Influential Article Review - The Influence of Capital Inflows on Innovation and Economic Growth in Kenya

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This paper examines economics. We present insights from a highly influential paper. Here are the highlights from this paper: Foreign firms in Kenya have played a major role in enhancing economic growth in the agriculture sector, especially in floriculture and horticulture. Over a long period of time, foreign direct investment (FDI) has been found to create many externalities in the Kenyan economy in the form of benefits available through transfers of general knowledge, specific technologies in production and distribution, industrial upgrading, work experience for the labor force and the establishment of finance-related and trading networks, and the upgrading of telecommunications services. The purpose of this study was to address the role of foreign direct investment on technology transfer and economic growth in Kenya, with a focus on the energy sector in Nairobi focusing on the period between 2001 and 2014. This study adopted a descriptive and inferential survey design. The target population for this study was 60 senior managers composed of directors and managers from Kenya Power and Kengen. Questionnaires were used to collect primary data. The study established that there is a relationship between foreign direct investment variables of infrastructure, technology diffusion, trade facilitation, knowledge management, and technology transfer and economic growth. The study found that investment in the energy sector has led to new technology in the country as it has transferred technology to local investors through sharing of knowledge in new innovation in production, research, and development and also has led to increased competition in trading which has resulted in efficiency and effectiveness of the industry. A major implication of this study is that policy makers must devise policies that would create an enabling environment for attracting FDIs in order to facilitate technology transfer and hence economic growth. For our overseas readers, we then present the insights from this paper in Spanish, French, Portuguese, and German.

Keywords: Foreign direct investment, Infrastructure, Technology transfer, Knowledge management and facilitation of trade and access to export market, Technology diffusion

SUMMARY

- Correlation analysis shows that there is a positive correlation between FDI in infrastructure 0.856, sig. At the 0.01 level and economic growth. In addition, there is an association between technology diffusion r = 0.768 sig. At the 0.01 level and infrastructure and hence economic growth. Further, there is a positive correlation between facilitation of trade and FDI in infrastructure and hence

economic growth. In addition, there is a positive correlation between facilitation of trade and technology diffusion and hence economic growth. Lastly, there is a positive correlation between knowledge management and FDI in infrastructure and hence economic growth. In addition, there is an association between knowledge management and technology diffusion and hence economic growth.

- The findings from the study also show that the independent variables infrastructure, technology diffusion, trade facilitation, and knowledge management explain 67.1% of the change in economic growth. This is in line with the studies by Zhang who found that there existed a positive relationship between FDI and economic growth.
- The findings also concur with Damooei and Tavakoli who found that FDI was critical as it provides a major source of capital which brings with its up-to-date technology contributing to economic growth.
- However, it is argued that a high share of FDI in a country's total capital inflows may reflect its institutions' weakness rather than their strength.
- In line with the findings of the study, it is argued that spillover effects are indirect effects of inward FDI and are here defined as the unintended transmission of knowledge and skills from the FDI enterprise to domestic enterprises via demonstration effects and/or worker mobility. It is generally assumed that foreign investors produce a higher level of technology than local firms and therefore can stimulate such effects. Spillovers also depend on the difference in the level of technological intensity between mnes and local firms and the degree of export-orientation of the FDI. Similarly, foreign firms that operate in isolation with little linkages to domestic enterprises are less likely to generate a lot of spillovers to local firms.
- In addition, the research findings show that there is a relationship between knowledge management and technology diffusion and infrastructure development and hence economic growth. This finding is in line with the argument that collaboration with other firms and institutions in R&D offer possibilities for knowledge transfer, resource exchange, and organizational learning.
- The findings underscore the spillover effect resulting from technology transfer. Domestic firms' technological gain from FDI generally results from two channels.

HIGHLY INFLUENTIAL ARTICLE

We used the following article as a basis of our evaluation:

Osano, H. M., & Koine, P. W. (2016). Role of foreign direct investment on technology transfer and economic growth in Kenya: A case of the energy sector. Journal of Innovation and Entrepreneurship, 5(1), 1–25.

This is the link to the publisher's website:
https://innovation-entrepreneurship.springeropen.com/articles/10.1186/s13731-016-0059-3

INTRODUCTION

Several ways that transmission of ideas and technologies happen have been cited, which include international trade: imports of high-technology products (Coe and Helpman 1995; Coe et al. 1997; Kwark and Shyn 2006); foreign technology payment; direct adoption of foreign technology (Soete and Patel 1985); and acquisition of human capital (Park 2004; Le 2008; Le and Bodman 2011). In addition, foreign direct investment (FDI) is considered as one of the major conduits of technology diffusion across borders since the inflow of FDI contains knowledge about new technologies and materials, production methods, or organizational management skills (Bodman and Le 2013).

Bodman and Le (2013) studied the impact of technology embodied in FDI on the total factor productivity (TFP) of FDI-receiving countries, shedding new light on where the sources of research and

development (R&D) spillovers lie and directly addressing the important question of whether more FDI leads to a better trained labor force. Their findings are that countries that have embraced a relatively more open international investment regime have usually grown significantly faster than others who have not. It is suggested that the fact that FDI transmits technological knowledge, as well as contributing to the physical capital stock, openness to direct physical investment, as well as to trade and financial flows, provides an important driver of economic growth. It was also found that apart from human capital being necessary for the direct general enhancement of the technological level itself, it is also essential for the ability to learn from foreign technological sources.

