EU Law and IPR
Concerning FDI Inwards and FDI Outwards

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Foreign Direct Investment (FDI) embodying capital and technology or some intangible advantage is the act of establishing or acquiring a foreign subsidiary. What is the impact of Intellectual Property Rights (IPR) on FDI inwards and FDI outwards in European Union (EU)? The results show that IPR (expressed by zekeuipr1/zekeuipr2/zekeuipr3/zekeuipr4/zekeupat1/zekeucopy1/zekeumark1) play a vital role in attracting FDI inwards and causing FDI outwards in EU.

Introduction

Foreign Direct Investment (FDI) embodying capital and technology or some intangible advantage is the act of establishing or acquiring a foreign subsidiary over which the investing company has extensive management control. There are modes of FDI such as mergers and acquisitions, joint ventures and new plants with their own distinctive characteristics, advantages, and disadvantages.

Intellectual Property Rights (IPR) granted by patents, copyrights, trademarks, etc., perform a significant role in promoting innovation and sustaining economic growth by allowing their holders to keep out, for a limited amount of time, other parties from the remuneration arising from new knowledge and from the commercial use of innovative products and developments based on that new knowledge[1]. This provides the motivation for parties to allot financial and human resources in Research and Development (R&D) to make new discoveries, develop innovative products, and discover better production methods.

In a knowledge-driven economy, the successful protection of IPR is emerging as a crucial ingredient of commercial triumph. With escalating levels of international trade, the quantity of trade concerning IPR increases, triggering noteworthy assets to be devoted to efficient protection. The digital revolution and other technological breakthroughs of the past several

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1   G Zekos (2013a), "IPRs' Impact Upon FDI", PhD Thesis, Economics Department, University of Peloponnese, Tripoli, Hellas, available at www.uop.gr; G Zekos (2016), *Law & Economics of IPRs*, Nova Science Publications, New York, available at www.novapublishers.com; and G Zekos (2016), "The Role of Competition, IPRs and Labor in FDI Inflows/Outflows, GDP Growth and Industry Value-Added", *The IUP Journal of Knowledge Management,* Vol. XIV, No. 2, available at http://www.iupindia.in/1604/Knowledge%20Management/Knowledge_Management.asp?mag

decades have brought Intellectual Property (IP) to the forefront of economic, social, and political interest.

What is the impact of IPR protection on FDI, trade, and Gross Domestic Product (GDP)? The originality of the current analysis is based on the new IPR indices, viz., *zekeuipr1, zekeupat1, zekeucopy1, zekeumark1, zekeuipr2, zekeuipr4* and *zekeuipr3* concerning European Union (EU) countries/economies. Moreover, the novel core of the research idea and the scope of this study are to prove in economic terms the role of IPR[2] in attracting FDI inflows or causing FDI outflows, trade and GDP growth in the EU. This economic analysis will or will not prove the substance/underlying of the legal theory regarding IPR law in an economy. In other words, the necessity and effectiveness of the current law of IPR will be confirmed/attested by the quantitative analysis.

FDI Background

The channels through which globalization affects economies include: trade, portfolio investment, and FDI. Different types of technologies may flow across countries through a range of means such as trade, FDI, and licensing. Outward Foreign Direct Investment (OFDI) has emerged as an important mechanism through which an economy is integrated with the global economy, along with growing trade and inward FDI.[3]

OFDI has become increasingly noteworthy and widespread in recent years. The OFDI maintained by inward (inflows) investments could be made into inward section of value creation process. There is a differentiation between the inward-outward connections of holistic internationalization process, and the inward-outward connections of FDI. The escalation in a company's technological aptitude and market competency is a factor that creates a positive condition for making outward foreign investments as a rational carry-over to receiving inward FDI.

IPR Background

IP classically is one element among many in a production process that gains value from its combination with corresponding factors and licensing, leading to competent exploitation of IP, cost reductions, R&D investment, and new products.[4] Cumulative innovation proceeds as innovators "build on each other's discoveries." Moreover, cumulative innovation happens in industries as diverse as automobiles, aircraft, semiconductors, computer hardware, and software.

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[2]   G Zekos (2012), "Constructing a New IPRs Index", *Web Journal of Current Legal Issues*, No. 4, available at http://webjcli.ncl.ac.uk/2012/issue4/zekos4.html; G Zekos (2013b), *IPRs Protection and Their Impact Upon FDI, GDP Growth & Trade*, Scholar's Press, available at www.scholars-press.com, www.morebooks.de, Germany; and G Zekos (2015), "Re-Colonization Within and Via Economic Globalization", *International Law Journal of London*, available at www.internationallawjournaloflondon.com

[3]   Nagesh Kumar (2007), "Emerging TNCs: Trends, Patterns and Determinants of Outward FDI by Indian Enterprises", *Transnational Corporations*, Vol. 16, No. 1, April.

[4]   G Zekos (2015), "Copyrights and Trademarks in Cyberspace: A Legal and Economic Analysis", *Chicago Kent Journal of Intellectual Property*, Vol. 15, No. 1, p. 313.

A vital target of IP law is to reward innovation and creation throughout the granting of exclusive rights to utilize a new invention, new information, or a cultural good. The returns deriving from IPR are directly correlated to the duration as well as the scope of those rights. In fact, competition policy has a role in limiting monopolistic abuses linked to the exercise of IPR.[5]

While IP law purposely subjects intellectual assets to the sole control of right owners, competition law seeks to preclude market barriers benefitting consumers by advancing competition among a multiplicity of suppliers of goods, services, and technologies.[6] The objectives of EU competition law and IP law are actually the same: promoting the progress of innovation and investment to the advantage of consumers; and so dynamic efficiency is a shared objective for competition law and IP law.[7]

Advances in digital technology, commercialization of the internet, and the invention of entire new fields of human activity, such as e-commerce, nanotechnology, biotechnology and nano-biotechnology, have driven alterations in the core of copyright,[8] patents, trademarks, etc. Copyright vests with a work's inventor, the moment he "fixes" it in a tangible medium of expression.[9] Cyberspace reduces creators' prospective to profit from their work for the reason that illegal activities and free content undercut the legitimate market.[10]

[5] G Zekos (2014), "Denying Patentability of Scientific Theories", *Journal of Intellectual Property Rights*, Vol. 19, September, pp. 337-346; and G Zekos (2016), "Intellectual Property Rights: A Legal and Economic Investigation", *The IUP Journal of Knowledge Management,* Vol. XIV, No. 3, p. 28, available at http://www.iupindia.in/1607/Knowledge%20Management/Knowledge_Management.asp?mag

[6] W Kovacic (2005), "Competition Policy and Intellectual Property: Redefining the Role of Competition Agencies", in F Lévêque and H Shelanski (Eds.), *Antitrust, Patents and Copyright: EU and US Perspectives*, Edward Elgar Publishers.

[7] M Dolmans, R O'Donoghue and P J Loewenthal (2007), "Are Article 82 EC and Intellectual Property Interoperable? The State of the Law Pending the Judgment in *Microsoft v. Commission*", *Competition Policy International*, Vol. 3, No. 1.

[8] Tom W Bell (2008), "The Specter of Copyism v. Blockheaded Authors: How User-Generated Content Affects Copyright Policy", *Vandbilt Journal of Entertainment and technology Law*, Vol. 10, No. 4, p. 841, pp. 852-854 (explaining that technology advances have decreased cost of producing and distributing expressive works, resulting in more blockhead authors). John Tehranian (2011), *Infringement Nation: Copyright 2.0 and You*, p. 14, Oxford University Press (describing today's copyright laws as "a legal regime that threatens to make criminal infringers of us all"); *ibid.,* p. 129 ("[T]he widening ambit of copyright protection has increasingly encroached on critical first amendment values, suppressing transformative uses of copyrighted works that advance creativity and free speech rights"); Peter Baldwin (2014), *The Copyright Wars: Three Centuries of Trans-Atlantic Battle*, Princeton University Press (opposing the author-oriented continental copyright tradition against the public minded Anglo-American copyright tradition and contending that undue attention to authors restricts access to culture and suppresses expression).

[9] *Marvel Characters, Inc. vs. Kirby*, 726 F.3d 119, 143 (2d Cir. 2013) (concluding that Kirby's comic book characters were works made for hire, and therefore Kirby had no right to terminate transfer of copyright to Marvel); *Siegel vs. Warner Bros. Entm't*, 542 F. Supp. 2d 1098, 1064-1079 (C.D. Cal. 2008) (finding that certain "Superman" works were works made for hire, and therefore not within scope of termination right); Wendy J Gordon (2014), "The Core of Copyright: Authors, Not Publishers", *Houston L. Rev.,* Vol. 52, p. 613 (Congress does not have power to enact copyright laws for the benefit of disseminators if they do not also benefit authors).

