuminate gender disparities. Because institutions are important for foreign investors, there are widely used in the related literature as determinants of inward FDI. What is more democratic institutions existed long before gender equality, but today, this article argues, growing emphasis on gender equality is an important factor in the process of democratization. Given the theoretical relationship between democracy and equality, it may seem that democracy and

asset-seeking firms, they seek long-term strategic goals; which enhances their international competitiveness by acquiring the assets of foreign firms.

[5] Studies in recent decades started to be more focused on the location determinants for increasing FDI inflows (Dunning, 2000), especially due to intensified globalization and the transition process of newer European Union member countries.

[6] www.genderindex.org

gender equality should go hand in hand. Probably, females will tend to benefit from the general improvement in social welfare that results from economic growth and political stability but it is not clear how this progress will influence the distribution of these benefits between males and females. Furthermore, as we will demonstrate, support for gender equality is not just a consequence of democratization. It is part of a broad cultural change that is transforming many aspects of industrialized societies and supporting the spread of democratic institutions. Gender relations are systems that shape and/or constrain behaviour of individuals as well as of institutions (UNDP, 2012). Thus, while literature uses classic measures as proxies of institutions (e.g. political stability, regulatory quality etc.) we consider gender inequality as part of institutional context reflecting the institutional problems in a country.

As we already stated, education has a leading role in promoting economic growth (Cooray and Potrafke, 2011) and it is considered a human right for both males and females. Gender roles continue to influence crucial individual decisions (e.g. on education, on fertility, on family etc.) which in turn have an impact on the economy and society. It is in everyone's interest to offer genuine choices equally for both sexes. Distinguishing thus education by gender, educated females on the one hand promote growth and human capital (Schultz, 1994; Dollar and Gatti, 1999) just like males, while on the other hand there is a further advantage due to the positive influence of mothers on the education and health of their children (Schultz, 2002; Doepke and Tertilt, 2009). As females' education is believed to promote the quantity and quality of education of their children (through the support and general environment educated mothers can provide their children), this positive externality is likely to exist. Hence, according to the theoretical literature, gender educational disparity reduces the average amount of human capital and hampers economic growth by excluding high qualified females (Dollar and Gatti, 1999). To elaborate more, increased females' education reduces fertility levels and enhances the education of the next generation (King et al., 2008). In this respect, another reason that education of females is important for development is the transmission through mothers. Females' education is equally significant as males' in promoting growth and gender equality is an aspect which deserves further attention.

Gender equality, being a fundamental right and a condition for lasting economic growth (Europa, 2014), constitutes an element of the multi-dimensional concept of human development which is much broader than that allowed by income alone. High gender inequality means that some individuals are systematically deprived of their rights and can lead to lower growth because skills of some people remain unused. Gender inequality is not only a pressing moral and social issue but also a critical economic challenge. If females—who account for half the world's working-age population—do not achieve their full economic potential, the global economy will suffer. It has recently become a key focus for many development policies. On the one hand, gender equality matters intrinsically, because the ability to live the life of one's own choosing and be spared from absolute deprivation is a basic human right and should be equal for everyone; on the other hand it matters instrumentally, because it contributes to economic efficiency and other basic development outcomes (World Development Report, 2012). The Human Development Report defines it as a process of enlarging people's choices and underscores the critical importance of three aspects: long and healthy life, level of education and decent standard of living (UNDP, 2010). It is one of the founding principles of EU and a building block of its future. Equality between males and females contributes to jobs, growth and fairness; gender inequality has serious cost implications and affects negatively human and economic development by creating more poverty, less economic growth and lower level living standards (World Bank, 2003). As a consequence, reducing persistent gender inequalities is necessary not only for reasons of

fairness and equity but also out of economic necessity (OECD, 2011). Developed countries have succeeded in providing universal primary education (UNESCO, 2012) which has been accessible and nearly universal in developing countries as well. We will place emphasis in secondary, upper secondary and tertiary level of education. In developed, and particularly in OECD and high income countries, where education is compulsory up to the age of 15-16, males are more likely to drop out before completing secondary education. As a result, females are increasingly better educated than males in OECD countries (OECD, 2012). Until now, despite progress towards gender diversity, European countries still have a long way to go to reach parity (https://www.mckinsey.com/global-themes/gender-equality/reinventing-the-workplace-for-greater-gender-diversity)

Turning to the empirical part, most papers have investigated the effect of gender dimension on economic growth either by using separate effects or gender educational gaps (Barro and Lee, 1994; Engelbrecht, 1998; Dollar and Gatti, 1999; Kalaitzidakis et al., 2001; Klasen, 2002; Klasen and Lamanna, 2009; Karoui and Feki, 2015). Some studies have argued that gender educational disparity might increase economic growth (Barro and Lee, 1994), while recent studies suggest the opposite (Klasen, 2002; Klasen and Lamanna, 2009) arguing that the results of Barro and Lee (1994) do not stand up to closer econometric scrutiny. Specifically, they claim that gender-based inequalities in education are detrimental to economy growth and limit a country's benefit from the externalities of female education, which includes reduced fertility levels, child mortality levels and increased human capital formation of the next generation. While gender human capital stock may exhibit differential effects on economic growth (Kalaitzidakis et al., 2001; Klasen and Lamanna, 2009), the results regarding FDI attraction are pretty scarce.

In particular, while the link between gender inequality and inward FDI has been attracting partial attention in literature (Busse and Nunnenkamp 2009; Coleman, 2010; Brzozowski, 2013; Blanton and Blanton, 2015), the role of gender inequality in terms of education considering different levels and types in attracting inward FDI has not been explored. During the last decades, it is widely accepted that improving the status of females all over the world is one of the most critical levers of economic development (Coleman, 2010). MNEs may take advantage of the gender disparity in host countries to maximize their profit on a pool of low-skilled female labor force (Mai Hoai and Duy Tung BUI, 2016). From this perspective, discrimination against women is another way in which a state may increase its competitiveness. Given their "secondary status in the labor market, which is seen as a natural consequence of their capacity to bear children" (Diane Elson and Ruth Pearson, 1981, p. 93), as well as the endemic undervaluing of skills usually deemed as "women's work," such as sewing and the assembly of small parts, firms may pay women lower wages than their male counterparts for comparable work (Braunstein 2006; Diane Elson 1996). Arguably, average wages will decline if less educated females enter the labor force in the host country[7] and MNEs may be increasingly inclined to exploit unqualified, cheap female labor. They face mounting cost pressure and increasingly refer to vertical types of FDI, which involve the relocation of labor-intensive parts of the value chain to lower-cost locations. Females are often regarded as a secondary force in the labor market due to their ability to give birth. Certain industries are characterized by gender fragmentation where female labor force is overcrowded and as a result females' average wage is lowered to deal with the increasing unemployment (Braunstein, 2006). Birdsall and Sabot (1991) also observed a structured undervaluation of female's conventional work like assembling parts. Therefore, females get lower wages in comparison to men for the same job. Further, despite decades of awareness,

[7] As discussed in Kucera (2002), wages tend to decline when some groups of workers are paid less than others for similarly work due to existing discrimination.

women remain discriminated against in many organizations, leading to a perpetuation of unequal pay and severe under-representation in senior management positions (Elvira and Graham, 2002; Hoobler et al., 2009; Belliveau, 2012). Other studies have found that wage discrimination may help countries compete more effectively in the global economy which may lead at a wider gender earnings gap (Seguino, 2000a, 2010; Busse and Spielman, 2006). According to other studies, increased female's empowerment and status in a higher-skilled labor pool may be more attractive to foreign investors (Coleman 2010; Busse and Nunnenkamp, 2009). Certain industries require a skilled labor force. In other words, while some industries exploit low skilled females like the clothing industry (Berik, 2009; Seguino, 2010), others demand skilled females. In this point of view, low-skill work force corresponds to low productivity. Per unit labor cost is thus higher in region with pronounced education inequality.