The growth of international production is driven by economic and technological forces. It is also driven by the ongoing liberalization of FDI and trade policies. Hansen and Rand (2006) argue that the evidence that FDI generates positive spillovers for host countries is weak. Previously, scholars have either looked at the determinants of FDI Wanjala (2001), impact of local private investment (King'ang'i 2003), or researched on the greater regional implications without looking at the specific impact of foreign direct investment in areas such as development of infrastructure and technology transfer. Thus, this study sought to fill the existing knowledge gap to establish the effects of FDI on technology transfer and economic growth in Kenya focusing on the energy sector between 2004 and 2014. The study focused on the FDI elements (variables) relating to infrastructure, technology diffusion, knowledge management, and facilitation of trade and access to export markets.

CONCLUSION

It can be concluded that foreign direct investment may promote economic development by contributing to productivity growth and exports in the host countries. However, the exact nature of the relation between foreign direct investment and the host economies vary between industries and countries. It is reasonable to assume that the characteristics of the host country's industry and policy environment are important determinants of the net benefits of FDI which include industrial growth, improved technology, and infrastructure in the country.

It is contended that FDI not only provides the countries with much needed capital for domestic investment but also creates employment opportunities and helps transfer of managerial skills and technology, all of which contribute to economic development. Thus, there is recognition for the need to foster a favorable climate for attracting FDI in order to contribute economic development. Indeed, the world market for such investment is highly competitive. Consequently, the Kenya government should pay more attention to the measures that actively facilitate FDI. The distinctive combination of advantages and created assets that Kenya can offer potential investors remain very important economic determinants. A major implication of this study is that policy makers must devise policies that would create a conducive environment to attract FDIs.

The main objective of this study was to investigate the role of foreign direct investment on technology transfer and economic growth in Kenya. This study has not explicitly dealt with questions related to host country policies on foreign direct investment hence the findings of the study highlight the need for future research in this area. Empirical literature indicates that infrastructure, technological diffusion, facilitation of trade, and knowledge management elements of FDI have an effect on technology transfer and hence economic growth. The study suggests that an appropriate proxy for these variables be identified and measured to further develop on this research.

The main limitation of the study was that more sectors across Kenya were not covered which would have facilitated comparative and a more broad-based analysis. Further, the study was not carried across all the stakeholders in the energy sectors to enable generalization of the study findings.