[10] Rob Levine (2011), *Free Ride: How Digital Parasites Are Destroying the Culture Business, and How the Culture Business Can Fight Back*, pp. 252-253, Doubleday, New York; Robert McCrum, "From Bestseller to Bust: Is this the End of an Author's Life?", available at http://www.theguardian.com/books/2014/mar/02/bestseller-novel-to-bust-author-life (citing the rise of free content on the internet as a challenge for authors today and finding that writing is increasingly unprofitable for unknown authors).

The EU[11] Directive 2004/48/EC on enforcement of IPR applies to any infringement of IPR that has been harmonized among the EU, including those not covered under the agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) such as utility model rights and the *sui generis* right of a database maker, and establishes penalties and remedies that must be available under civil law. Some of the "TRIPS plus" elements of the Directive include: (1) the power for the authorities to seize documentary evidence relating to the suspected infringement and the suspected goods themselves, (2) an obligation for courts to provide information on the source of infringing goods, (3) interlocutory (preliminary) injunctions that may be provided in advance of a decision on the merits of a case, (4) the seizure of offenders' bank accounts and other assets and profits to ensure payment of due damages, (5) the recall of infringing goods at the offender's own expense, and (6) the choice for the right holder of either lump sum damages (up to double normal royalties or license fees) or compensation for lost profits.

Moreover, EU legislation has to be interpreted as far as possible in the light of international obligations.[12] EU decision makers have taken into account "(i) the collective and individual licensing of national copyright titles, (ii) the definition and implementation of copyright exceptions in the digital environment and (iii) the types of online enforcement measures that member states have to make available to rights-holders as a result of the transposition of EU copyright directives"[13] so as to enhance the creation and development of EU copyright matters. There is a need to preserve contractual freedom of both content owners and commercial exploiters. EU legislative measures cannot divest copyright holders of the prospect to target a particular public and to make licensing fees for online exploitation fair to the actual audience reached by content transmissions. To that extent, Mazziotti[14] argues that "All copyright holder representatives firmly reject the idea of any kind of legislative reform at EU level that could lead to a more open, technologically neutral and effectively harmonized legal framework for copyright exceptions."

The making of the EU Digital Single Market is a policy objective rooted in the "Digital Agenda for Europe."[15] Markets for digital content are disintegrated and highly differentiated for grounds that are not related to the territorially limited scope of copyright. In Europe, unauthorized access to online content through peer-to-peer networks is broadly prevalent, but in the US, legitimate services providing online content, such as Netflix, engender much

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[11] Dolmans *et al.* (2007).

[12] *Peek & Cloppenburg KG vs. Cassina SpA*, C-456/06, EU:C:2008:232, paras 30-31; Titus Alexander Jochen Donner, C-5/11, EU:C:2012:370, para 23.

[13] Giuseppe Mazziotti (2013), "Copyright in the EU Digital Single Market", Report of The CEPS Digital Forum, June, Centre for European Policy Studies, Brussels.

[14] *Ibid.*, p. 3.

[15] "Digital Agenda for Europe", available at http://ec.europa.eu/digital-agenda/digitalagenda-europe; COM (2010) 245 final, May 19, 2010; "Communication from the Commission on Content in the Digital Single Market", COM (2012) 0789 final, December 18, 2012, available at http://ec.europa.eu/internal_market/copyright/docs/copyrightinfso/121218_communicationonline-content_en.pdf; and Directive 2014/57/EU of the European Parliament and of the Council of 16 April 2014 on criminal sanctions for market abuse (market abuse directive) [2014] OJ L173/179.

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more traffic than in the EU.[16] Unification of EU copyright law would have instant EU-wide effect, giving rise to a single market for copyright and related rights through eliminating the territoriality of national copyright rules, particularly if the system were construed as prevailing over national titles[17] entailing a legislative reform of EU law. There is a de facto harmonization of the originality condition for subject-matter other than computer programs, photographs and databases,[18] but also paved the way to a comprehension of EU copyright architecture as one of open-ended subject-matter categorizations.[19] It is worth mentioning that diverging standards of originality across the EU ruins the running of the internal market.[20] It is worth mentioning that the copyright protection is reserved to "works" in the Berne sense, i.e., subject-matters that are intellectual creations of their authors.[21]

Furthermore, the Court of Justice of the European Union (CJEU) in *Football Dataco vs. Sportradar*[22] held that the act of re-use is deemed to be located in the territory where user's computer receives the content for purposes of storage and display on screen. In the *UsedSoft*[23] case, the CJEU defined the exclusive right of distribution of the owner of a computer program. To this end, the provisions of the 2001 Information Society Directive define the exclusive rights of distribution and of making content available to the public would need to be revised with the intention of making the exhaustion principle applicable to permanent sales of intangible copies of copyrighted works. It is argued that exhaustion of the right of distribution applies to the tangible copy of a work.[24] The CJEU concluded that Article 4(2) of the InfoSoc Directive has to be interpreted as meaning that the rule of exhaustion therein does not apply in circumstances in which the reproduction of a protected creation has undergone a substitution of its medium and is placed on the market again in its new form. Does the law

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16   Global Internet Phenomena Report (2H 2012).

17   Article 118 TFEU.

18   Harmonization of the criteria for copyright protection was deemed necessary for computer programs, databases, and photographs. Directive 2009/24/EC of the European Parliament and of the Council of April 23, 2009 on the legal protection of computer programs (codified version), OJ L 111, May 5, 2009; Directive 96/9/EC of the European Parliament and of the Council of March 11, 1996 on the legal protection of databases, OJ L 77, March 27, 1996; Directive 2006/116/EC of the European Parliament and of the Council of December 12, 2006 on the term of protection of copyright and certain related rights (codified version), OJ L 372, December 27, 2006.

19   *Infopaq International A/S vs. Danske Dagblades Forening*, Case C-5/08 [2009] I-06569; *Bezpeènostní softwarová asociace – Svaz ochrany vs. Ministerstvo kultury*, Case C-393/09 [2010] I-13971; Joined Cases *Football Association Premier League Ltd. and Others vs. QC Leisure and Others*, Case C-403/08 and *Karen Murphy vs. Media Protection Services Ltd.*, Case C-429/08 [2011] I-09083.

20   E Rosati (2013), *Originality in EU Copyright: Full Harmonization Through Case Law*, Edward Elgar.

21   *Infopaq International A/S vs. Danske Dagblades Forening*, Case C-5/08 [2009] I-06569, [33]-[35].

22   *Football Dataco Ltd. and Others vs. SportradarGmbH et Sportradar AG*, C-173/11, October 18, 2012, paras. 39-43.

23   *UsedSoft GmbH vs. Oracle International Corp.*, C-128/11, July 3, 2012.

24   Judgment in *Art & Allposters International BV vs. Stichting Pictoright*, C-419/13, EU:C:2015:27. The CJEU concluded that "exhaustion of the distribution right applies to the tangible object into which a protected work or its copy is incorporated if it has been placed onto the market with the copyright holder's consent". Article 4(2) of Directive 2001/29 (the InfoSoc Directive) provides that the authorized first sale of a work within the territory of the European Union exhausts the right of the copyright owner to control any subsequent distribution of the work in question.

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allow digital exhaustion? It is argued that there is no exhaustion for digital copies of works[25] and ebooks are subject to the principle of exhaustion.[26]

In addition, Article 5(3)(k) of Directive 2001/29 (the InfoSoc Directive) permits member states to put in their own copyright laws an exception or limitation to the rights of reproduction, communication and making available to the public, and/or distribution, for the purpose of "caricature, parody or pastiche" but there is no definition of these concepts.[27] The CJEU held that the person who owns the copyright to a work has a legitimate interest in making certain that this is not related with the message communicated by its parody if it is prejudiced. A parody evokes an on-hand work while being perceptibly different from it and constitutes an expression of humor. The AG[28] then stated that the notion of parody must be considered as an autonomous concept of EU law demanding a uniform application of EU law. Also, one of the objectives of the InfoSoc Directive is to harmonize specific aspects of copyright and related rights. Besides harmonization, the other InfoSoc Directive's objective was to align EU copyright law with and implement into the EU legal order the 1996 WIPO Internet Treaties. Videogames[29] are not considered merely as computer programs but being complex multimedia works expressing autonomous narrative and graphic creations; such games are regarded as intellectual works protected by copyright under the InfoSoc Directive.[30] Member states have to embrace a very similar if not identical degree of copyright protection not including where InfoSoc Directive leaves them some liberty, as is for example, the case of the optional list of exceptions and limitations in Article 5.[31] It is argued that the scope of copyright protection should not depend on the probable differences in the degree of creative freedom

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[25] Court of Appeal of Hamm, 22 U 60/13, on which *see* E Rosati (2014), "No Exhaustion Beyond Software: Katfriend Translates German Decision on Audiobooks", *The IPKat*, July 1, available at http://ipkitten.blogspot.co.uk/2014/07/no-exhaustion-beyond-software-katfriend.html

[26] District Court of Amsterdam, *Nederlands Uitgeversverbond and Groep Algemene Uitgevers vs. Tom Kabinet*, C/13/567567/KG ZA 14-795 SP/MV, July 21, 2014, on which *see* M Olmedo Cuevas (2015), "Dutch Copyright Succumbs to Aging as Exhaustion Extends to E-Books", *JIPLP*, Vol. 10, No. 1, pp. 8-10.