Along those lines, Kucera (2002) was an exception including gender-specific education variables as determinants of inward FDI in a sample of 127 countries, but he did not find significant evidence suggesting that education-related gender disparity resulted in higher FDI inflows. His results though are not robust; he found that the positive effect of female educational attainment on inward FDI is statistically significant only when high income host countries are included in the sample and the coefficient even changes its sign once the regressions are run with regional dummies. Blanton and Blanton (2015) showed that the reduction of gender connected educational gaps is related to increased investment in low-skilled manufacturing industries, which is an area that contains a good deal of vertical investment. Busse and Nunnenkamp (2009) used also gender educational disparity in order to explain bilateral FDI flows from 28 sources to 77 host economies during the period 1978-2004 and showed that the average number of years of schooling of both sexes taken together in the population aged 25 and above, as well as the mean years of schooling of both sexes at all levels of education separately, are strongly and positively associated with FDI flows; the size of the coefficient was higher at the secondary and tertiary level compared to primary. Recently, Brzozowski (2013) assessed the weight of human capital and gender equality in explaining the bilateral FDI inflows to 11 Central European economies. The paper investigated the differences in educational attainment and health between males and females and found that if FDI is mostly low-cost seeking oriented, gender inequality in health and access to education may create a pool of low-pay workers that can be profitably exploited unless the level of productivity is not seriously hindered by gender disparities. Taken as a whole, the relationship between gender related education inequality and FDI inflows is doubtful and deserves more explanation.

A key target of all educational systems is to equip people with a wide range of skills and competencies because most countries need a skilled labor force to enhance economic growth and thus become more competitive. In other words, in order to achieve sustainable growth and investment, the potential and talented pool of females need to be used more extensively. The increasingly diverse and interconnected population is posing new and demanding challenges both to individuals and society systems. School systems are rethinking the skills students will need for success and the most appropriate educational systems for children (OECD, 2001). Advanced economies, like the EU ones, and innovative industries require more educated workers with the ability to respond efficiently to complex problems and produce innovative knowledge. In order to ensure the matching of skills (supply and demand) and the attractiveness of inward FDI, policymakers need to develop skills that are relevant and ensure the delivery of high levels of competencies and a sufficient quantity of skilled workers. Human capital is considered a multi-dimensional aspect and therefore the inclusion of different measures with respect to gender related education may detect the relative

importance of different types and levels of education, skills and competencies to foreign investors.

In addition to gender education disparity, we also control for other institutional factors that have been found to influence inward FDI, specifically democracy and its joint effect with gender education disparity on FDI. Democracy and equality are theoretically related. Over time, democracy is likely to create circumstances that favor and enhance greater gender equality (Beer, 2009). According to Muller (2006), gender equality in education is more likely to be achieved if the state takes on a leading role to close the gender gap. In general, democracy is expected to bring about more equal societies and hence promote gender equality. In less democratic countries, rulers who seek to sustain political power typically do not consider the development of an educated middle class to be in their interest and are generally less likely to heed popular demands by women for improved education equality. In democracies, on the other hand, gender equality is promoted through an educated middle class; females can better express their views and interests and be empowered to take on positions of leadership (Østby et al., 2016). In democracies, it is easier for females to organize to express their views and interests; they have access to and can disseminate information; and they may lobby for improving their status through, for example, education. Therefore, democratic institutions are considered to be conducive to gender equality. While several studies have examined how democracy relates to such factors as economic growth, human development, world peace, and human rights, none empirical research has addressed the relationship between democracy and gender education disparity on inward FDI in EU countries. Cooray (2010) found that democracy advances gender equality in education while conversely less democratic regimes discriminate in education against females. Democratization has an important role in gender equality in education of females which in turn has a positive impact on economic development and growth.

Based on the above grounds, in the present paper, we use gender disparity variables that relate to various types and levels of education as well as skills and programmes orientation in order to detect which one creates a sound environment for foreign investors in EU sub-regions. At the same time we consider democracy, both isolated as well as its joint effect with gender education disparity on FDI. Thus, while we examine the main effects of gender education disparities and democracy on inward FDI we also try to examine whether the effect of gender education inequality on inward FDI depends on the level of democracy in EU countries.

3. Sample, Estimation Models, Data and Methods

3.1 Sample

The sample consists of the European Union countries disaggregated between core and non-core EU countries[8] from 1995-2012 for both sub-regions. These two sub-regions differ between them; Western countries are in the high income category while EU-11 are economies with significantly lower wages; the more to the East, the lower is the income (Igošina, 2015). In general, the more developed Western EU countries have received much larger inward FDI than transition economies (World Bank, 2014a), yet more than half of the FDI jobs were created in non-core EU countries which are reaping the benefits of an affordable and capable labor force and its cost base remains competitive compared with the core EU countries. Therefore, while these two sub-regions constitute EU are far from being

[8] Apart from Malta and Cyprus.

homogeneous in terms of economic development and the size of inward FDI so it is worth to examine them separately.

3.2 Estimation models

In our models we include the most widely accepted FDI determinants incorporated in related literature[9] in order to be able to focus on our main interest, that of gender education disparities and its joint effect with democracy on inward FDI[10].

The empirical investigation for this paper is based on the following equation:

$$INFDI_{it} = a_i + a_k X_{it} + a_m Z_{it} + \mu_i + \nu_{it} \quad (1.1)$$

where i represents the recipient FDI country and t represents time, accounts for the unobservable time-invariant individual specific effect not included in the regression; X_{it} represents the levels and types of gender disparity education and skills; Z_{it} stands for the standard variables that are considered as determinants of FDI; μ_i stands for a time-invariant individual specific effect and ν_i denotes the stochastic remainder disturbances, assumed to be IID $(0, \sigma^2_\nu)$. Our time span covers different time periods given the type of gender human capital measure examined and ranges from 1995-2010.

Specifically, the dependent variable, collected from the UNCTAD's (2005) World Investment Report, is the natural log of inward FDI (millions of US$) that flows into a country in the subsequent year of the panel year corresponding to the independent variables.[11]

3.2.1 Measures of gender related-human capital, skills and Democracy

We use different measures to capture the complicated and multidimensional aspect of human capital with respect to gender while in each estimation we also apply the respective human capital measure to capture the human capital base of the regions. Specifically, one could use both stock and flow measures when measuring educational attainment. Stock measures reflect the pool of human capital residing in a country while flow measures reflect the contributions of incoming cohorts to the stock of human capital. Therefore, it seems that the former are a more appropriate measure compared to the latter because they provide information on the total amount of formal education that is available for employment (Le et al., 2005; Islam, 2010).

We use the percentage of population (aged 15 and over)[12] with completion ratios of secondary and tertiary education taken from Barro and Lee database (Noorbakhsh et al., 2001; Schatz, 2003; Li and Liu, 2005; Woessmann, 2003; Islam, 2010) to account for different durations of analogous school cycles and because differences in educational attainment and trends are not completed captured by the evolution of years of education (Thévenon and Del Pero, 2015). We focus only on secondary and tertiary level of education because there has been significant progress in closing gender gap in primary education and these levels of education are more likely than primary education to determine ability to participate in the paid economy (http://www.undp.org, Chapter 5, Gender Inequality). We employ the difference between male and female scores in order to examine at which level of

[9] From the long list of significant FDI determinants, we present only these that were found to be robust in most regressions. For example, we have also checked for inflation rate, political stability, patents, investment freedom etc., nevertheless, no robust results were obtained from these, hence we excluded them from final estimations.