APPENDIX

FIGURE 1
THE NATIONAL ENVIRONMENT FOR INNOVATION AND TECHNOLOGICAL DIFFUSION

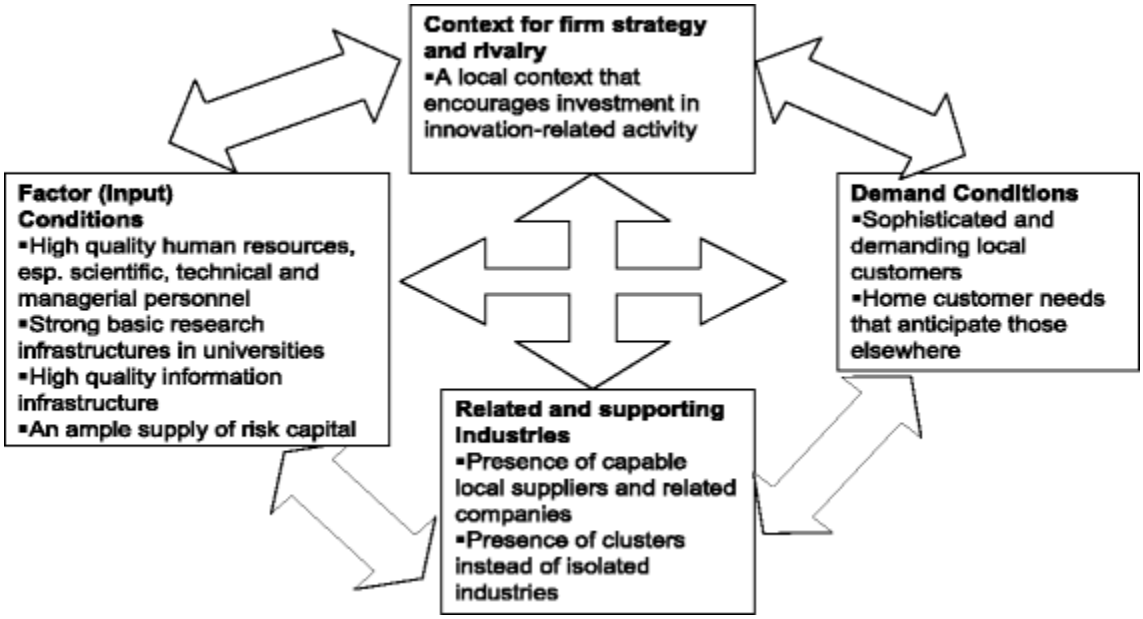

FIGURE 2
CONCEPTUAL FRAMEWORK

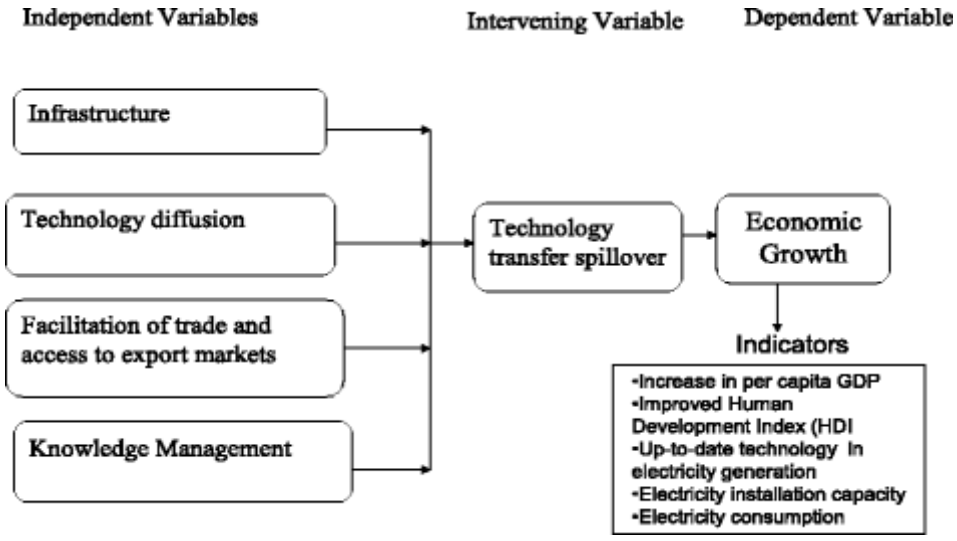

TABLE 1
ENERGY DEMAND

Item	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Energy generated (GWh)	5697	6169	6385	6489	6692	7303	7670	8807	8840
Energy sold (GWh)	4580	5065	5322	5432	5624	6123	6341	6581	7244
Peak demand (MW)	920	987	1044	1072	1107	1194	1236	1357	1468
Number of customers	802,249	924,329	1,060,383	1,267,198	1,463,639	1,753,348	2,038,625	2,330,962	2,766,441

TABLE 2
ENERGY GENERATED AND CORRESPONDING CAPACITY AS OF JUNE 2014

Sources of power generation		Installed capacity (KP, 6/14)		Annual generation	
		(MW)	Percentage	(GWh)	Percentage
Renewable energy	Hydro	817	43	3944	45
	Thermal	264	14	817	9
	Geothermal	253	13	1156	13
	Wind	5.3	0.3	17.6	0.2
	Imports			87	1
	Total	1340	71	6025	68
Fossil fuel	IPP	497	26	2698	31
	Off-grid	19	1	31	0.4
	Emergency	30	2	93.8	1
	Total	546	29	2061	32
Installed capacity and units generated		1885 MW		1840 GWh	

TABLE 3
SAMPLING FRAME

Category	Population Equally distributed amongst Kenya Power and Kengen	Sample proportion (%)	Sample size
Directors	10	100	10
Managers	20	100	20
Chief finance officer	30	100	30
Total	60		60

TABLE 4
RELIABILITY STATISTICS

Variable	Cronbach	No. of item
Infrastructure	0.7527	6
Technology diffusion	0.8892	6
Facilitation of trade and access to export markets	0.8049	6
Knowledge management	0.8350	6
Overall	0.8327	6

TABLE 5
PEARSON CORRELATION ANALYSIS

		Infrastructure	Technology diffusion	Knowledge management
Infrastructure	Pearson correlation	1		
	Sig. (2-tailed)	0.02		
	N	60		
Technology diffusion	Pearson correlation	0.768**	1	
	Sig. (2-tailed)	0.001		
	N	60	60	
Facilitation of trade	Pearson correlation	0.0.839**	0.590**	1
	Sig. (2-tailed)	0.001	0.007	
	N	60	60	60
Knowledge management	Pearson correlation	0.835**	0.580*	430
	Sig. (2-tailed)	0.002	0.037	0.003
	N	60	60	60
Growth	Pearson correlation	0.856**	564	489*
	Sig. (2-tailed)	0.0021	0.421	0.0311
	N	60	60	60

**Correlation is significant at the 0.01 level (2-tailed); *correlation is significant at the 0.05 level (2-tailed)

TABLE 6
MODEL SUMMARY

Model	*R*	R^2	Adjusted *R*-square	Std. error of the estimate	Change statistics				
					R-square change	F change	*df*1	*df*2	Sig. F change
1	0.82[a]	0.672	0.671	0.34	1.741	6	6.207	8.191	0.001[a]

Dependent: economic growth
[a]Predictors: (Constant) as infrastructure, technological diffusion, facilitation of trade and increase in export markets, and inflow of knowledge management

TABLE 7
ANOVA

Model		Sum of squares	*Df*	Mean square	*F*	Sig.
1	Regression	3.841	6	0.307	5.191	0.01[a]
	Residual	7.714	54	0.059		
	Total	11.556	60			

Dependent: economic growth
[a]Predictors: (Constant) as infrastructure, technological diffusion, facilitation of trade and increase in export markets, and knowledge management

TABLE 8
COEFFICIENTS

Model		Unstandardized coefficients		Standardized coefficients	*t*	Sig.
		B	Std. error	Beta		
1	(Constant)	0.768	0.275		3.640	0.01
	Infrastructure	0.881	0.405	0.857	2.931	0.001
	Technology diffusion	0.717	0.546	0.722	2.803	0.04
	Facilitation of trade	0.568	0.520	0.791	1.906	0.007
	Knowledge management	0.791	0.690	0.729	1.672	0.01

Predictors: (Constant) as infrastructure, technological diffusion, facilitation of trade, and knowledge management. Dependent: economic growth

REFERENCES

Abor, J., Charles, K., Adjasi, D., & Hayford, M. (2008). How does foreign direct investment affect the export decisions of firms in Ghana? African Development Bank. Oxford: Blackwell Publishing Ltd.