[27] Judgment in *Johan Deckmyn and Vrijheidsfonds VZW vs. Helena Vandersteen and Others*, C-201/13, EU:C:2014:2132; Directive 2001/29/EC of the European Parliament and of the Council of May 22, 2001 on the harmonization of certain aspects of copyright and related rights in the information society, OJ L 167, pp. 10-19; Rosati (2013), *op. cit. Infopaq International A/S vs. Danske Dagblades Forening*, C-5/08, EU:C:2009:465, para 27; *Padawan SL vs. Sociedad General de Autores y Editores de España* (SGAE), C-467/08, EU:C:2010:620, para 32; *DR and TV2 Danmark A/S vs. NCB—Nordisk Copyright Bureau*, C-510/10, EU:C:2012:244, para 33; R Jacob (2014), "Parody and IP Claims: A Defence?", in R Cooper Dreyfuss and J C Ginsburg (Eds.), *Intellectual Property at the Edge, The Contested Contours of IP*, pp. 427-440, CUP, p. 431, arguing that "when it comes to parody 'the genre' has no rules, making legislation immensely difficult. Parody ranges from the downright brutally offensive to the respectful hommage."

[28] Opinion of Advocate Pedro Cruz Villalón in *Johan Deckmyn and Vrijheidsfonds VZW vs. Helena Vandersteen and Others*, C- 201/13, EU:C:2014:458.

[29] *Nintendo Co. Ltd. and Others vs. PC Box Srl and 9Net Srl*, Case C-355/12, January 23, 2014. Opinion of Advocate General Eleanor Sharpston in *Nintendo Co. Ltd. and Others vs. PC Box Srl and 9Net Srl*, Case C-355/12, September 19, 2013.

[30] Directive 2001/29/EC of the European Parliament and of the Council of May 22, 2001 on the harmonization of certain aspects of copyright and related rights in the information society, OJ L 167, June 22, 2001.

[31] *InfoSoc Directive Peter Pinckney vs. KDG Mediatech AG*, Case C-170/12, [not yet published], October 3, 2013; *Hi Hotel HCF SARL vs. Uwe Spoering*, Case C-387/12 [not yet published], April 3, 2014.

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in the production of different categories of works, which means that the InfoSoc Directive envisages the protection of all intellectual creations by the same reproduction right.[32]

Is the present system of copyright exceptions at EU level still suitable? The InfoSoc Directive did not manage to successfully harmonize copyright exceptions beyond a specific extent since there was no political consent among EU lawmakers about the acts and uses that should have been exempted from copyright's scope, above all in the digital surroundings. The 2001 Directive did not make its exhaustive list of exceptions and limitations mandatory for member states. The concept of fair compensation, within the meaning of Article 5(2)(b) of the InfoSoc Directive, is an autonomous concept of EU law. In *Padawan vs. SGAE,*[33] the CJEU simply held that fair compensation should be designed on the grounds of the criterion of the harm caused to authors of protected works by the introduction of the private copying exception.

Hardware-based levies are no longer desirable because new models of content distribution are developing rapidly and cloud computing is revolutionizing consumers' copying habits.[34] Hardware and device manufacturers promoted the accomplishment of alternative forms of fair compensation assuring rights-holder revenues in the long run and a well-functioning ecosystem for creativity. To that extent, the development and diffusion of broadband cyberspace access services and of cloud-based platforms have made it easy for both large-scale copyright infringers and unauthorized users to retrieve content made available through cyber lockers and other web-based platforms. This new copyright infringement has extended its negative cost on the business of creative industries aiming at areas such as the film industry, that "piracy" had not influenced considerably before the advent of broadband cyberspace and of Cloud computing. In *L'Oréal vs. eBay,*[35] the CJEU shed light on the intricate interaction of online enforcement measures and of the liability exemption that the law grants to hosting service providers. The online operator benefitted from the safe harbor provision in so far as it confined itself to providing that service neutrally by a simple technical and automatic processing of the content provided by its customers. To that extent, the exemption should not apply when the online intermediary plays an *active role* that would imply knowledge of (or control over) such content.

Would they have expected the installation of permanent filtering systems or technologies by ISPs and social network operators? Member states and national courts cannot impose on online intermediaries general obligations to monitor the content they store or transmit.[36] The CJEU has held that, in granting online enforcement measures, the protection of IP should be reasonable against the protection of fundamental rights of persons and firms that unlimited filtering measures would without doubt influence.[37] Moreover, EU law obliges member states to

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[32] *Infopaq International A/S vs. Danske Dagblades Forening*, Case C-5/08 [2009] I-06569; UK Copyright Designs and Patents Act 1988 (CDPA).

[33] *Padawan SL vs. Sociedad General Autores y Editores de Espana (SGAE)*, C-467/08, October 21, 2010.

[34] *Stichting de Thuiskopie vs. Opus Supplies Deutschland GmbH*, C-462/09, June 16, 2011.

[35] *L'Oréal vs. eBay International*, C-324/09, July 12, 2011.

[36] Article 15 of the Electronic Commerce Directive.

[37] *Promusicae vs. Telefonica*, C-275/06, January 29, 2008; *Scarlet Extended vs. SABAM*, C-70/10, November 24, 2011; *SABAM vs. Netlog*, C-360/10, February 16, 2012.

make available that personal data can only be collected for precise, explicit and legitimate rationale and any processing should be pertinent and balanced to the objective pursued. Copyright enforcement is a legitimate reason validating the treatment of personal data.[38]

The European Court of Justice (ECJ) addressed non-traditional trademark registration and established procedures that tackle many of the concerns raised by non-traditional trademarks in the US,[39] and the EU's strict graphic representation requirement for non-traditional trademark registrations provides legal certainty and accessibility. Two initiatives combine to create EU trademark law: (1) the First Council Directive and (2) the Community Trade Mark Regulation.[40] Graphic representation ensures that the scope and nature of the mark are plainly defined and comprehensible so that searchers checking the registry can readily ascertain what is registered. The ECJ[41] requires graphic representation by "means of images, lines or characters, so that [the mark] can be precisely identified." EU trademark law acknowledges that while consumers often recognize traditional marks such as words and logos as readily indicating source, this may not be the case with colors, sounds, and scents.

Harmonized EU trademark law absorbs the role traditionally vested in national unfair competition laws by proposing broader protection of goodwill functions and growing control over "referential" (nominative) use.[42] There is a need for broad trademark rights to additionally harmonize trademark law in the EU including the combination of a general fair use clause with several more precise provisions.[43] The Parliament and the Council rejected the initial Commission proposal that sought to reduce trademark protection to the traditional understanding of trademarks as a badge of origin in cases where a sign identical with the mark is used for the same goods and services.[44] Trademark protection does not unnecessarily limit freedom of expression and competition and the Recommendation explains that at stake are not only the interests of trademark proprietors and consumers but also those of competitors. The use of the mark should only be held to infringe where it is obviously unfair.[45] As marks

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[38] Article 6 of Directive 95/46/EC of the European Parliament and of the Council of October 24, 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, *Productores de Música de España (Promusicae) vs. Telefónica de España SAU*, OJ L281/31 C-275/06, January 29, 2008.

[39] *KWS Saat AG vs. OHIM*, 2004 WL 59751 (October 21, 2004); *Shield Mark BV vs. Joost Kist H.O.D.N.*, Case C-283/01, 2004 E.T.M.R. 33; and *Sieckmann vs. Deutsches Patent- und Markenamt*, Case C-273/00, 2003 E.T.M.R. 37.

[40] First Council Directive 89/104/EEC of December 21, 1988 to Approximate to the Laws of the Member States Relating to Trade Marks, recitation 9, [1989] OJ L 40/1; Council Regulation (EC) No. 40/94 of December 20, 1993 on the Community Trade Mark, [1994] OJ L 11/1.

[41] *Sieckmann vs. Deutsches Patent und Markenamt*, 2003 E.T.M.R. 37, p. 46: "[Graphic representation] ensure[s] that infringement rights can be determined and third parties can understand, from the graphical representation, the nature of the mark"; *Shield Mark BV vs. Joost Kist H.O.D.N.*, Case C-283/01, 2004 E.T.M.R. 33, pp. 34-41; Heidelberger Bauchemie GmbH, Case C-49/02, 2004 E.T.M.R. 99, p. 13.

[42] CJEU, June 18, 2009, case C-487/07, L'Oréal/Bellure, para. 58.

[43] AG Poiares Maduro, Opinion of September 22, 2009, cases C-236/08-238/08, Google France and Google/Louis Vuitton *et al.*, para. 102.

[44] European Commission, March 27, 2013, COM (2013) 161 final, 2013/0088 (COD).