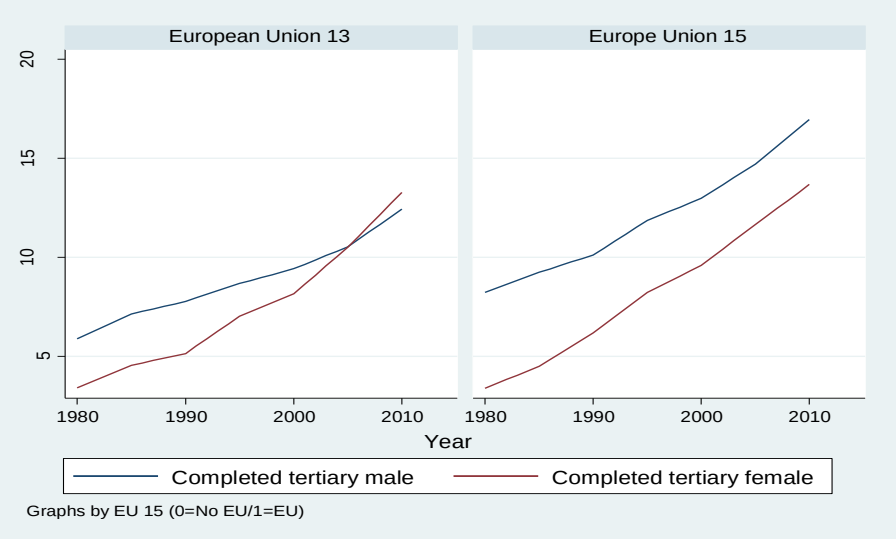
[10] Our goal in this paper is not to set alternative models of FDI, but to focus on the facets of gender educational disparities. Thus, we concentrate on the most widely accepted and commonly used determinants of FDI.

[11] In the present paper we use the logarithm of FDI inflows to adjust for the skewed nature of the data (Demekas et al., 2007).

[12] Similarly, we also used the same indicators for the population aged +25 and over and the results were quite similar. For brevity, we focus and present only the results for population aged 15+ and over.

education gender inequality matters most for the host countries' attractiveness to inbound FDI. Concentrating on population that has completed tertiary education (*Figure 1)* we observe that nowadays in Western EU members countries females remain a minority compared to males while the reverse applies for CEE countries where females outperform males.

Figure 1: Males – Females tertiary level completion (1980-2010)



What is more, we use the share of labor force with secondary and/or tertiary education to capture more specifically the education and skills of the available pool of workers (Nunnenkamp and Spatz, 2002; Tang, 2015) by taking also into account the difference between males and females. It is a useful measure since it includes people who are currently employed and people who are unemployed but seeking work as well as first-time job-seeker and attained or completed secondary or tertiary education as the highest level by the total number of labor force. It provides awareness into skill levels of labor force and is used to draw inferences about how changes in employment demand and education policy affect foreign investors. Concerning the whole region in 2012, males' labor force with secondary education exceeded females' (52.08% vs 47.22%) while females labor force with tertiary education exceeded males' (34.39% vs 25.85%).

Political risks and institutions are important factors of a sound investment climate. These factors have direct influence on the conduct of business as they bring non-economic costs to the investors like bribery and time (Kinoshita and Campos, 2003). The mean of measurement of democracy have been the POLITY IV democracy index which takes values between 0 (representing no democracy – full autocracy) and 10 (representing full democracy).

For a list of our incorporated gender related human capital and democracy measures, please refer to Table 1 in the Appendix which depicts the summary statistics and the description of all measures.

3.2.2 Independent Variables

The analysis of the link between MNEs location choices and gender educational disparities requires taking into account other relevant characteristics of the host economies. Firstly, as we mentioned above, we applied the respective human capital measure to capture the human capital base of the country. What is more, according to the related literature, we incorporate the most commonly used control variables that are considered important determinants of inward FDI. The latter include the size of a market (Bevan and Estrin, 2004; Carstensen and

Tubal, 2004; Johnson, 2006; Busse and Hefeker, 2007; Brzozowski, 2013) measured by the logarithm of GDP to account for the size of an economy, the openness of an economy measured by trade as % of GDP (Busse and Nunnenkamp, 2009; Caetano and Calego, 2009; Hunady and Orviska, 2014), the lending interest rate (Grosse and Trevino, 1996; Bevan and Estrin, 2004; Aizenman and Noy, 2005; Majeed and Ahmad, 2008) and the gross fixed capital formation (Asiedu, 2006; Olubanjo et al., 2010; Kariuki, 2015).

In addition to the aforementioned control variables, for the validity of our model we also include research and development expenditures (as % of GDP) which are crucial for enhancing competitiveness and growth (Pece et al., 2015) and it is used as a proxy for innovatory capability. The effect though of this variable especially in CEE countries is ambiguous because on the one hand foreign investors are attracted by economies that can create new knowledge; on the other hand this variable can capture the building of host firms' advantages, which could lead in acute competition or even higher labor costs (Filippaios and Kottaridi, 2013). We also embody a dummy variable in order to capture financial crisis that EU countries went through which takes the value of 1 from 2008-2012 and 0 otherwise (Dornean et al., 2012; Hunady and Orviska, 2014). Recent studies have highlighted the essential role that institutional factors play in creating a more investment climate (Nasir and Hassan, 2011); it is regarded that human capital is significant more valuable in countries with greater institutional quality (Acemoglou and Robinson, 2005). Hence, we also employ business freedom defined as the ability to create, operate, and close an enterprise quickly and easily (Heritage Foundation). Naturally, higher business freedom creates more incentives for investment, which means that a positive relationship is expected with inward FDI (Pyeman et al., 2015). Contrary, Caetano and Galego (2009) found a negative but not significant relationship in CEE countries while Ajide (2014) found a negative and significant relationship between them in twelve ECOWAS[13] countries. We also expect a negative relationship between wages and inbound FDI, since the greater the increase in overall cost of labor, the lower the incentive for foreign investors (labor becomes more expensive and increases the total cost of investment). However, there is no consensus among the studies that have explored the role of wage in attracting FDI inflows: results range from higher host country wages discouraging FDI inflows to having no significant effect or even a positive association.[14] In the present paper we employ compensation per employee[15] taken from World Bank database.

All control variables and their sources are depicted in Table 1 of Appendix.

3.3 Methodology and Model Specification

The model is estimated both for core and non-core EU members in order to be able to discern any contingent variations within the EU depending each time on the availability of data concerning time span. We estimated our models with different methods for robustness purposes. First we used simple OLS since we refer to EU and the region is quasi homogeneous[16, 17]. However, even within the EU there still exist important variations in terms

[13]Economic Community of West African States.

[14]Charkrabarti (2001) claim that wage as an indicator of labor cost has been the most questionable of all the potential determinants of inward FDI. Schneider and Frey (1985), Culem (1988), and Shamsuddin (1994) demonstrate that higher wages discourage FDI whereas in ODI (1997), it is stated that relative labor costs are statistically significant, particularly for foreign investment in labor-intensive industries and for export-oriented subsidiaries.

[15]We used compensation of employees (in current LCU) from World Bank database. Then, the resulting estimates are deflated by national Consumer Price Indices (CPI) and the data are then converted into a common currency unit using US$ current exchange rates and are divided by total employment in order to capture compensation per employee.

[16]Results are not reported for brevity but are available upon request.

of institutional backgrounds and economic development. Therefore, we carried out the same estimations using fixed or random effects based on Hausman's test (Greene, 2002). The panel data analysis with country fixed effects approach allows us to distinguish more systematically between the effects of policy changes and other less variable elements of the investment climate on inward FDI over time. To take into account problems arising from heteroskedastic residuals, the robust standard error technique is used where necessary to obtain corrected estimates. All regressions include time trend (year dummies) to control for time variation from changes in external economic environment common across sample countries. In cases where we've had missing observations[18], we used linear interpolation based on prior practice (Apergis, 2009; Shirotori et al., 2010).