Aghion, P., & Howitt, P. (1992). A model of growth through creative destruction. Econometrica, 60, 323–51.

Aghion, P., & Howitt, P. (1998). Endogenous growth theory. Cambridge: MIT Press.

Ajayi, S. I. (2007). Foreign direct investment in Sub-Saharan Africa: origins, targets, impact and potential Africa. Nairobi: African Economic Research Consortium.

Babbie, E. (1998). The practice of social research. Wadsworth: Thomson Learning.

Becker, W., & Dietz, J. (2004). R&D cooperation and innovation activities of firms: evidence for the Germany manufacturing industry. Research Policy, 33, 209–223.
Blonigen, B., A. (1997). Firm-specific assets and the link between exchange rates and foreign direct investment. American Economic Review, 87(3), 447–65.
Bodman, P., & Le, T. (2013). Assessing the roles that absorptive capacity and economic distance play in the foreign direct investment-productivity growth nexus. Applied Economics, 2013(45), 1027–1039.
Chen, S. H. (2002). Global production networks and information technology: the case of Taiwan. Industry and Innovation, 9(3), 247–264.
Chen, S. H. (2004). Taiwanese IT firms' offshore R&D in China and the connection with the global innovation network. Research Policy, 33, 337–349.
Chen, T.-J. (2003). Network resources for internationalization: the case of Taiwan's electronics firms. Journal of Management Studies, 40(5), 1107–1130.
Chia, S. Y. (1993). "Foreign direct investment in ASEAN economies". Asian development review (pp. 60–102).
Chia, S. Y. (1997). Singapore: advanced production base and smart hub of the electronics industry. In W. Dobson & S. Y. Chia (Eds.), Multinationals and East Asian Integration (pp. 31–61). Canada and Singapore: International Development Research Centre, Canada and Institute of Southeast Asian Studies.
Coe, D., & Helpman, E. (1995). International R&D spillovers. European Economic Review, 39, 859–87.
Coe, D., Helpman, E., & Hoffmaister, A. (1997). North–South R&D spillovers. The Economic Journal, 107, 134–49.
Cooper, D., & Schindler, P. (2008). Business research methods. New York: McGraw-Hill.
Coughlin, C. C. Terza J. V. & Arromdee, V. (1991). "States Characteristics and the Location of Foreign Direct Investment within the United States", Review of Economics and Statistics, Vol. 73, No. 4, pp. 675–683. doi:10.2307/2109406.
Damooei, J., & Tavakoli, A. (2006). The effects of foreign direct investment and imports on economic growth: a comparative analysis of Thailand and The Philippines. Journal of Developing Areas, 39(2), 79–100.
Durham, B. (2004). Absorptive capacity and the effects of FDI and equity foreign portfolio investment on economic growth. European Economic Review, 48, 285–306.
FAO (2001). Agricultural investment and productivity in developing countries. Economic and Social Development Paper, Vol. 148, pp. 55–74.
Findlay, R. (1978). Some aspects of technology transfer and direct foreign investment. American economic review, american economic association, Vol. 68, No. 2, pp. 275–79.
Froot, K. A., & Jeremy, C. S. (1991). Exchange rates and foreign direct investment: an imperfect capital markets approach. Quarterly Journal of Economics, 106(4), 1191–1217.
Gachino, G., & Rasiah, R. (2003). Labour productivity, exports and skills formation: comparing foreign and local firms in Kenyan Manufacturing Industry. Paper presented at the International Workshop (pp. 22–24). Oslo: FDI-Assisted Development.
Görg, H., & Ruane, F. (2000). An analysis of backward linkages in the Irish electronics sector. Economic and Social Review, 31, 215–235.
Government of Kenya. (2007). Vision 2030, Ministry of Planning and National Development. Nairobi: The Government Printer.
Graham, E. M. (1995). "Foreign Direct Investment in the World Economy". IMF World Economic and Financial Survey, pp. 120–135. Washington: IMF.
Griffin, R. W., & Pustay, M. W. (2002). International business: a managerial perspective. London: Pearson Education.
Grossman, G. M., & Helpman, E. (2002). Integration versus outsourcing in industry equilibrium. Quarterly Journal of Economics, 117, 85–120.