[45] G B Dinwoodie (2009), "Lewis & Clark Law School Ninth Distinguished IP Lecture: Developing Defenses in Trademark Law", *Lewis and Clark Law Review*, Vol. 13, No. 1, pp. 99, 152: "However, as the scope of trademark protection expands and the metes and bounds of protection become more uncertain, we cannot rely exclusively on creative interpretation of the prima facie cause of action to establish limits. Trademark law must more consciously develop defenses that reflect the competing values at stake in trademark disputes."

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serve to indicate their commercial origin so as to channel the flow of revenues procured on the market back to their proper commercial source, they are not considered as interfering with competition on the production level, which means that competitors are free to offer exactly the same product, if only they use a different mark for indicating origin.[46] Marks consisting of the shapes of goods are not to be treated differently from other marks.[47] Shapes are the only form of signs that are subject to an absolute and enduring exclusion from protection in order to safeguard competition interests.[48] According to Article 6 of the EU Directive, the scope of the right is limited so as to preserve its essential function of a trademark, being to act as a guarantee of origin.[49]

Knowledge Management and IPR

It has to be taken into account that the evaluation of communication outcomes has to be considered, which means that there is a need for becoming more managerial in communications and assimilating the communication function into general management processes. Knowledge management is central to the development of organizations, regions and states, and there is a need for protecting the same by IP laws when transformed from intangible to tangible assets. Thus, there is a connection between Knowledge Management (KM) and IP. To that extent, states with weak protection of IPR have to expand measures for stimulating protection of IP besides permitting technological development and so boosting marketing, inventions and innovations.[50]

Literature Review

Ferrantino[51] shows that MNEs prefer to establish production where IPRs are well established and US companies have higher transfer exports to its affiliates in countries that do not safeguard IPR probably in an effort to hide production technology. Glass and Saggi[52] assumed that stronger IPR would elevate imitation costs, tending to weaken technology flows and global innovation.

Lai,[53] and Yang and Maskus[54] used endogenous growth models to demonstrate that protecting IPR benefits the South by boosting the flow of technology to the South. The

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46 CJEU Case C-205/13—*Hauck vs. Stokke*. The General Court's decision in Case T450/09 – *Simba Toys vs. OHIM* (concerning trademark protection for a three dimensional puzzle in the shape of Rubik's cube).

47 CJEU Joined Cases C-53/01 and C-55/01—*Linde, Winward and Rado vs. DPMA* (concerning the shapes of a fork-lift truck, a torchlight, and a wristwatch).

48 CJEU Joined Cases C-108/97 and C-109/97—*Windsurfing Chiemsee vs. Huber and Attenberger*, para 26.

49 *Arsenal Football Club plc vs. Matthew Reed*, Case C-206/01, [2002] IPLR 32 and *Sykes Enterprises Inc. vs. OHIM*, Case T- 130/01, [2003] IPLR 1.

50 Matthew W Ragas and Ron Culp (2014), *Business Essentials for Strategic Communicators: Creating Shared Value for the Organization and its Stakeholders*, Palgrave McMillan, New York.

51 M J Ferrantino (1993), "The Effect of Intellectual Property Rights on International Trade and Investment", *Weltwirtschaftliches Archiv*, Vol. 129, No. 2, pp. 300-331.

52 Amy Glass and Kamal Saggi (2002), "Intellectual Property Rights and Foreign Direct Investment", *Journal of International Economics*, Vol. 56, No. 2, pp. 387-410.

53 L C Edwin Lai (1998), "International Intellectual Property Rights Protection and the Rate of Product Innovation", *Journal of Development Economics,* Vol. 55, No. 1, pp. 133-153.

54 Guifang Yang and Keith E Maskus (1998), "Intellectual Property Rights and Licensing: An Econometric Investigation", Working Paper No. 98-34, Center for Economic Analysis, Department of Economics, University of Colorado, Boulder.

TRIPS agreement solves the collective action problem by requiring all of the member nations to have strong IP protection. The South is forced to recognize the TRIPS agreement as part of the World Trade Organization (WTO) because of the promise of liberalization in the area where the North's protection remains high. Finally, stronger IPR protection in the South, such as the adoption and implementation of the TRIPs agreement, leads to an enduring increase in the rate of technology transfer to the South within MNEs and a stable increase in adaptive R&D spending in the South by MNEs. These two effects are linked because the increase in adaptive R&D spending is what drives the rise in the rate of technology transfer within MNEs. Stronger IPR protection in the South leads to an interim increase in the Northern innovation rate and an enduring decrease in the North-South wage gap.

On the one hand, a number of works have dealt with the role of IPR in FDI inflows. To that extent, Tanaka *et al.*[55] argued that getting higher patent protection in the South enhances FDI. Lesser,[56] and Lee and Mansfield,[57] and Smarzynska[58] found an optimistic result of IPR on FDI. Nunnenkamp and Spatz[59] investigated the IPR-FDI link using sectorally disaggregated FDI data for a large sample of host countries and found that stronger IPR protection played a positive role in attracting FDI. The IPR/FDI relationship with strengthened patent protection was prevalent for those countries where IPR regimes are weakest, but overall robustly correlated.[60] In the presence of FDI, Parello[61] illustrated that no northern producer will take on FDI when the stage of local skill is very low and the cost of human capital is very high and consequently increasing IPR protection is unproductive in attracting foreign technology through FDI. Braga and Fink[62] explained that IP protection influences foreign investment in two negative ways: "First, stronger IPR protection provides title holders with increased market power and could, at least theoretically, cause firms to actually divest and reduce their service to foreign countries. Second, higher levels of protection may cause [transnational corporations] to switch their preferred mode of delivery from foreign production to licensing." The economic literature on the relationship between IPR protection and economic development falls into two wide categories—one theoretical and one empirical. The theoretical literature comes together on distinguishing the feasible ways by which a developing state's

55 Hitoshi Tanaka, Tatsuro Iwaisako and Koichi Futagami, "A Welfare Analysis of Global Patent Protection in a Model with Endogenous Innovation and Foreign Direct Investment", Discussion Paper 09-24, Graduate School of Economics and Osaka School of International Public Policy (OSIPP).

56 W Lesser (2002), "The Effects of Intellectual Property Rights on Foreign Direct Investment and Imports in Developing Countries", *IP Strategy Today,* No. 4, pp. 1-16.

57 J Y Lee and E Mansfield (1996), "Intellectual Property Protection and US Foreign Direct Investment", *The Review of Economics and Statistics*, Vol. 78, No. 2, pp. 181-186.

58 B J Smarzynska (2004), "The Composition of Foreign Direct Investment and Protection of Intellectual Property Rights: Evidence from Transition Economies", *European Economic Review*, Vol. 48, No. 1, pp. 39-62.

59 Peter Nunnenkamp and Julius Spatz (2004), "Intellectual Property Rights and Foreign Direct Investment: A Disaggregated Analysis", *Weltwirtschaftliches Archiv*, Vol. 140, No. 3, pp. 393-414.

60 World Investment Report 2014, UNCTAD, available at www.unctad.org

61 C P Parello (2008), "A North-South Model of Intellectual Property Rights Protection and Skill Accumulation", *Journal of Development Economics,* Vol. 85, Nos. 1&2, pp. 253-281.

62 C A Primo Braga and C Fink (1998), "The Relationship Between Intellectual Property Rights and Foreign Direct Investment", *Duke J. Comp & Int'l L*, Vol. 9, pp. 163, 164.

IPR protection rule influences economic welfare[63] considering the costs and benefits of introducing or increasing IPR protection. The empirical literature quantifies the consequence of IPR protection on a range of measures of economic performance, such as GDP growth, Total Factor Productivity (TFP), FDI, innovation, and international trade.[64] Empirical evidence points out that the escalation of IPR protection has a positive outcome on FDI inflows.[65] The following econometric analysis will indicate IPR's impact on FDI inflows/outflows.

Data and Methodology

A large sample of 79 countries has been assembled for Zekos' research[66] in producing IPR indexes. All the national laws in force at the end of 2012 of the 79 investigated jurisdictions have been examined and used in the rating of the various factors considered in constructing the *zekipr6* index.[67] It is worth mentioning that the construction of our IPR indices relies on: (a) Membership in IPR International Treaties, (b) Patent rights, (c) Copyrights, (d) Trademark rights, and (e) Legal System and Property Rights Rating (Rank) of countries. To that extent, based on the national laws in force at the end of 2012, 28 investigated EU jurisdictions have been examined and used in the rating of the various factors taken into account in constructing *zekeuipr1*, *zekeuipr2*, *zekeuipr4*, *zekeupat1*, *zekeucopy1*, *zekeumark1* indices concerning IPR protection in the EU.

- *Zekeuipr1* = Membership in International Treaties + Index of Patent Rights + Index of Copyrights + Index of Trademark Rights + Enforcement Legal Rating (Legal Tradition (Rule of Law) + Legal Education + Economic Level) Enforcement Legal Rating (Legal Tradition (Rule of Law) + Legal Education + Economic Level) is made according to this author's evaluation.