With respect to panel analysis, the present paper involves the application of the system GMM estimator which is introduced by Arellano and Bover (1995) and Blundell and Bond (1998). The system GMM comprises two sets of moment conditions. The first one consists of first differences of the dataset which is instrumented using the level series of the corresponding variables lagged two periods and beyond. The second one comprises the original level series of the dataset which is instrumented using the lagged first differences of the corresponding variables. This estimator addresses the problem of autocorrelation of the residuals and deals with the fact that some of the control variables are endogenous. It makes the endogenous variables pre-determined, and therefore, not correlated with the error term. Until now we have assumed that both control variables and human capital indicators are all exogenous which in case of the size of the market and the human capital measures this may be questionable due to potential reverse causality between them (Mughal and Vechiu, 2009; Akin and Vlad, 2011; Gittens and Pilgrim, 2013; Karimi et al., 2013). Hence, we apply an instrumental variables estimation technique to sweep out the potential correlation problems. The consistency of the Arellano-Bond GMM estimator requires a lack of second-order serial correlation in the residuals of the differenced specification. The most common test of the instruments is Sargan's (1958) test for over-identifying restrictions. For space economy purposes we present only GMM estimations[19].

4. Estimation Results

Following the model specification and the introduction of the variables we now turn to the empirical results. For brevity we report directly the GMM estimations (Tables 1-4). Beginning with democracy in both sub-regions we find that there is a positive relationship between democracy and inward FDI (Harms and Ursprung, 2002; Jakobsen and de Soysa, 2006).

Concentrating to the scope of our study, that of gender education disparities, and beginning with the Western EU countries, results suggest that gender inequality in individual secondary and tertiary education strongly discourages inward FDI (*Table 1)*. In general, this indicates that higher educational attainment in Western EU countries encourages inward FDI (Tang, 2015) as we would expect and that the reduction of gender related educational gaps in secondary and tertiary level contributes positively to the attractiveness of MNEs. Blanton and Blanton (2015) and Busse and Nunnenkamp (2009) also concluded that gender related

[17]We also checked our models for potential multicollinearity with the Variance Inflation Factor (VIF) in accordance with theory that a VIF value of less than 5 does not indicate such problems (Judge et al., 1982) and we concluded that multicollinearity does not pose a problem in this dataset.

[18]Barro and Lee measures (i.e. completion ratios) are available every 5 years. Hence, for these measures we replicated the interpolation method.

education equality is related to increased inward foreign investments. Regarding educated labor force, it is obvious that labor force inequality in secondary level seems to facilitate inward FDI (*Table 2*). Hence, foreign investors are more interested in males' labor force with secondary education in order to place their investments which could be evidence of the alternative professional directions of the two sexes. Indeed, males and females jobs differ significantly and these differences evolve with economic development; females are more likely to work in jobs with flexible working arrangements and part-time jobs in order to combine work with family responsibilities (European Foundation for the Improvement of Living and Working Conditions, 2008; World Development Report, 2012). In EU countries, despite some convergence in terms of employment between males and females, where females have made great strides in the workplace, inequalities persist and they still remain underrepresented in labor market interventions (European Foundation for the Improvement of Living and Working Conditions, 2008). Kalaitzidakis et al. (2001) argued that in high human capital countries, like EU ones, the negative effect of females education maybe due to discriminatory practices in labor markets. We should mention though that in EU-15 labor force with tertiary level of education facilitates inward FDI but gender based education inequalities gain no significance in this level of education.

While the above results hold for the core EU countries, we now turn on the non-core EU countries in order to discern potential differences among them. These countries differ in economic and development level compared to Western ones, and therefore it is of high importance to detect potential differences between them. Beginning with gender labor force with secondary or tertiary education (*Table* 3) we can argue that gender labor force equality in tertiary education facilitates inward FDI in CEE countries while in secondary education deters foreign investors. Hence, foreign investors when investing in these countries are more interested in males labor force with secondary education compared to females while they desire gender equality in labor force with tertiary level. These countries need highly educated labor force, especially males with secondary education, in order to attract inward FDI (Picciotto, 2003; Talpos and Enache, 2010) combined with cost effectiveness and low wages (which is obvious from the negative and sometimes significant sign of wages) and equality at the tertiary level. The fact that males workforce is more significant may be due to discriminatory practices or different jobs orientation (Kalaitzidakis et al., 2001) and foreign investors may take advantage of this gender disparity in order to maximize their profits (Hoai and Tung BUI, 2016). Gender educational disparity seems to deter foreign investors both in secondary and in tertiary level. Particularly, completion ratios in secondary education have a negative and significant impact (*Table 4)*. Our results are in line with Busse and Nunnenkamp (2009) and Blanton and Blanton (2015) who showed that gender inequality deters foreign investments. Therefore, gender equality in terms of education both in secondary and in tertiary level is significant for both sub-samples.

Until now we have examined and analyzed the isolated effects of gender-related human capital indicators and democracy; now we turn into their joint effect on inward FDI. As we mentioned above, democracy and equality should go hand in hand. Therefore, it is of interest to examine their joint effect on investors' decisions. For the Western European Union countries, it is obvious that the effect of gender inequality in terms of education depends on the level of democracy. The greater the democracy, the stronger the effect of gender inequality both in terms of labor force with secondary education and in completed level of secondary education on inward FDI and the reverse. As for tertiary level of education, the greater the democracy, the lower the effect of gender inequality both in terms of labor force with tertiary education and in completed level of tertiary education. Turning into CEE countries, we observe that the greater the democracy, the stronger the effect of gender

inequality in tertiary level of education both in terms of labor force and in completed level of tertiary education.

Estimation Method GMM

Table 1. Completion ratios of Schooling based on level of education – Time period: 1995-2010 – Western EU countries

VARIABLES	(1) Completed Secondary	(2) Completed Secondary	(3) Completed Secondary	(4) Completed Tertiary	(5) Completed Tertiary	(6) Completed Tertiary
logGDP	1.279***	1.290***	1.296***	1.238***	1.222***	1.348***
	(0.0844)	(0.0880)	(0.0868)	(0.0922)	(0.102)	(0.112)
IR	-0.0182	-0.0141	-0.0328	-0.0441	-0.0493	-0.0367
	(0.0287)	(0.0303)	(0.0303)	(0.0283)	(0.0316)	(0.0321)
trade	0.0183***	0.0184***	0.0164***	0.0131***	0.0127***	0.0152***
	(0.00214)	(0.00216)	(0.00220)	(0.00263)	(0.00285)	(0.00301)
GFCF	0.0914***	0.0944***	0.0829**	0.101***	0.0999***	0.0755**
	(0.0333)	(0.0341)	(0.0338)	(0.0336)	(0.0337)	(0.0350)
wages	0.0430	0.0450	0.0531	0.0162	0.0128	0.0451
	(0.0418)	(0.0422)	(0.0417)	(0.0404)	(0.0413)	(0.0431)
R&D	0.372***	0.381***	0.359***	0.243***	0.235***	0.249***
	(0.0863)	(0.0891)	(0.0881)	(0.0813)	(0.0842)	(0.0848)
crisis	-0.169	-0.155	-0.391	-0.387	-0.410	-0.464*
	(0.256)	(0.259)	(0.264)	(0.244)	(0.251)	(0.253)
business_freedom	0.0167**	0.0176**	0.0131	0.0154*	0.0149*	0.00977
	(0.00847)	(0.00873)	(0.00870)	(0.00869)	(0.00879)	(0.00902)
democracy		0.0747	0.952***		-0.0684	0.350
		(0.172)	(0.296)		(0.186)	(0.239)
completed secondary education	-0.00292	-0.00307	0.000445			
	(0.00755)	(0.00758)	(0.00754)			
compl_sec_gender	-0.0663***	-0.0661***	-0.478***			
	(0.0178)	(0.0178)	(0.115)			
secdem			0.430***			
			(0.119)			
completed tertiary education				0.109***	0.114***	0.0598
				(0.0292)	(0.0316)	(0.0371)
compl_tert_gender				-0.00846**	-0.0117**	-0.489***
				(0.0205)	(0.0223)	(0.172)
tertdem						-0.548***
						(0.196)
Constant	-30.52***	-31.75***	-37.19***	-30.08***	-28.84***	-36.68***
	(2.944)	(4.081)	(4.299)	(2.983)	(4.498)	(5.320)
Observations	116	116	116	116	116	116
Number of Country	14	14	14	14	**14**	14

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2. Labor force with secondary and tertiary level of education, Western countries (EU-15) – Time period 1995-2012