Grossman, G., & Helpman, E. (1991). Innovation and growth in the global economy. Cambridge: The MIT Press.
Hansen, H., & Rand, J. (2006). On the causal links between FDI and growth in developing countries. World Economy, 29(1), 21–41. United Nations University.
Hanson, G. H., Mataloni, R. J., & Slaughter, M. J. (2001). Expansion strategies of U.S. multinational firms. Cambridge: NBER Working Paper 8433 National Bureau of Economic Research.
Hobday, M. (1995). Innovation in East Asia: the challenge to Japan. UK: Edward Elgar, Aldershot.
Hubert, F., & Nigel, P. (2000). Inward investment and technical progress in the United Kingdom. Glasgow: University of Strathclyde, Department of Economics.
Kakazu, H. (1990). "Industrial technology capabilities and policies in selected Asian developing countries (with particular emphasis on transferred technology)", Asian Development Bank Economic Staff Paper No. 46. Manila: Asian Development Bank.
Kayonga, G. W. (2008). A comparative study of foreign direct investment policy in Eastern Africa: the case of Rwanda and Tanzania (2000–2006) thesis (M.A.). Nairobi: University of Nairobi.
Kim, L., & Dahlman, C. J. (1992). Technology policy for industrialization: integrative framework and Korea's experience. Research Policy, 21, 437–452.
King'ang'i, P. K. (2003). Private investment and economic growth in Kenya. An empirical investigation: 1980-2002, thesis (M.A.). Nairobi: University of Nairobi.
Klein, M. W., & Rosengren, E. S. (1994). The real exchange rate and foreign direct investment in the United States: relative wealth vs. relative wage effects. Journal of International Economics, 36(3-4), 373–89.
Koschatzky, K., Kulicke, M., & Zenker, A. (2001). Innovation networks, concepts and challenges in the European Perspectives. Technology, innovation, and policy (Vol. 12). Heidelberg: Physica-Verlag.
Kwark, N., & Shyn, Y. (2006). International R&D spillovers revisited: human capital as an absorptive capacity for foreign technology. International Economic Journal, 20, 179–96.
Le, H. Q., & Pomfret, R. (2011). Technology spillovers from foreign direct investment in Vietnam: horizontal or vertical spillovers? Journal of the Asia Pacific Economy, 16(2), 183–201.
Le, T. (2008). Brain drain or brain circulation: evidence from OECD's international migration and R&D spillovers. Scottish Journal of Political Economy, 55, 618–36.
Le, T., & Bodman, P. (2011). Remittances or technological diffusion: which drives domestic gains from brain drain? Applied Economics, 43, 2277–85.
Lee, T. J. (2004). Technological learning by national R&D: the case of Korea in CANDU-type nuclear fuel. Technovation, 24, 287–297.
Managi, S., & Bwalya, S. M. (2010). Foreign direct investment and technology spillovers in sub-Saharan Africa. Applied Economics Letters, 17, 605–608.
Marwah, K., & Tavakoli, A. (2004). The effects of foreign capital and imports on economic growth. Journal of Asian Economics, 15, 399–413.
Mathews, J. A. (2005). Dragon multinationals: new players in 21st century globalization, MGSM WP 2005-15. Sydney: Macquarie Graduate School of Management.
Melitz, M., & Gianmarco, O. (2008). Market size, trade, and productivity. Review of Economic Studies, 75, 295–316.
Modarress, B., Ansari, A, and Thies, E. (2014). The impact of technology transfer through foreign direct investment in developing nations: a case study in the United Arab Emirates. International Journal of Economics and Finance Vol. 6, No. 7; 2014. http://www.ccsenet.org/journal/index.php/ijef/article/view/36200.
Montes M.F. (1997). Direct foreign investment and technology transfer in ASEAN. ASEAN Economic Bulletin Vol. 14. No. 2, pp. 176–189.
Mwega, F. M., & Ngugi, R. W. (2007). Foreign direct investment in Kenya. In S. I. Ajayi (Ed.), Foreign direct investment in Sub-Saharan Africa: origins, targets, impact and potential.

Ngowi, H. P. (2001). Can Africa increase its global share of foreign direct investment (FDI)? West African Review, 2(2), 1–9.
O'Brien, F. S., & Ryan, T. C. (2001). Aid and reform in Africa: lessons from ten case studies. Washington D.C.: The World Bank Survey.
OECD, (2010). Innovation Strategy: Getting a Head Start on Tomorrow. Paris: OECD Publishing.
Opolot, J. Mutenyo, J. & Kalio, A., (2009). Determinants of Foreign Direct Investment: New Evidence from Sub-Saharan Africa. Bank of Uganda Vol. 3 No.2, The Bank of Uganda Staff Papers. Kampala: Bank of Uganda Publication.
Park, J. (2004). International student flows and R&D spillovers. Economic Letters, 82, 315–20.
Phillips, L. & Obwana, M. (2000). Foreign direct investment in East Africa: interaction and policy implications. African Economic Policy Discussion Paper number 67. pp. 1–19.
Plunket, A., Voisin, C., & Bellon, B. (2001). The dynamics of industrial collaboration. Cheltenham: Northampton.
Porter, M.E., and Stern, S. (2002). "National innovation capacity," In the Competitiveness Report, ed. by Porter, M. E., Sachs, J.D., Cornelius, P.K., McArthur, J.W. and Schwab, K. (Oxford: Oxford University Press, 2001:102).
Rasiah, R., & Gachino, G. (2005). Are foreign firms more productive, and export and technological intensive than local firms in Kenyan manufacturing? Oxford Development Studies, 33(2), 211–228.
Romer, P. (1990). Endogenous technological change. The Journal of Political Economy, 98, S71–102.
Rutihinda, C. (2007). Impact of globalization on small and medium size firms in Tanzania. Hawaii: ABR and TLC Conference Proceedings.
Sekaran, U., & Bougie, R. (2013). Research methods for business: a skill-building approach (6th Ed). New York: John Wiley & Sons.
Sharma, B., & Gani, A. (2004). The effects of foreign direct investment on human development. Global Economy Journal, 4(2), 9.
Soete, L., & Patel, P. (1985). Recherche-developpement, importations technologiques et croissance 'economique'. Revue Economique, 36, 975–1000.
Swenson, D. L. (2004). Foreign investment and mediation of trade flows. Review of International Economics, 12(4), 609–29.
Todaro, M. (2000). Economic development. Reading: Mass Addison-Wesley.
UNCTAD. (2001). World investment report 2001: promoting linkages. New York and Geneva: United Nations publication.
UNCTAD. (2008). World investment report: transnational corporation and infrastructure challenge. New York and Geneva: United Nations.
UNCTAD. (2010). Foreign direct investment, the transfer and diffusion of technology, and sustainable development. New York and Geneva: United Nations publication.
UNCTAD. (2016). World investment report, investor nationality: policy challenges. Geneva: United Nations Publication.
UNIDO. (2004). Survey of small and medium enterprises in the global compact. Vienna: UNIDO.
USAID. (2015). Investment brief for the electricity sector in Kenya. Power Africa: USAID. https://www.usaid.gov/powerafrica.
van Pottelsberghe, B., & Lichtenberg, F. (2001). Does foreign direct investment transfer technology across borders? The Review of Economics and Statistics, 83, 490–7.
Wanjala, B. M. (2001). Determinants of foreign direct investment in Sub-Saharan Africa, with inferences on Kenya thesis (M.A.), Nairobi: University of Nairobi.
Wignaraja, G. (2002a). Creating value: from comparative to competitive advantage—competitiveness strategy in developing countries, ITC Executive Forum on National Export Strategies.
World Bank (2008). Global Development Finance 2008: The Role of International Banking, Volume 2, Summary and Country Tables. Washington, D.C.: World Bank.
World Bank. (2004). Global development finance. Washington: World Bank.