- *Zekeupat1* = Index of Patent Rights + Enforcement Legal Rating (Legal Tradition (Rule of Law) + Legal Education + Economic Level)

- *Zekeucopy1* = Index of Copyright + Enforcement Legal Rating (Legal Tradition (Rule of Law) + Legal Education + Economic Level)

[63] Judith C Chin and Gene M Grossman (1988), "Intellectual Property Rights and North-South Trade", NBER Working Paper Series No. 2769, National Bureau of Economic Research, November, Cambridge (the theoretical literature takes into account a globe with a technologically developed "North" and a less technologically developed "South" based on the hypothesis that the North innovates and the South imitates the Northern technologies); and R Rapp and R Rozek (1990), "Benefits and Costs of Intellectual Property Protection in Developing Countries", *Journal of World Trade*, Vol. 24, No. 5, pp. 75-102.

[64] Walter G Park and Juan Carlos Ginarte (1997), "Intellectual Property Rights and Economic Growth", *Contemporary Economic Policy*, Vol. 15, No. 3, pp. 51-61 (utilizing their patents IPR index estimated that IPR protection was a noteworthy determinant).

[65] Nunnenkamp *et al.* (2004).

[66] Zekos (2012), *op. cit.*; Zekos (2013a), *op. cit.*; and Zekos (2016), *op. cit.*

[67] Zekos (2013b), *op. cit.*; G Zekos (2016), "Cyberspace and IPRs Stimulus on Foreign Direct Investment in the European Union", *Journal of Internet Law*, Vol. 20, No. 6, pp. 3-29, Wolters Kluwer, available at www.wrightsmedia.com; and G Zekos (2016), "Competitiveness Versus IPRs Concerning FDI Inflows, GDP and Trade: Linear and Nonlinear Analysis", *The IUP Journal of Business Strategy*, Vol. 13, No. 4, pp. 7-35, available at http://www.iupindia.in/Business_Strategy.asp

- *Zekeumark1* = Index of Trademark Rights + Enforcement Legal Rating (Legal Tradition (Rule of Law) + Legal Education + Economic Level)

Moreover, in order to have not only this author's estimation concerning the enforcement of IPR laws, an additional evaluation of the real enforcement of IPR protection, a comprehensive *de jure* evaluation, was also done utilizing the Legal and Political Environment (LP) component of the International Property Rights Index prepared by Property Rights Alliance (PRA). Judicial Independence, Rule of Law, Political Stability, and the Control of Corruption are the sub-components constituting the Legal and Political Environment (LP) that shows the environment in which the national laws on IPR are applicable and enforceable. As a result, our index is reformed as follows:

- *Zekeuipr2* = Membership in International Treaties + Index of Patent Rights + Index of Copyrights + Index of Trademark Rights + Enforcement Rating [LP (Judicial Independence + Rule of Law + Political Stability + Control of Corruption)] (International Property Rights Index 2012 Report)).

- *Zekeuipr4* = Membership in International Treaties + Index of Patent Rights + Index of Copyrights + Index of Trademark Rights + Legal System and Property Rights Rating (Rank) of countries [Economic Freedom of the World: 2014 Annual Report, Area Economic Freedom Ratings (Rankings) for 2012].

It is worth mentioning here that changes in IPR national laws of the examined jurisdictions and rating of the examined legal systems will bring changes in the index (*zekipr*[68]—*zekeuipr1*, *zekeuipr2*, *zekeuipr4*) and so it is feasible to have regularly updated *zekipr/zekeuipr* indexes. Successful protection of IPR depends both on the existence of IP protection laws and the enforcement of the laws. The changeability of legal theory and the new laws coming into force influence the outcome and consequently our indexes.

Our main IPR Index is formed by the combination of the following parts: *zekipr* = Index of Membership in IPR International Treaties + Index of Patent Rights + Index of Copyrights + Index of Trademark Rights + Legal System and Property Rights Rating (Rank) of Countries. The way that our indexes are constructed allows us to compose sub-indexes by merely removing the fifth part concerning the rating of the examined legal systems.

The fifth part of the *zekipr1* index concerns the rule of law in practice. Moreover, the recent Legal System and Property Rights Rating (Rank) of countries[69] brings forward the rating of the examined countries in 2012 and so all the data is taken into account in order to construct our indices referring to 2012.

Therefore, all future changes in IP laws and their enforcement environment will continue to cause an alteration to our indices, which means a need for nonstop updating of the IPR indices, and so based on the national laws in force at the end of 2014 in the 28 investigated EU jurisdictions, we have constructed *zekeuipr3*.

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[68] *Ibid.*

[69] Economic Freedom of the World: 2014 Annual Report, Area Economic Freedom Ratings (Ranks), 2014.

- *Zekeuipr3* = Membership in International Treaties + Index of Patent Rights + Index of Copyrights + Index of Trademark Rights + Enforcement Rating [LP (Judicial Independence + Rule of Law + Political Stability + Control of Corruption)] [International Property Rights Index (IPRI) 2014 Report].

  It is worth mentioning that some countries are not in 2014 IPRI and so their ranks are taken from 2013 IPRI.

A linear model is in the form:

$$Y_i = \beta_0 + \sum_{j=1}^{p} \beta_j X_{i,j} + \varepsilon_i$$

where for the ith case, Y_i is the response variable, $X_{i,1}, ..., X_{i,p}$ are p regressors, and ε_i is the mean zero error term. The quantities $b_0, ..., b_p$ are unknown coefficients, whose values are determined by least squares.

In detail, the following are the econometric models that are used in our investigation in order to find out the impact of IPR and GCI upon attracting FDI inflows-FDI outflows, trade and GDP growth:

- $FDI_{it} = b_0 + b_1 zekeuipr1/zekeuipr2/zekeuipr4/Zekeuipr3_{it} + b_2 Trade_{it} + b_3 Inflation_{it}$
  $+ b_4 GDPGR_{it} + u_{it}$ ...(1)

- $Trade_{it} = b_0 + b_1 zekeuipr1/zekeuipr2/zekeuipr4_{it} + b_2 GDPGR_{it} + b_3 Inflation_{it} + u_{it}$ ...(2)

- $GDPGR_{it} = b_0 + b_1 zekeuipr1/zekeuipr2/zekeuipr4 + b_2 Trade_{it} + b_3 Inflation_{it}$
  $b_4 FDI_{it} + u_{it}$ ...(3)

- $GDPGR_{it} = b_0 + b_1 zekeuipr1/zekeuipr2/zekeuipr4 + b_2 Trade_{it} + b_3 Inflation_{it} + u_{it}$ ...(3a)

- $FDI_{it} = b_0 + b_1 GCI_{it} + b_2 Trade_{it} + b_3 Inflation_{it} + b_4 GDPGR_{it} + u_{it}$ ...(4)

In the above models, i denotes the ith individual country and t denotes the tth time period. The analysis is focused on FDI inflows. FDI inflows in 2012=US dollars at current prices and current exchange rates in millions (2012 UNCTADstat). b_0 is the intercept and (*GDPGR* 2012 = GDP growth (annual %) (2012 World Bank), *INF*2012 = Inflation, consumer prices (annual %) (2012 World Bank), *TRADE*2012 = Trade (% of GDP) (2012 World Bank and GCI). Using the Global Competitiveness Index 2011-2012 (GCI) are the explanatory variables.

It is worth mentioning that GDP refers to the market value of all final goods and services produced within a country in a given period. Global FDI has grown faster than world GDP partly as a result of policy changes in recipient countries. Inflation (macro stability) is known to be negatively associated with FDI in the pull factors literature.[70] A negative correlation

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[70] S Lin and H Ye (2009), "Does Inflation Targeting Make a Difference in Developing Countries?", *Journal of Development Economics*, Vol. 89, No. 1, pp. 118-123.

between interest rate and OFDI exists, given that comparatively low interest rates associated with a country's capital abundance decrease the opportunity cost of capital and augment the profitability of investments abroad. Predictions about the relationship between FDI and trade critically depend on whether FDI is vertical or horizontal. Theories on horizontal FDI[71] foresee a negative relationship, whereas theories on vertical FDI[72] foresee a positive relationship. On the other hand, the relationship between trade and FDI is not a straightforward one. While trade connected with cross-border vertical integration may enhance the outflow of FDI by providing incentives of cost reduction, intra-industry trade may inhibit FDI that is seeking economies of scale.[73]

Results and Discussion

Linear Results

Our analysis begins by utilizing a linear investigation. The analysis of the data utilizing our econometric models gives the following results.

We start our investigation with model 1 ($FDI_{it} = b_0 + b_1 zekeuipr1/zekeuipr2/zekeuipr4/zekeuipr3_{it} + b_2 Trade_{it} + b_3 Inflation_{it} + b_4 GDPGR_{it} + u_{it}$) using OLS standardized coefficients or beta coefficients and the results (Coef. 7.45***, 7.49***, 7.55***, 8.04***) show the significance of *zekeuipr3, zekeuipr4, zekeuipr2* and *zekeuipr1* for the five years reference regarding FDI, net outflows (% of GDP) (Table 1) indicating the significance of IPRs for the short-term reference impact on causing FDI outflows. It is worth mentioning here that the *zekeuipr3, zekeuipr4, zekeuipr2, zekeuipr1* beta regarding FDI outflows are 0.5777941, 0.5300298, 0.5540649, 0.6514587.