VARIABLES	(1) Labor Force Secondary	(2) Labor Force Secondary	(3) Labor Force Secondary	(4) Labor Force Tertiary	(5) Labor Force Tertiary	(6) Labor Force Tertiary
logGDP	1.243***	1.278***	1.307***	1.209***	1.237***	1.262***
	(0.102)	(0.108)	(0.108)	(0.109)	(0.119)	(0.119)
IR	-0.0318	-0.0161	-0.0334	-0.0357	-0.0271	-0.0424
	(0.0348)	(0.0380)	(0.0383)	(0.0329)	(0.0359)	(0.0363)
trade	0.0208***	0.0213***	0.0202***	0.0137***	0.0139***	0.0133***
	(0.00234)	(0.00239)	(0.00241)	(0.00254)	(0.00258)	(0.00258)
GFCF	0.0905**	0.0982**	0.0873**	0.110***	0.116***	0.108***
	(0.0406)	(0.0415)	(0.0415)	(0.0390)	(0.0403)	(0.0403)
wages	0.0311	0.0409	0.0528	0.00611	0.00900	0.00916
	(0.0510)	(0.0521)	(0.0521)	(0.0478)	(0.0481)	(0.0479)
R&D	0.294**	0.321**	0.287*	0.105	0.126	0.150
	(0.148)	(0.151)	(0.151)	(0.117)	(0.122)	(0.122)
crisis	-0.733***	-0.694***	-0.865***	-0.946***	-0.936***	-1.088***
	(0.251)	(0.255)	(0.260)	(0.247)	(0.248)	(0.256)
business_freedom	0.0212*	0.0226**	0.0148	0.0145	0.0161	0.0155
	(0.0110)	(0.0112)	(0.0114)	(0.0104)	(0.0107)	(0.0107)
democracy		0.230	0.984**		0.133	0.593**
		(0.218)	(0.444)		(0.218)	(0.297)
LF_with_secondary_educa	-0.0112	-0.0129	-0.0119			
	(0.0100)	(0.0102)	(0.0102)			
LF_secgender	0.0468**	0.0509**	0.912***			
	(0.0195)	(0.0199)	(0.307)			
LFsecdem			1.021***			
			(0.325)			
LF_with_tertiary_educat				0.0698***	0.0695***	0.125***
				(0.0154)	(0.0154)	(0.0290)
LF_tertgender				-0.0149	-0.0188	-0.0198
				(0.0183)	(0.0194)	(0.0193)
LFtertdem						-0.0642**
						(0.0283)
Constant	-29.60***	-33.31***	-18.24***	-29.64***	-32.12***	-38.32***
	(3.621)	(5.052)	(6.959)	(3.755)	(5.544)	(6.159)
Observations	119	119	119	119	119	119
Number of Country	14	14	14	14	14	14

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3. Labor force with secondary and tertiary level of education, CEE countries – Time period 1995-2012

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Labor Force Secondary	Labor Force Secondary	Labor Force Secondary	Labor Force Tertiary	Labor Force Tertiary	Labor Force Tertiary
logGDP	1.060***	1.042***	0.922***	1.226***	1.159***	1.221***
	(0.0751)	(0.0841)	(0.0985)	(0.0765)	(0.0862)	(0.0894)
IR	-0.0351***	-0.0342***	-0.0309***	-0.0234***	-0.0195**	-0.0237***
	(0.00740)	(0.00800)	(0.00824)	(0.00714)	(0.00759)	(0.00775)
trade	0.00639***	0.00615***	0.00584***	0.00857***	0.00740***	0.00695***
	(0.00192)	(0.00195)	(0.00199)	(0.00192)	(0.00202)	(0.00202)
GFCF	0.0525***	0.0536***	0.0523***	0.0576***	0.0630***	0.0646***
	(0.0100)	(0.0103)	(0.0105)	(0.0103)	(0.0106)	(0.0106)
Wages	0.0357	0.0349	0.0501*	0.0155	0.0158	0.00901
	(0.0251)	(0.0253)	(0.0265)	(0.0240)	(0.0240)	(0.0241)
R&D	-0.741***	-0.733***	-0.698***	-0.534***	-0.557***	-0.548***
	(0.131)	(0.130)	(0.133)	(0.130)	(0.132)	(0.132)
crisis	0.0678	0.0882	0.131	0.0958	0.151	0.103
	(0.111)	(0.124)	(0.128)	(0.110)	(0.115)	(0.116)
business_freedom	-0.0101*	-0.0110*	-0.0124**	-0.0161***	-0.0197***	-0.0161***
	(0.00544)	(0.00601)	(0.00613)	(0.00554)	(0.00605)	(0.00620)
democracy		0.0337**	0.341**		0.132*	0.104**
		(0.0986)	(0.161)		(0.0875)	(0.0881)
LF_with_secondary_educa	0.00295	0.000916	-0.00158			
	(0.00968)	(0.0102)	(0.0104)			
LF_secgender	0.0702***	0.0644***	0.0417			
	(0.0216)	(0.0245)	(0.0266)			
LFsecdem			-0.0573**			
			(0.0235)			
LF_with_tertiary_educat				-0.0294*	-0.0251	-0.0155
				(0.0163)	(0.0166)	(0.0170)
LF_tertgender				-0.0852***	-0.0803***	-0.0717***
				(0.0218)	(0.0221)	(0.0223)
LFtertdem						0.0192**
						(0.00757)
Constant	-19.82***	-19.48***	-19.02***	-23.34***	-22.76***	-24.29***
	(1.595)	(1.651)	(1.688)	(1.994)	(2.009)	(2.094)
Observations	134	134	134	134	134	134
Number of Country	11	11	11	11	11	11

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 4. Attainment, Completion ratios and Average Years of Schooling based on level of education – Time period: 1995-2010 – CEE countries

VARIABLES	(1) Completed Secondary	(2) Completed Secondary	(3) Completed Secondary	(4) Completed Tertiary	(5) Completed Tertiary	(6) Completed Tertiary
logGDP	1.174***	1.000***	1.012***	1.342***	1.215***	1.306***
	(0.0878)	(0.0948)	(0.101)	(0.0728)	(0.0860)	(0.0882)
IR	-0.0319***	-0.0218***	-0.0221***	-0.0236***	-0.0186**	-0.0148**
	(0.00724)	(0.00768)	(0.00772)	(0.00707)	(0.00736)	(0.00742)
trade	0.00676***	0.00258	0.00258	-0.000123	-0.00148	-5.38e-05
	(0.00198)	(0.00212)	(0.00211)	(0.00223)	(0.00227)	(0.00229)
GFCF	0.0515***	0.0722***	0.0723***	0.0780***	0.0865***	0.0832***
	(0.00990)	(0.0109)	(0.0109)	(0.0107)	(0.0113)	(0.0113)
wages	0.00909	-0.0206	-0.0218	-0.0171	-0.0195	-0.0625**
	(0.0246)	(0.0256)	(0.0257)	(0.0250)	(0.0251)	(0.0267)
R&D	-0.636***	-0.713***	-0.698***	-0.872***	-0.933***	-0.860***
	(0.176)	(0.179)	(0.184)	(0.148)	(0.150)	(0.151)
crisis	0.275**	0.437***	0.434***	0.117	0.207*	0.286**
	(0.115)	(0.121)	(0.121)	(0.116)	(0.121)	(0.122)
business_freedom	-0.0158***	-0.0326***	-0.0325***	-0.0207***	-0.0269***	-0.0402***
	(0.00607)	(0.00697)	(0.00696)	(0.00548)	(0.00595)	(0.00656)
democracy		0.406***	0.386***		0.233**	0.700***
		(0.0862)	(0.104)		(0.0906)	(0.132)
completed secondary education	-0.0150*	-0.0142*	-0.0148*			
	(0.00867)	(0.00878)	(0.00893)			
compl_sec_gender	-0.0268**	-0.0390***	-0.0373***			
	(0.0125)	(0.0129)	(0.0138)			
secdem			0.00468			
			(0.0140)			
completed tertiary education				0.125***	0.0997***	0.0896***
				(0.0301)	(0.0318)	(0.0320)
compl_tert_gender				-0.000553	-0.0316	-0.102**
				(0.0470)	(0.0486)	(0.0509)
tertdem						0.181***
						(0.0372)
Constant	-20.61***	-18.75***	-18.86***	-26.27***	-24.67***	-29.97***
	(1.946)	(1.977)	(1.998)	(1.888)	(1.942)	(2.229)
Observations	123	123	123	123	123	123
Number of Country	11	11	11	11	11	11

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Discussion of control variables

About control variables, market size, openness, GFCF and interest rate seem to be consistent with related literature, i.e. the estimated coefficients of these variables show relatively persistent results with assumed signs in different regressions both for Western and CEE members.