Young, S. (1998). International business, open learning unit. Glasgow: Strathclyde Graduate Business School.
Young, S., Hamill, J., Wheeler, C., & Davies, J. R. (1989). International market entry and development: strategies and management (pp. 10–37).
Zhang, K. (2001). How does FDI affect economic growth in China? Economics of Transition, 9(3), 679–693.

TRANSLATED VERSION: SPANISH

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

VERSION TRADUCIDA: ESPAÑOL

A continuación se muestra una traducción aproximada de las ideas presentadas anteriormente. Esto se hizo para dar una comprensión general de las ideas presentadas en el documento. Por favor, disculpe cualquier error gramatical y no responsabilite a los autores originales de estos errores.

INTRODUCCIÓN

Se han citado varias formas en que se produce la transmisión de ideas y tecnologías, entre las que se incluyen el comercio internacional: las importaciones de productos de alta tecnología (Coe y Helpman 1995; 1997; Kwark y Shyn 2006); pago de tecnología extranjera; adopción directa de tecnología extranjera (Soete y Patel 1985); y adquisición de capital humano (Parque 2004; Le 2008; Le y Bodman 2011). Además, la inversión extranjera directa (IED) se considera uno de los principales conductos de difusión de la tecnología a través de las fronteras, ya que la entrada de IED contiene conocimientos sobre nuevas tecnologías y materiales, métodos de producción u habilidades de gestión organizacional (Bodman y Le 2013).

Bodman y Le (2013) estudiaron el impacto de la tecnología incorporada en la IED en la productividad total de los factores (TFP) de los países receptores de IED, arrojando nueva luz sobre dónde se encuentran las fuentes de investigación y desarrollo (I+D) y abordando directamente la importante cuestión de si más IED conduce a una fuerza laboral mejor capacitada. Sus conclusiones son que los países que han adoptado un régimen de inversión internacional relativamente más abierto por lo general han crecido significativamente más rápido que otros que no lo han hecho. Se sugiere que el hecho de que la IED transmita conocimientos tecnológicos, además de contribuir al capital físico, la apertura a la inversión física directa, así como a los flujos comerciales y financieros, constituye un importante motor del crecimiento económico. También se encontró que, aparte de que el capital humano es necesario para la mejora general directa del propio nivel tecnológico, también es esencial para la capacidad de aprender de fuentes tecnológicas extranjeras.

El crecimiento de la producción internacional está impulsado por las fuerzas económicas y tecnológicas. También está impulsada por la liberalización en curso de las políticas de IED y de comercio. Hansen y Rand (2006) sostienen que la evidencia de que la IED genera repercusiones positivas para los países de acogida es débil. Anteriormente, los estudiosos han examinado los determinantes de la IED Wanjala (2001), el impacto de la inversión privada local (King'ang'i 2003) o han investigado sobre las mayores implicaciones regionales sin examinar el impacto específico de la inversión extranjera directa en áreas como el desarrollo de infraestructura y transferencia de tecnología. Por consiguiente, este estudio trató de colmar la actual brecha de conocimientos para establecer los efectos de la IED en la transferencia de tecnología y el crecimiento económico en Kenya, centrándose en el sector de la energía entre 2004 y 2014. El estudio se centró en los elementos de IED (variables) relacionados con la infraestructura, la difusión de

la tecnología, la gestión del conocimiento y la facilitación del comercio y el acceso a los mercados de exportación.

CONCLUSIÓN

Se puede concluir que la inversión extranjera directa puede promover el desarrollo económico contribuyendo al crecimiento de la productividad y a las exportaciones en los países anfitriones. Sin embargo, la naturaleza exacta de la relación entre la inversión extranjera directa y las economías anfitrionas varía entre las industrias y los países. Es razonable suponer que las características de la industria y el entorno político del país anfitrión son determinantes importantes de los beneficios netos de la IED, que incluyen el crecimiento industrial, la mejora de la tecnología y la infraestructura en el país.