We continue our investigation with model 1 ($FDI_{it} = b_0 + b_1 zekeuipr1/zekeuipr2/zekeuipr4/zekeuipr3_{it} + b_2 Trade_{it} + b_3 Inflation_{it} + b_4 GDPGR_{it} + u_{it}$) using OLS robust standard errors and the results (Coef. 4.43***, 3.72*, 3.95**, 3.92**) show the significance of *zekeuipr1, zekeuipr2, zekeuipr4* and *zekeuipr3* for the five years reference regarding FDI, net inflows (% of GDP) (Table 2) indicating the significance of IPRs for the short-term reference impact on attracting FDI inflows employing robust standard errors that show a higher significance of *zekeuipr1, zekeuipr2, zekeuipr4, zekeuipr3* rather than under standard errors (Coef. 4.43***, 3.72*, 3.95**, 3.92**).

We maintain our investigation with model 1 ($FDI_{it} = b_0 + b_1 zekeuipr1/zekeupat1/zekeucopy1/zekeumark1_{it} + b_2 Trade_{it} + b_3 Inflation_{it} + b_4 GDPGR_{it} + u_{it}$) using OLS standardized coefficients or beta coefficients and the results (Coef. 4.43**, 4.75*, 4.94, 5.32*) show the significance of *zekeuipr1, zekeupat1, zekeucopy1* and *zekeumark1* for the five years reference regarding FDI, net inflows (% of GDP) (see Table 3) indicating the significance of IPRs for the short-term reference impact on causing FDI inflows.

[71] J Markusen (1984), "Multinationals, Multi-Plant Economies, and the Gains from Trade", *Journal of International Economics*, Vol. 16, Nos. 3&4, pp. 205-226.

[72] E Helpman (1984), "A Simple Theory of International Trade with Multinational Corporations", *Journal of Political Economy*, Vol. 92, No. 3, pp. 451-471.

[73] B N Goldar and R Banga (2005), "Impact of Trade Liberalization on Foreign Direct Investment in Indian Industries", ARTNeT Working Paper Series, No. 36, June.

Table 1: FDI Outflows OLS Model 1 – Beta Coefficients				
Variables	*logfdiout5yav*	*logfdiout5yav*	*logfdiout5yav*	*logfdiout5yav*
zekeuipr3	7.45*** (1.651)			
gdpgr5y	0.04 (0.190)	0.10 (0.198)	0.06 (0.196)	0.18 (0.169)
trade5y	0.00 (0.005)	0.00 (0.005)	–0.00 (0.005)	0.00 (0.005)
inf5y	–0.79** (0.243)	–0.95*** (0.242)	–0.82** (0.250)	–0.81*** (0.212)
zekeuipr4		7.49*** (1.835)		
zekeuipr2			7.55*** (1.791)	
zekeuipr1				8.04*** (1.424)
Constant	–20.54* (7.347)	–20.32* (8.067)	–20.79* (7.920)	–23.57** (6.423)
Observations	28	28	28	28
R^2	0.70	0.68	0.69	0.77
Adj. R^2	0.65	0.62	0.63	0.73
Note: Standard errors in parentheses; *** $p < 0.001$; ** $p < 0.01$; and * $p < 0.05$.				

Based on the World Bank data till 2013 concerning our variables, we keep on our investigation with model 1 ($FDI_{it} = b_0 + b_1 zekeuipr1/zekeuipr2/zekeuipr4/zekeuipr3_{it} + b_2 Trade_{it} + b_3 Inflation_{it} + b_4 GDPGR_{it} + u_{it}$) using OLS robust standard errors together with beta coefficients and the results (Coef. 4.22*, 5.10**/4.22, 5.10**) show the significance of *zekeuipr3* for the 2013 reference and the five years reference regarding FDI, net inflows (% of GDP) (Table 4) indicating the significance of IPRs for the short-term reference impact on attracting FDI inflows. Moreover, employing robust standard errors regression shows a higher significance of *zekeuipr3*, rather than under standard errors. It is worth mentioning here that the *zekeuipr3*, beta regarding FDI inflows are (0.4991109, 0.5507342) concerning the 2013 and the five years reference respectively.

Figure 1 presents partial regression plot showing the value of the variables in the econometric model.

Linear Results Regarding GDP Growth and Trade

We continue our investigation with model 2 ($Trade_{it} = b_0 + b_1 zekeuipr1/zekeuipr2/zekeuipr4_{it} + b_2 GDPGR_{it} + b_3 Inflation_{it} + u_{it}$) and model 3 ($GDPGR_{it} = b_0 + b_1 zekeuipr1/zekeuipr2/zekeuipr4 + b_2 Trade_{it} + b_3 Inflation_{it} + b_4 FDI_{it} + u_{it}$) using OLS standardized coefficients or beta

<table>
<tr><th colspan="5">Table 2: FDI Inflows OLS Model 1 – Robust Coefficients</th></tr>
<tr><th>Variables</th><th>logfdiin5y</th><th>logfdiin5y</th><th>logfdiin5y</th><th>logfdiin5y</th></tr>
<tr><td>zekeuipr1</td><td>4.43***
(1.049)</td><td></td><td></td><td></td></tr>
<tr><td>gdpgr5y</td><td>0.26*
(0.118)</td><td>0.19
(0.130)</td><td>0.21
(0.134)</td><td>0.19
(0.132)</td></tr>
<tr><td>trade5y</td><td>0.00
(0.003)</td><td>0.00
(0.004)</td><td>0.00
(0.004)</td><td>0.00
(0.004)</td></tr>
<tr><td>inf5y</td><td>–0.19
(0.163)</td><td>–0.22
(0.160)</td><td>–0.27
(0.145)</td><td>–0.19
(0.158)</td></tr>
<tr><td>zekeuipr2</td><td></td><td>3.72*
(1.460)</td><td></td><td></td></tr>
<tr><td>zekeuipr4</td><td></td><td></td><td>3.95**
(1.368)</td><td></td></tr>
<tr><td>zekeuipr3</td><td></td><td></td><td></td><td>3.92**
(1.289)</td></tr>
<tr><td>Constant</td><td>–9.60
(4.745)</td><td>–6.09
(6.368)</td><td>–7.00
(5.965)</td><td>–7.09
(5.676)</td></tr>
<tr><td>Observations</td><td>28</td><td>28</td><td>28</td><td>28</td></tr>
<tr><td>R^2</td><td>0.46</td><td>0.35</td><td>0.37</td><td>0.39</td></tr>
<tr><td>Adj. R^2</td><td>0.37</td><td>0.24</td><td>0.26</td><td>0.28</td></tr>
<tr><td colspan="5">Note: Robust standard errors in parentheses; *** $p < 0.001$; ** $p < 0.01$; and * $p < 0.05$.</td></tr>
</table>

<table>
<tr><th colspan="5">Table 3: FDI Inflows OLS Model 1 – Beta Coefficients</th></tr>
<tr><th>Variables</th><th>logfdiin5y</th><th>logfdiin5y</th><th>logfdiin5y</th><th>logfdiin5y</th></tr>
<tr><td>zekeuipr1</td><td>4.43**
(1.292)</td><td></td><td></td><td></td></tr>
<tr><td>gdpgr5y</td><td>0.26
(0.154)</td><td>0.23
(0.173)</td><td>0.22
(0.173)</td><td>0.23
(0.172)</td></tr>
<tr><td>trade5y</td><td>0.00
(0.004)</td><td>–0.00
(0.005)</td><td>–0.00
(0.005)</td><td>–0.00
(0.004)</td></tr>
<tr><td>inf5y</td><td>–0.19
(0.192)</td><td>–0.11
(0.257)</td><td>–0.10
(0.259)</td><td>–0.08
(0.259)</td></tr>
<tr><td>zekeupat1</td><td></td><td>4.75*
(2.297)</td><td></td><td></td></tr>
<tr><td>zekeucopy1</td><td></td><td></td><td>4.94
(2.395)</td><td></td></tr>
</table>

Table 3 (Cont.)

Variables	*logfdiin5y*	*logfdiin5y*	*logfdiin5y*	*logfdiin5y*
zekeumark1				5.32* (2.437)
Constant	–9.60 (5.830)	1.48 (4.306)	1.17 (4.475)	0.42 (4.564)
Observations	28	28	28	28
R^2	0.46	0.31	0.31	0.33
Adj. R^2	0.37	0.19	0.19	0.21
Note: Standard errors in parentheses; *** $p < 0.001$; ** $p < 0.01$; and * $p < 0.05$.				