Regarding the rest of control variables, we obtain quite differentiated results between Western and CEE EU. Business freedom emerges positive and, in most cases, significant for the EU15 but we obtain the reverse effect for the CEE members. While odd in the first place, the reason for such an outcome may be related to the fact that some new member states present significantly lower levels in this indicator, since they started to adapt their institutions in the 1990's (Caetano & Galego, 2009). Ajide (2014) also found that business freedom deters foreign investors in 12 ECOWAS[20]countries; arguing that unfettered business freedom should be regulated by ensuring that business take-off satisfies the business procedural guidelines. In the case of the CEE EU, most investments are driven from a cost perspective angle and the fact that they offer new markets and potential gateway even more to the East (e.g. Russia). Caetano and Galego (2009) also obtained a negative relationship for these countries, however not significant. It is suggested that institutional problems may be enhancing business in the region, if foreign investors can take advantage of the system through briberies (Shleifer and Vishny, 1993).

Though registering higher rates of corruption and non-transparency (Gamberoni et al., 2016; Guasti & Dobovsek, 2011; Sprout, 2002), these countries receive FDI inflows due to cost effectiveness (Carstensen & Tubal, 2004; CEE Investment Report, 2016). Wages do not emerge significant for EU15, while they appear negatively correlated, as expected, for CEE EU countries, in most cases.

R&D exerts also a different sign between the two groups. While R&D is important for foreign investors in the EU15, for the CEE markets it is negative and significant in most cases. Considering motivations of a traditional nature, i.e. efficiency or market seeking (Filippaios & Kottaridi, 2013) as is the case for CEE countries (Christie, 2003; Kersan-Škabić & Orlic, 2007) it is only natural to expect that FDI motivations are far different than the creation and expenditures on innovation. As the CEE Investment Report (2016) indicates, this region receives FDI due to cost effectiveness. Hence, this result is in line with all our previous findings regarding skills in this region (all measures indicating high specialization skills of human capital turn out negative).

Finally, our crisis dummy exerts a negative and significant sign for the Western EU members. In the CEE EU region, the crisis dummy is not significant in most cases whilst in some cases it is positive and significant. The extent of the financial crisis back in 2008 in the United States had a substantial negative effect on Western EU members that were mostly hit by economic turbulence. Our result is in line with Carp (2015) who argued that some of the CEE countries have proven more resilient to current fragilities. Despite the economic turbulence, these countries showed signs of recovery from the global economic crisis after 2010 (Roaf et al., 2014). When the crisis hit, West European banks did not withdraw all funding from their CEE subsidiaries overnight or let them go bankrupt, as many had feared (Barysch, 2009; Roaf et al., 2014). Additionally, the rapidly assembled 'Vienna initiative' – a club consisting of pan-European banks, the regulators of the countries in which they operate and international organizations such as the EU and the World Bank – helped to prevent a run for the exit that could have resulted in financial meltdown. Taken altogether, i.e. the Vienna Initiative and the

[20] Economic Community of West African States.

fast recovery of these countries after 2010, justifies our result regarding the insignificant effect of the economic crisis dummy variable.

Therefore, while traditional location variables like market size, openness, infrastructure and interest rates show consistent and same results in both regions, the rest of our control variables differ between these sub-regions reflecting the different incentives for the location of MNEs between Western and CEE EU members.

5. Conclusions

The level and nature of human capital as a location advantage influence the extent of inward FDI. While some papers address the impact of human capital on inward FDI, the role of gender inequality has been ignored so far with few exceptions. At the same time, there is a paucity of studies examining newly constructed indices capturing gender inequality in terms of gender related human capital. Finally, none study until now, according to our knowledge has addressed not only how gender inequality and democracy separately shape inward FDI but also jointly.

By distinguishing between EU-15 and CEE EU countries we reach many important conclusions. Beginning with the Western EU members, gender related education equality in secondary and tertiary level is related to increased inward foreign investments. Regarding educated labor force, it is obvious that labor force inequality in secondary level seems to facilitate inward FDI. MNEs are more interested in males' labor force with secondary education in order to place their investments which could be evidence of the alternative professional directions of the two sexes.

On the other hand, turning into CEE EU member states, we notice that foreign investors in these countries are interested in equality regarding labor force with secondary level of education. These countries need highly educated labor force, especially males with secondary education, in order to attract inward FDI (Picciotto, 2003; Talpos and Enache, 2010) combined with cost effectiveness and low wages (which is obvious from the negative and sometimes significant sign of wages) and equality at the tertiary level. The fact that males workforce is more significant may be due to discriminatory practices or different jobs orientation (Kalaitzidakis et al., 2001) and foreign investors may take advantage of this gender disparity in order to maximize their profits (Hoai and Tung BUI, 2016).

This is also the first study to our knowledge that not only examines how democracy and gender inequality shape inward FDI separately by also jointly. For the Western European Union countries, it is obvious that the effect of gender inequality in terms of education depends on the level of democracy. The greater the democracy, the stronger the effect of gender inequality in terms of labor force with secondary education and completed level of secondary education on inward FDI and the reverse. As for tertiary level of education, the greater the democracy, the lower the effect of gender inequality both in terms of labor force with tertiary education and in completed level of tertiary education. Turning into CEE countries, we observe that the greater the democracy, the stronger the effect of gender inequality in tertiary level of education both in terms of labor force with tertiary education and in completed level of tertiary education..

5.1 Managerial implications

Our findings may have several managerial implications for MNEs when consider investing within the EU. Specifically, in the present study we identify if gender disparities with respect to different levels and types of education and skills are of high importance to foreign

investors. Managers need to be aware of the impact of education policies when investing in a host country as this influences their cost functions. If education reforms take place, multinationals will need to re-evaluate their location strategies toward host countries that match their needs. Considering countries with gender education equalities or disparities may be an important strategy for foreign investors. Consequently, managers should be alert of policies taking place in the region regarding education equality, which, in conjunction with democracy may constitute highly beneficial locations even for higher value-added activities.

The change in MNE investment behaviour as a response to engaging with host countries with better and well-structured education systems can be explained by the need to minimize costs but not at the expense of quality. In addition, managers of domestic companies could put pressure on domestic authorities for gender equality or disparity related to education so that they can also reap positive externalities from greater waves of foreign affiliates.

5.2 Limitations

As is the case in other studies, this paper entails some limitations. One limitation is that the analysis does not discriminate across sectors. While a sector analysis would be more enlightening and induce more policy implications, this is not only beyond of our study but also we have limited access to this kind of data. Despite this limitation this work opens the floor to related literature to further investigate the relevance of gender education inequality to foreign investors in sector and regional level.