Se sostiene que la IED no sólo proporciona a los países el capital muy necesario para la inversión nacional, sino que también crea oportunidades de empleo y ayuda a la transferencia de habilidades y tecnología de gestión, todo lo cual contribuye al desarrollo económico. Por lo tanto, se reconoce la necesidad de fomentar un clima favorable para atraer IED con el fin de contribuir al desarrollo económico. De hecho, el mercado mundial de esas inversiones es altamente competitivo. En consecuencia, el gobierno de Kenya debería prestar más atención a las medidas que facilitan activamente la IED. La combinación distintiva de ventajas y activos creados que Kenya puede ofrecer a los inversores potenciales sigue siendo determinantes económicos muy importantes. Una implicación importante de este estudio es que los responsables de la formulación de políticas deben diseñar políticas que creen un entorno propicio para atraer IFI.

El objetivo principal de este estudio era investigar el papel de la inversión extranjera directa en la transferencia de tecnología y el crecimiento económico en Kenya. Este estudio no ha abordado explícitamente cuestiones relacionadas con las políticas de los países anfitriones sobre inversión extranjera directa, de ahí que las conclusiones del estudio pongan de relieve la necesidad de futuras investigaciones en este ámbito. La literatura empírica indica que la infraestructura, la difusión tecnológica, la facilitación del comercio y los elementos de gestión del conocimiento de la IED tienen un efecto en la transferencia de tecnología y, por lo tanto, en el crecimiento económico. El estudio sugiere que se identifique y mida un apoderado adecuado para estas variables para seguir desarrollándose en esta investigación.

La principal limitación del estudio fue que no se abarcaron más sectores en Kenya que hubieran facilitado un análisis comparativo y de base más amplia. Además, el estudio no se llevó a cabo entre todas las partes interesadas en los sectores energéticos para permitir la generalización de los resultados del estudio.

TRANSLATED VERSION: FRENCH

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VERSION TRADUITE: FRANÇAIS

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INTRODUCTION

Plusieurs façons de faire passer la transmission d’idées et de technologies ont été citées, notamment le commerce international : importations de produits de haute technologie (Coe et Helpman, 1995; Coe et coll. 1997; Kwark et Shyn, 2006); paiement de la technologie étrangère; adoption directe de technologies

étrangères (Soete et Patel, 1985); et l'acquisition de capital humain (Parc 2004; Le 2008; Le et Bodman 2011). En outre, l'investissement étranger direct (IED) est considéré comme l'un des principaux vecteurs de diffusion technologique au-delà des frontières puisque l'afflux d'ied contient des connaissances sur les nouvelles technologies et matériaux, les méthodes de production ou les compétences en gestion organisationnelle (Bodman et Le 2013).

Bodman et Le (2013) ont étudié l'impact de la technologie incarnée dans l'ied sur la productivité totale des facteurs (PTF) des pays d'accueil de l'ied, jetant un nouvel éclairage sur les sources de retombées de la recherche et du développement (R&D) et abordant directement la question importante de savoir si davantage d'ied mène à une main-d'œuvre mieux formée. Leurs conclusions sont que les pays qui ont adopté un régime d'investissement international relativement plus ouvert ont généralement connu une croissance beaucoup plus rapide que d'autres qui ne l'ont pas fait. Il est suggéré que le fait que l'ied transmette des connaissances technologiques, en plus de contribuer au stock de capital physique, à l'ouverture à l'investissement physique direct, ainsi qu'aux flux commerciaux et financiers, constitue un moteur important de la croissance économique. Il a également été constaté qu'en plus du capital humain nécessaire à l'amélioration générale directe du niveau technologique lui-même, il est également essentiel pour la capacité d'apprendre de sources technologiques étrangères.

La croissance de la production internationale est tirée par les forces économiques et technologiques. Elle est également motivée par la libéralisation continue de l'ied et des politiques commerciales. Hansen et Rand (2006) soutiennent que les preuves que l'ied génère des retombées positives pour les pays d'accueil sont faibles. Auparavant, les chercheurs ont examiné les déterminants de l'ied Wanjala (2001), l'impact de l'investissement privé local (King'ang'i 2003), ou ont fait des recherches sur les implications régionales plus importantes sans examiner l'impact spécifique de l'investissement étranger direct dans des domaines tels que le développement des infrastructures et le transfert de technologie. Ainsi, cette étude visait à combler le déficit de connaissances existant pour établir les effets de l'ied sur le transfert de technologie et la croissance économique au Kenya en se concentrant sur le secteur de l'énergie entre 2004 et 2014. L'étude s'est concentrée sur les éléments d'ied (variables) relatifs à l'infrastructure, à la diffusion de la technologie, à la gestion des connaissances et à la facilitation du commerce et de l'accès aux marchés d'exportation.

CONCLUSION

On peut conclure que l'investissement étranger direct peut promouvoir le développement économique en contribuant à la croissance de la productivité et aux exportations dans les pays d'accueil. Toutefois, la nature exacte de la relation entre l'investissement étranger direct et les économies hôtes varie d'une industrie à l'autre et d'un pays à l'autre. Il est raisonnable de supposer que les caractéristiques de l'industrie et de l'environnement politique du pays d'accueil sont des déterminants importants des avantages nets de l'ied, y compris la croissance industrielle, l'amélioration de la technologie et l'infrastructure dans le pays.