Table 4: FDI Inflows OLS Model 1 – Robust Coefficients/Beta Coefficients				
Variables	*logfdiif2013*	*logfdiif5y*	*logfdiif2013*	*logfdiif5y*
zekeuipr3	4.22* (1.766)	5.10** (1.420)	4.22 (2.176)	5.10** (1.738)
gdp2013	–0.04 (0.248)		–0.04 (0.296)	
inf2013	–0.11 (0.295)		–0.11 (0.294)	
tr2013	0.00 (0.004)		0.00 (0.005)	
gdp5y		0.17 (0.241)		0.17 (0.234)
inf5y		–0.20 (0.276)		–0.20 (0.334)
tr5		0.00 (0.006)		0.00 (0.006)
Constant	4.78 (7.094)	1.19 (6.324)	4.78 (9.144)	1.19 (7.573)
Observations	18	26	18	26
R^2	0.23	0.37	0.23	0.37
Adj. R^2	0.00	0.25	0.00	0.25
Note: Robust standard errors in parentheses; *** $p < 0.001$; ** $p < 0.01$; and * $p < 0.05$.				

coefficients and the results (Coef. –95.52, –67.07, –91.66/–2.48, –0.58, –1.19) show the significance of *zekeuipr1, zekeuipr2, zekeuipr4* for the five years reference regarding trade and GDP growth, respectively. It is worth mentioning here that the *zekeuipr1, zekeuipr2, and zekeuipr4* beta regarding trade and GDP growth, respectively are (–0.3337756, –0.2120368, –0.2795567/ –0.3311775, –0.069573, –0.1387314). Furthermore, we extend our investigation with model 2 and model 3 using OLS robust standard errors and the results (Coef. –95.52**,

Figure 1: Partial Regression Plots of the Model
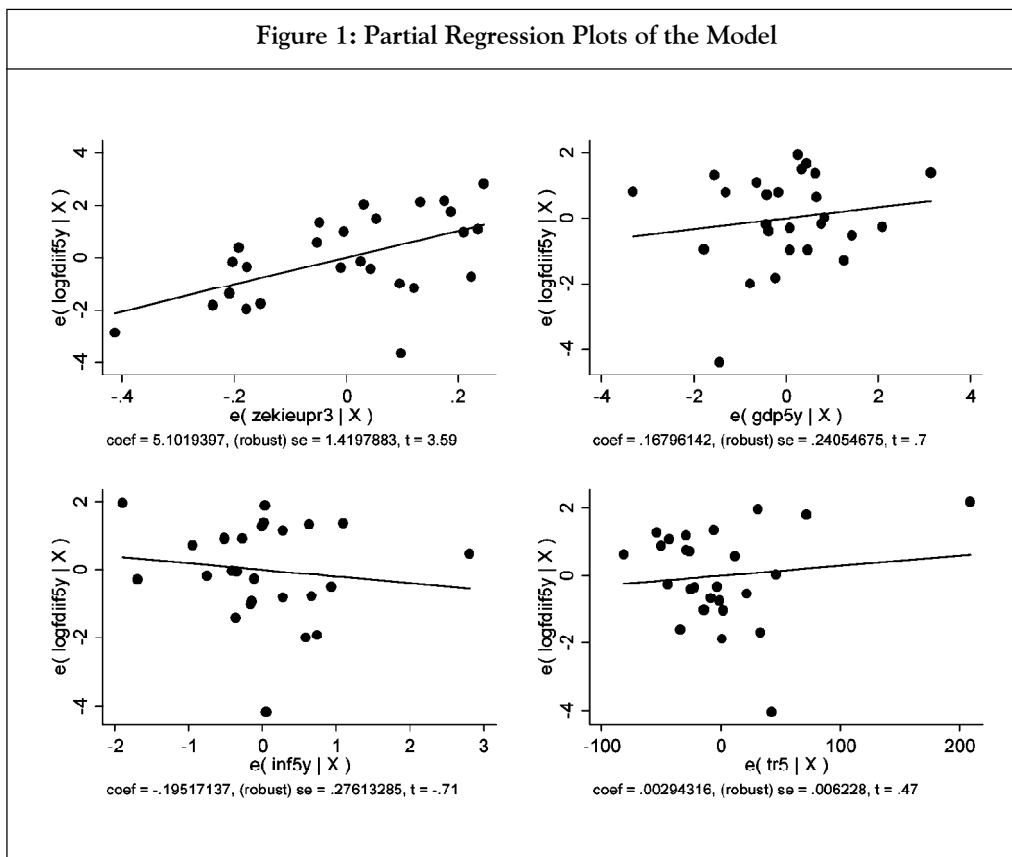
–67.07, –91.66/–2.48, –0.58, –1.19) point out the significance of *zekeuipr1, zekeuipr2, zekeuipr4* for the five years reference regarding trade and GDP growth respectively (see Table 5).

We continue our investigation with model 2 and model 3a $(GDPGR_{it} = b_0 + b_1 zekeuipr1/$ $zekeuipr2/zekeuipr4 + b_2 Trade_{it} + b_3 Inflation_{it} + u_{it})$ using OLS standardized coefficients or beta coefficients and the results (Coef. –79.01, –48.40, –74.84/–1.10, –0.67, –0.67) show the significance of *zekeuipr1, zekeuipr2, zekeuipr4* for the ten years reference regarding trade and GDP growth, respectively. Besides, it seems that inflation is significant variable for the GDP growth (Coef. 0.41*, 0.43*, 0.45**). It is worth mentioning here that the *zekeuipr1, zekeuipr2,* and *zekeuipr4* beta regarding trade and GDP growth, respectively are (–0.2902496, –0.1608617, –0.2399489/–0.1652964, –0.0915834, –0.0878882) (see Table 6).

Nonlinear Results

Table 7 presents the value of *zekeuipr3* which is used in our nonlinear investigation.

FDI Inflows OLS Model 1/Zekeuipr3 25%/75%, Beta Coefficients

The investigation continues with model 1 using OLS standardized coefficients or beta coefficients. The results show that *zekeuipr3* for a value of *zekeuipr3* <25%/>25% are 14.26 and 3.13 and for a value of *zekieupr3* <75%/>75% (Coef. 3.46, 11.52) with reference to ten

Table 5: Inflows OLS Model 2/Model 3 – Robust Standard Errors						
Variables	*trade5y*	*trade5y*	*trade5y*	*gdpgr5y*	*gdpgr5y*	*gdpgr5y*
zekeuipr1	−95.52** (33.881)			−2.48 (1.947)		
inf5y	−5.92 (7.645)	−4.42 (8.490)	−4.33 (7.938)	0.09 (0.224)	0.14 (0.256)	0.14 (0.234)
gdpgr5y	5.11 (6.391)	6.82 (6.454)	6.25 (6.836)			
zekeuipr2		−67.07 (46.316)			−0.58 (2.662)	
zekeuipr4			−91.66 (45.902)			−1.19 (2.773)
trade5y				0.00 (0.006)	0.00 (0.006)	0.00 (0.006)
logfdiin5y				0.42 (0.205)	0.28 (0.183)	0.31 (0.190)
Constant	534.45** (151.337)	408.52 (203.559)	510.13* (202.247)	6.03 (8.114)	−1.14 (11.654)	1.19 (11.909)
Observations	28	28	28	28	28	28
R^2	0.12	0.07	0.10	0.14	0.09	0.10
Adj. R^2	0.02	−0.05	−0.01	−0.01	−0.07	−0.06
Note: Robust standard errors in parentheses; ** $p < 0.01$; and * $p < 0.05$.						

years average inflows of FDI, net inflows (see Table 8). It is worth mentioning here that the *zekeuipr3* betas regarding FDI are 2.162022, 0.3139155/0.4262011, 0.6087713.

FDI Inflows OLS Model 1/Zekeuipr1 25%/75%, Beta Coefficients
Table 9 shows the value of *zekeuipr1* which is used in our nonlinear investigation.

The investigation continues with model 1 using OLS standardized coefficients or beta coefficients and the results show that *zekeuipr1* for a value of *zekeuipr1* <25%/>25% (Coef. 1.74, 5.69*) and for a value of *zekeuipr1* <75%/>75% (Coef. 3.59*, −10.69) with reference to ten years average inflows of FDI, net inflows (see Table 10). It is worth mentioning here that the *zekeuipr1* betas regarding FDI are 0.2617413, 0.6088855/0.48089, −0.4545054. It is also worth mentioning the significance of the level of IPR protection.