Estimation Tables

Table 1. Estimation Method GMM
Completion ratios of Schooling based on level of education – Time period: 1995-2010 – Western EU countries

VARIABLES	(1) Completed Secondary	(2) Completed Secondary	(3) Completed Secondary	(4) Completed Tertiary	(5) Completed Tertiary	(6) Completed Tertiary
logGDP	1.279***	1.290***	1.296***	1.238***	1.222***	1.348***
	(0.0844)	(0.0880)	(0.0868)	(0.0922)	(0.102)	(0.112)
IR	-0.0182	-0.0141	-0.0328	-0.0441	-0.0493	-0.0367
	(0.0287)	(0.0303)	(0.0303)	(0.0283)	(0.0316)	(0.0321)
trade	0.0183***	0.0184***	0.0164***	0.0131***	0.0127***	0.0152***
	(0.00214)	(0.00216)	(0.00220)	(0.00263)	(0.00285)	(0.00301)
GFCF	0.0914***	0.0944***	0.0829**	0.101***	0.0999***	0.0755**
	(0.0333)	(0.0341)	(0.0338)	(0.0336)	(0.0337)	(0.0350)
wages	0.0430	0.0450	0.0531	0.0162	0.0128	0.0451
	(0.0418)	(0.0422)	(0.0417)	(0.0404)	(0.0413)	(0.0431)
R&D	0.372***	0.381***	0.359***	0.243***	0.235***	0.249***
	(0.0863)	(0.0891)	(0.0881)	(0.0813)	(0.0842)	(0.0848)
crisis	-0.169	-0.155	-0.391	-0.387	-0.410	-0.464*
	(0.256)	(0.259)	(0.264)	(0.244)	(0.251)	(0.253)
business_freedom	0.0167**	0.0176**	0.0131	0.0154*	0.0149*	0.00977
	(0.00847)	(0.00873)	(0.00870)	(0.00869)	(0.00879)	(0.00902)
democracy		0.0747	0.952***		-0.0684	0.350
		(0.172)	(0.296)		(0.186)	(0.239)
completed secondary education	-0.00292	-0.00307	0.000445			
	(0.00755)	(0.00758)	(0.00754)			
compl_sec_gender	-0.0663***	-0.0661***	-0.478***			
	(0.0178)	(0.0178)	(0.115)			
secdem			0.430***			
			(0.119)			
completed tertiary education				0.109***	0.114***	0.0598
				(0.0292)	(0.0316)	(0.0371)
compl_tert_gender				-0.00846**	-0.0117**	-0.489***
				(0.0205)	(0.0223)	(0.172)
tertdem						-0.548***
						(0.196)
Constant	-30.52***	-31.75***	-37.19***	-30.08***	-28.84***	-36.68***
	(2.944)	(4.081)	(4.299)	(2.983)	(4.498)	(5.320)
Observations	116	116	116	116	116	116
Number of Country	14	14	14	14	**14**	14

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2. Labor force with secondary and tertiary level of education, Western countries (EU-15) – Time period 1995-2012

VARIABLES	(1) Labor Force Secondary	(2) Labor Force Secondary	(3) Labor Force Secondary	(4) Labor Force Tertiary	(5) Labor Force Tertiary	(6) Labor Force Tertiary
logGDP	1.243***	1.278***	1.307***	1.209***	1.237***	1.262***
	(0.102)	(0.108)	(0.108)	(0.109)	(0.119)	(0.119)
IR	-0.0318	-0.0161	-0.0334	-0.0357	-0.0271	-0.0424
	(0.0348)	(0.0380)	(0.0383)	(0.0329)	(0.0359)	(0.0363)
trade	0.0208***	0.0213***	0.0202***	0.0137***	0.0139***	0.0133***
	(0.00234)	(0.00239)	(0.00241)	(0.00254)	(0.00258)	(0.00258)
GFCF	0.0905**	0.0982**	0.0873**	0.110***	0.116***	0.108***
	(0.0406)	(0.0415)	(0.0415)	(0.0390)	(0.0403)	(0.0403)
wages	0.0311	0.0409	0.0528	0.00611	0.00900	0.00916
	(0.0510)	(0.0521)	(0.0521)	(0.0478)	(0.0481)	(0.0479)
R&D	0.294**	0.321**	0.287*	0.105	0.126	0.150
	(0.148)	(0.151)	(0.151)	(0.117)	(0.122)	(0.122)
crisis	-0.733***	-0.694***	-0.865***	-0.946***	-0.936***	-1.088***
	(0.251)	(0.255)	(0.260)	(0.247)	(0.248)	(0.256)
business_freedom	0.0212*	0.0226**	0.0148	0.0145	0.0161	0.0155
	(0.0110)	(0.0112)	(0.0114)	(0.0104)	(0.0107)	(0.0107)
democracy		0.230	0.984**		0.133	0.593**
		(0.218)	(0.444)		(0.218)	(0.297)
LF_with_secondary_educa	-0.0112	-0.0129	-0.0119			
	(0.0100)	(0.0102)	(0.0102)			
LF_secgender	0.0468**	0.0509**	0.912***			
	(0.0195)	(0.0199)	(0.307)			
LFsecdem			1.021***			
			(0.325)			
LF_with_tertiary_educat				0.0698***	0.0695***	0.125***
				(0.0154)	(0.0154)	(0.0290)
LF_tertgender				-0.0149	-0.0188	-0.0198
				(0.0183)	(0.0194)	(0.0193)
LFtertdem						-0.0642**
						(0.0283)
Constant	-29.60***	-33.31***	-18.24***	-29.64***	-32.12***	-38.32***
	(3.621)	(5.052)	(6.959)	(3.755)	(5.544)	(6.159)
Observations	119	119	119	119	119	119
Number of Country	14	14	14	14	14	14

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 3. Labor force with secondary and tertiary level of education, CEE countries – Time period 1995-2012

VARIABLES	(1) Labor Force Secondary	(2) Labor Force Secondary	(3) Labor Force Secondary	(4) Labor Force Tertiary	(5) Labor Force Tertiary	(6) Labor Force Tertiary
logGDP	1.060***	1.042***	0.922***	1.226***	1.159***	1.221***
	(0.0751)	(0.0841)	(0.0985)	(0.0765)	(0.0862)	(0.0894)
IR	-0.0351***	-0.0342***	-0.0309***	-0.0234***	-0.0195**	-0.0237***
	(0.00740)	(0.00800)	(0.00824)	(0.00714)	(0.00759)	(0.00775)
trade	0.00639***	0.00615***	0.00584***	0.00857***	0.00740***	0.00695***
	(0.00192)	(0.00195)	(0.00199)	(0.00192)	(0.00202)	(0.00202)
GFCF	0.0525***	0.0536***	0.0523***	0.0576***	0.0630***	0.0646***
	(0.0100)	(0.0103)	(0.0105)	(0.0103)	(0.0106)	(0.0106)
Wages	0.0357	0.0349	0.0501*	0.0155	0.0158	0.00901
	(0.0251)	(0.0253)	(0.0265)	(0.0240)	(0.0240)	(0.0241)
R&D	-0.741***	-0.733***	-0.698***	-0.534***	-0.557***	-0.548***
	(0.131)	(0.130)	(0.133)	(0.130)	(0.132)	(0.132)
crisis	0.0678	0.0882	0.131	0.0958	0.151	0.103
	(0.111)	(0.124)	(0.128)	(0.110)	(0.115)	(0.116)
business_freedom	-0.0101*	-0.0110*	-0.0124**	-0.0161***	-0.0197***	-0.0161***
	(0.00544)	(0.00601)	(0.00613)	(0.00554)	(0.00605)	(0.00620)
democracy		0.0337**	0.341**		0.132*	0.104**
		(0.0986)	(0.161)		(0.0875)	(0.0881)
LF_with_secondary_educa	0.00295	0.000916	-0.00158			
	(0.00968)	(0.0102)	(0.0104)			
LF_secgender	0.0702***	0.0644***	0.0417			
	(0.0216)	(0.0245)	(0.0266)			
LFsecdem			-0.0573**			
			(0.0235)			
LF_with_tertiary_educat				-0.0294*	-0.0251	-0.0155
				(0.0163)	(0.0166)	(0.0170)
LF_tertgender				-0.0852***	-0.0803***	-0.0717***
				(0.0218)	(0.0221)	(0.0223)
LFtertdem						0.0192**
						(0.00757)
Constant	-19.82***	-19.48***	-19.02***	-23.34***	-22.76***	-24.29***
	(1.595)	(1.651)	(1.688)	(1.994)	(2.009)	(2.094)
Observations	134	134	134	134	134	134
Number of Country	11	11	11	11	11	11