FDI Outflows OLS Model 1/Zekeuipr3 25%/75%, Beta Coefficients
We carry on our investigation with model 1 using OLS standardized coefficients or beta coefficients and the results show that *zekeuipr3* for a value of *zekeuipr3* <25%/>25% (Coef. 12.29, 6.17) and for a value of *zekeuipr3* <75%/>75% (Coef. 6.27**, 10.51) with reference to

Table 6: Inflows OLS Model 2/Model 3a – Beta Coefficients						
Variables	*trade10y*	*trade10y*	*trade10y*	*gdpgr10y*	*gdpgr10y*	*gdpgr10y*
zekeuipr1	−79.01 (56.810)			−1.10 (1.234)		
gdpgr10y	12.19 (9.288)	14.53 (9.308)	13.64 (9.186)			
inf10y	−8.85 (8.325)	−8.22 (8.707)	−8.01 (8.321)	0.41* (0.160)	0.43* (0.163)	0.45** (0.156)
zekeuipr2		−48.40 (63.493)			−0.67 (1.336)	
zekeuipr4			−74.84 (62.189)			−0.67 (1.355)
trade10y				0.01 (0.004)	0.01 (0.004)	0.01 (0.004)
Constant	448.24 (249.023)	311.93 (274.595)	422.57 (266.260)	4.56 (5.555)	2.59 (5.866)	2.57 (5.929)
Observations	28	28	28	28	28	28
R^2	0.17	0.13	0.16	0.37	0.36	0.36
Adj. R^2	0.07	0.02	0.05	0.29	0.28	0.28
Note: Standard errors in parentheses; ** $p < 0.01$; and * $p < 0.05$.						

Table 7: Percentiles of *Zekeuipr3*				
	Percentiles	**Smallest**		
1%	3.691773	3.691773		
5%	3.838579	3.838579		
10%	3.958647	3.958647	Observations	28
25%	4.003818	3.961084	Sum of Wgt.	28
50%	4.161809		Mean	4.155335
		Largest	Std. Dev.	0.1858844
75%	4.310786	4.372224		
90%	4.39352	4.39352	Variance	0.034553
95%	4.399541	4.399541	Skewness	−0.3571841
99%	4.498397	4.498397	Kurtosis	2.859232

Table 8: FDI Inflows OLS Model 1/*Zekeuipr3* 25%/75% – Beta Coefficients				
Variables	*logfdiin10y* (<25%)	*logfdiin10y* (>25%)	*logfdiin10y* (<75%)	*logfdiin10y* (>75%)
zekeuipr3	14.26 (5.477)	3.13 (3.021)	3.46 (1.816)	11.52 (15.972)
trade10y	0.03 (0.019)	–0.00 (0.005)	0.00 (0.005)	0.00 (0.031)
gdpgr10y	–1.10 (0.606)	0.03 (0.308)	–0.09 (0.224)	1.65 (1.739)
inf10y	–0.03 (0.303)	–0.13 (0.275)	–0.07 (0.209)	1.60 (2.110)
Constant	–49.56 (22.746)	–3.45 (13.430)	–5.55 (7.538)	–45.79 (76.338)
Observations	7	21	21	7
R^2	0.84	0.19	0.24	0.45
Adj. R^2	0.51	–0.01	0.05	–0.66

Table 9: Percentiles of *Zekeuipr1*				
	Percentiles	Smallest		
1%	3.601774	3.601774		
5%	3.986601	3.986601		
10%	4.014532	4.014532	Observations	28
25%	4.062787	4.01862	Sum of Wgt.	28
50%	4.152797		Mean	4.188952
		Largest	Std. Dev.	0.1944406
75%	4.368312	4.415082		
90%	4.419037	4.419037	Variance	0.0378071
95%	4.465059	4.465059	Skewness	–0.6387947
99%	4.506968	4.506968	Kurtosis	4.077449

ten years average regarding FDI, net outflows (see Table 11). It is worth mentioning here that the *zekeuipr3* betas regarding FDI are 1.246262, 0.3681515/0.4582141, 0.6690571. It makes clear the significance of the level of IPRs protection. In fact, a value of *zekeuipr3* >25% and <75% indicates a higher significance of *zekeuipr3* regarding FDI, net outflows. It is characteristic that the value of *zekeuipr3* <75% is higher concerning FDI outflows than inflows. It is worth mentioning here that the value of *zekeuipr3* >75% is more significant for the ten years reference than the one for five years reference value of *zekeuipr1* >75% as it is illustrated above indicating that even very high value of IPRs protection is valuable for the long-term reference.

Table 10: FDI Inflows OLS Model 1/*Zekeuipr1* 25%/75% – Beta Coefficients				
Variables	*logfdiin10y* (<25%)	*logfdiin10y* (>25%)	*logfdiin10y* (<75%)	*logfdiin10y* (>75%)
zekeuipr1	1.74 (3.658)	5.69* (2.507)	3.59* (1.603)	−10.69 (13.804)
trade10y	−0.01 (0.015)	0.00 (0.006)	0.00 (0.005)	−0.03 (0.020)
gdpgr10y	0.64 (0.463)	−0.09 (0.349)	0.04 (0.215)	1.84 (1.128)
inf10y	−0.64 (0.373)	0.03 (0.278)	−0.12 (0.186)	−0.69 (1.420)
Constant	1.88 (15.113)	−15.32 (11.296)	−6.54 (6.805)	59.46 (62.924)
Observations	7	21	21	7
R^2	0.75	0.34	0.30	0.63
Adj. R^2	0.24	0.18	0.12	−0.10

Note: Standard errors in parentheses; *** $p < 0.001$; ** $p < 0.01$; and * $p < 0.05$.

Table 11: FDI Outflows OLS Model 1/*Zekeuipr3* 25%/75% – Beta Coefficients				
Variables	*logfdiout10yav* (<25%)	*logfdiout10yav* (>25%)	*logfdiout10yav* (<75%)	*logfdiout10yav* (>75%)
zekeuipr3	12.29 (8.189)	6.17 (3.317)	6.27** (2.039)	10.51 (14.235)
trade10y	0.01 (0.029)	0.00 (0.006)	0.00 (0.006)	0.00 (0.027)
gdpgr10y	−0.88 (0.907)	−0.25 (0.338)	−0.40 (0.252)	1.23 (1.550)
inf10y	−0.37 (0.453)	−0.64* (0.302)	−0.52* (0.235)	1.09 (1.880)
Constant	−39.89 (34.009)	−15.19 (14.743)	−16.17 (8.462)	−39.30 (68.037)
Observations	7	21	21	7
R^2	0.84	0.66	0.66	0.36
Adj. R^2	0.51	0.57	0.58	−0.92

Note: Standard errors in parentheses; *** $p < 0.001$; ** $p < 0.01$; and * $p < 0.05$.

FDI Outflows OLS Model 1/*Zekeuipr1* 25%/75%, Beta Coefficients

We carry on our investigation with model 1 using OLS standardized coefficients or beta coefficients and the results show that *zekeuipr1* for a value of *zekeuipr1* <25%/>25% (Coef. 2.52, 8.92**) and for a value of *zekeuipr1* <75% />75% (Coef. 6.59**, –9.07) with reference to ten years average regarding FDI, net outflows (see Table 12). It is worth mentioning here that the *zekeuipr1* betas regarding FDI are 0.3119211, 0.3681515/0.5791633, –0.47035. It is worth mentioning that it makes clear the significance of the level of IPRs protection. In fact, a value of *zekeuipr1* >25% and <75% indicates a higher significance of *zekeuipr1* regarding FDI, net outflows.

Table 12: FDI Outflows OLS Model 1/*Zekeuipr1* 25%/75% – Beta Coefficients				
Variables	*logfdiout10yav* (<25%)	*logfdiout10yav* (>25%)	*logfdiout10yav* (<75%)	*logfdiout10yav* (>75%)
zekeuipr1	2.52 (2.538)	8.92** (2.523)	6.59** (1.700)	–9.07 (11.384)
trade10y	–0.02 (0.011)	0.01 (0.006)	0.01 (0.005)	–0.02 (0.017)
gdpgr10y	0.62 (0.321)	–0.54 (0.352)	–0.21 (0.228)	1.52 (0.930)
inf10y	–0.87 (0.259)	–0.42 (0.280)	–0.61** (0.197)	–0.97 (1.171)
Constant	–0.93 (10.488)	–28.05* (11.368)	–18.19* (7.214)	53.44 (51.892)
Observations	7	21	21	7
R^2	0.92	0.75	0.72	0.63
Adj. R^2	0.75	0.69	0.65	–0.11
Note: Standard errors in parentheses; *** $p < 0.001$; ** $p < 0.01$; and * $p < 0.05$.				

Conclusion

The above analysis of IPR allows us to understand the quantities' evaluation of IPR used in the preparation of our own IPR indices. In addition, the whole analysis of the legal background of law concerning patents, copyrights and trademarks shows a constant development of the legal regulation and enforcement of IPR, which means a nonstop alteration of an index regarding the protection of IPR. Thus, IPR protection adds to their utility as a means to attracting FDI.

It is characteristic that the significance of IPR is higher for the short-term reference rather than the one year reference. The value of IPR expressed by *zekeuipr1*/*zekeuipr3* indexes >25% and <75% is the most significant in attracting FDI, which indicates that a good level of protection is essential for the significance of IPR in the EU. Thus, IPR is a vital variable that plays a significant role in attracting FDI inwards or causing FDI outflows. Moreover, a

good and accurate IPR index allows a more accurate illustration of the significance of the role of IPR in FDI, GDP, and trade. Finally, the brief econometric analysis shows the significance of indices concerning IPR in attracting FDI inwards and outwards, GDP growth and trade concerning the EU. ∎

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