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 4. Attainment, Completion ratios and Average Years of Schooling based on level of education – Time period: 1995-2010 – CEE countries

VARIABLES	(1) Completed Secondary	(2) Completed Secondary	(3) Completed Secondary	(4) Completed Tertiary	(5) Completed Tertiary	(6) Completed Tertiary
logGDP	1.174***	1.000***	1.012***	1.342***	1.215***	1.306***
	(0.0878)	(0.0948)	(0.101)	(0.0728)	(0.0860)	(0.0882)
IR	-0.0319***	-0.0218***	-0.0221***	-0.0236***	-0.0186**	-0.0148**
	(0.00724)	(0.00768)	(0.00772)	(0.00707)	(0.00736)	(0.00742)
trade	0.00676***	0.00258	0.00258	-0.000123	-0.00148	-5.38e-05
	(0.00198)	(0.00212)	(0.00211)	(0.00223)	(0.00227)	(0.00229)
GFCF	0.0515***	0.0722***	0.0723***	0.0780***	0.0865***	0.0832***
	(0.00990)	(0.0109)	(0.0109)	(0.0107)	(0.0113)	(0.0113)
wages	0.00909	-0.0206	-0.0218	-0.0171	-0.0195	-0.0625**
	(0.0246)	(0.0256)	(0.0257)	(0.0250)	(0.0251)	(0.0267)
R&D	-0.636***	-0.713***	-0.698***	-0.872***	-0.933***	-0.860***
	(0.176)	(0.179)	(0.184)	(0.148)	(0.150)	(0.151)
crisis	0.275**	0.437***	0.434***	0.117	0.207*	0.286**
	(0.115)	(0.121)	(0.121)	(0.116)	(0.121)	(0.122)
business_freedom	-0.0158***	-0.0326***	-0.0325***	-0.0207***	-0.0269***	-0.0402***
	(0.00607)	(0.00697)	(0.00696)	(0.00548)	(0.00595)	(0.00656)
democracy		0.406***	0.386***		0.233**	0.700***
		(0.0862)	(0.104)		(0.0906)	(0.132)
completed secondary education	-0.0150*	-0.0142*	-0.0148*			
	(0.00867)	(0.00878)	(0.00893)			
compl_sec_gender	-0.0268**	-0.0390***	-0.0373***			
	(0.0125)	(0.0129)	(0.0138)			
secdem			0.00468			
			(0.0140)			
completed tertiary education				0.125***	0.0997***	0.0896***
				(0.0301)	(0.0318)	(0.0320)
compl_tert_gender				-0.000553	-0.0316	-0.102**
				(0.0470)	(0.0486)	(0.0509)
tertdem						0.181***
						(0.0372)
Constant	-20.61***	-18.75***	-18.86***	-26.27***	-24.67***	-29.97***
	(1.946)	(1.977)	(1.998)	(1.888)	(1.942)	(2.229)
Observations	123	123	123	123	123	123
Number of Country	11	11	11	11	11	11

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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Appendix

Figure 1: Trend in FDI Inflows (in logarithm) from 1980-2014 in Western and CEE EU countries

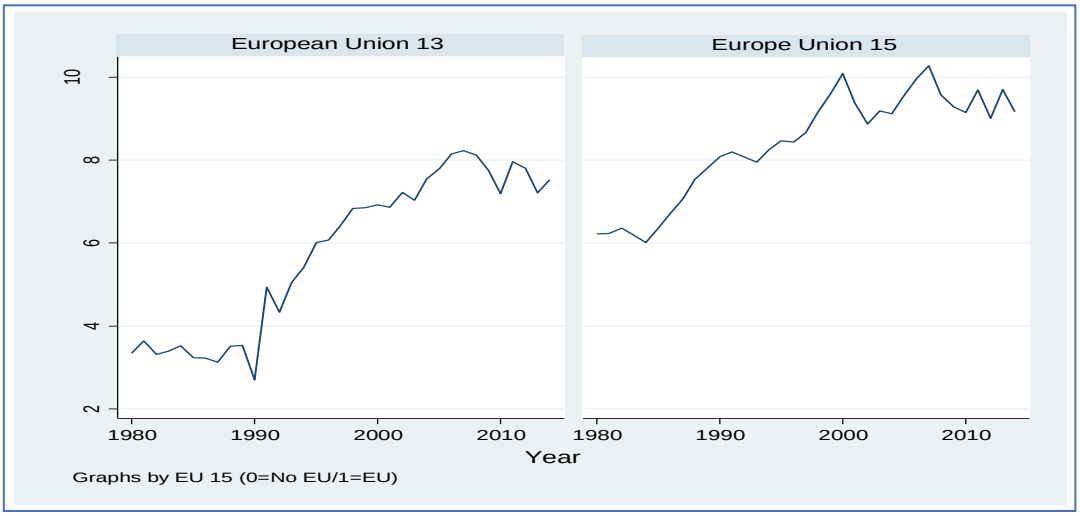

Table 1. Variables and Some Descriptive Statistics (EU-28)

Variable	Description	Mean	Std. Dev.	Data Source	Period
logFDIInflows	Log of FDI inflows	8.330	1.707	UNCTAD	1995-2012
logGDP	Log of GDP (constant 2005 US$)	25.749	1.677	WDI	1995-2012
IR	Lending Interest Rate (%)	11.457	19.897	WDI	1995-2012
trade	Trade (% of GDP)	103.222	51.733	WDI	1995-2012
GFCF	Gross Fixed Capital Formation (as a percentage of GDP)	23.1	4.714	WDI	1995-2012
R&D	Research and development expenditure over GDP	1.405	0.885	WDI	1995-2012
business_freedom	Business freedom is an overall indicator of the efficiency of government regulation of business. The quantitative score is derived from an array of measurements of the difficulty of starting, operating, and closing a business.	76.196	10.694	Heritage Foundation	1995-2012
crisis	Dummy for financial crisis (value 1 if year 2008-2012 and 0 otherwise)	0.25	0.433	Author's calculations	1995-2012
wages	Log of annual compensation per employee	35041.71	47633.31	WDI and Author's Calculations	1995-2012
LF_secgender	Male labor force with secondary education minus female labor force with	2.626	5.436175	WDI and Author's Calculations	1995-2012

	secondary education				
LF_tertgender	Male labor force with tertiary education minus female labor force with tertiary education	5.245	5.296992	WDI and Author's Calculations	1995-2012
compl_sec_gender	Male completed secondary aged 15+ minus female completed secondary aged 15+	6.55	5.026	Barro & Lee and Author's Calculations	1995-2010
compl_tert_gender	Male completed tertiary aged 15+ minus female completed tertiary aged 15+	2.028	3.474	Barro & Lee and Author's Calculations	1995-2010
compl_sectert_gender	Male completed secondary and tertiary level aged 15+ minus female completed secondary and tertiary level aged 15+	8.582	6.369	Barro & Lee and Author's Calculations	1995-2010
LF_with_secondary_ educa	Labor force with secondary education (% of total)	48.858	15.986	WDI	1995-2012
LF_ with_tertiary_educa	Labor force with tertiary education (% of total)	23.072	8.3724	WDI	1995-2012
complsec5	Completed secondary education total, 15+, 5 year	36.734	12.989	Barro&Lee	1995-2010
compltert5	Completed tertiary education total, 15+, 5 year	10.819	4.4817	Barro&Lee	1995-2010
Sec&Tert5	Completed secondary and tertiary education, total 15+, 5 year	47.554	13.506	Barro&Lee	1995-2010
completed secondary education	Interpolation Completed secondary education total, 15+	36.818	12.666	Barro&Lee and Author's Calculations	1995-2010
completed tertiary education	Interpolation Completed tertiary education total, 15+	10.749	4.253	Barro&Lee and Author's Calculations	1995-2010