On soutient que l'ied fournit non seulement aux pays les capitaux nécessaires à l'investissement intérieur, mais crée également des possibilités d'emploi et contribue au transfert des compétences et de la technologie de gestion, qui contribuent toutes au développement économique. Ainsi, on reconnaît la nécessité de favoriser un climat favorable à l'attraction de l'ied afin de contribuer au développement économique. En effet, le marché mondial de ces investissements est hautement concurrentiel. Par conséquent, le gouvernement du Kenya devrait accorder plus d'attention aux mesures qui facilitent activement l'ied. La combinaison distinctive d'avantages et d'actifs créés que le Kenya peut offrir aux investisseurs potentiels demeure un déterminant économique très important. L'une des principales implications de cette étude est que les décideurs politiques doivent élaborer des politiques qui créeraient un environnement propice à l'attracteur des EDF.

L'objectif principal de cette étude était d'étudier le rôle de l'investissement étranger direct dans le transfert de technologie et la croissance économique au Kenya. Cette étude n'a pas traité explicitement des questions liées aux politiques des pays d'accueil en matière d'investissement étranger direct, d'où les résultats de l'étude soulignant la nécessité de recherches futures dans ce domaine. La littérature empirique indique que l'infrastructure, la diffusion technologique, la facilitation des échanges et les éléments de

gestion des connaissances de l'ied ont un effet sur le transfert de technologie et, par conséquent, sur la croissance économique. L'étude suggère qu'un indicateur approprié de ces variables soit identifié et mesuré afin de développer davantage cette recherche.

La principale limitation de l'étude était qu'un plus grand nombre de secteurs à travers le Kenya n'étaient pas couverts, ce qui aurait facilité une analyse comparative et une analyse plus large. En outre, l'étude n'a pas été menée par toutes les parties prenantes des secteurs de l'énergie pour permettre la généralisation des résultats de l'étude.

TRANSLATED VERSION: GERMAN

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ÜBERSETZTE VERSION: DEUTSCH

Hier ist eine ungefähre Übersetzung der oben vorgestellten Ideen. Dies wurde getan, um ein allgemeines Verständnis der in dem Dokument vorgestellten Ideen zu vermitteln. Bitte entschuldigen Sie alle grammatikalischen Fehler und machen Sie die ursprünglichen Autoren nicht für diese Fehler verantwortlich.

EINLEITUNG

Es wurden mehrere Wege zur Übertragung von Ideen und Technologien genannt, zu denen auch der internationale Handel gehört: Einfuhren von Hochtechnologieprodukten (Coe und Helpman 1995; Coe et al. 1997; Kwark und Shyn 2006); Zahlung ausländischer Technologie; direkte Übernahme ausländischer Technologie (Soete und Patel 1985); und Erwerb von Humankapital (Park 2004; Le 2008; Le und Bodman 2011). Darüber hinaus gelten ausländische Direktinvestitionen (DI) als einer der wichtigsten Kanale der grenzüberschreitenden Technologiediffusion, da der Zustrom ausländischer Direktinvestitionen Kenntnisse über neue Technologien und Materialien, Produktionsmethoden oder Organisationsmanagementfähigkeiten enthält (Bodman und Le 2013).

Bodman und Le (2013) untersuchten die Auswirkungen der technologiein di auf die Gesamtfaktorproduktivität (TFP) der Dl-Empfängerländer, um ein neues Licht darauf zu werfen, wo die Quellen für Forschung und Entwicklung (F&E)-Spillover liegen, und direkt die wichtige Frage anzusprechen, ob mehr ausländische Direktinvestitionen zu einer besser ausgebildeten Erwerbsbevölkerung führen. Ihre Ergebnisse besagen, dass Länder, die ein relativ offeneres internationales Investitionsregime angenommen haben, in der Regel deutlich schneller gewachsen sind als andere, die dies nicht tun. Es wird vermutet, dass die Tatsache, dass ausländische Direktinvestitionen technologisches Wissen vermitteln und zum physischen Kapitalstock, zur Offenheit für direkte physische Investitionen sowie für Handels- und Finanzströme beitragen, ein wichtiger Motor für das Wirtschaftswachstum ist. Es wurde auch festgestellt, daß das Humankapital nicht nur für die direkte allgemeine Verbesserung des technologischen Niveaus selbst notwendig ist, sondern auch für die Fähigkeit, aus ausländischen technologischen Quellen zu lernen, von wesentlicher Bedeutung ist.

Das Wachstum der internationalen Produktion wird von wirtschaftlichen und technologischen Kräften angetrieben. Sie wird auch durch die fortschreitende Liberalisierung der DL- und Handelspolitik angetrieben. Hansen und Rand (2006) argumentieren, dass die Beweise dafür, dass dlins positive Ausstrahlungen für die Gastländer erzeugt, schwach sind. Zuvor haben wissenschaftler entweder die Determinanten der ausländischen Direktinvestitionen Wanjala (2001), die Auswirkungen lokaler privater Investitionen (King'ang'i 2003) untersucht oder die größeren regionalen Auswirkungen untersucht, ohne die spezifischen Auswirkungen ausländischer Direktinvestitionen in Bereichen wie der Entwicklung von Infrastruktur und Technologietransfer zu untersuchen. So zielte diese Studie darauf ab, die bestehende

Wissenslücke zu schließen, um die Auswirkungen von DI auf den Technologietransfer und das Wirtschaftswachstum in Kenia zu ermitteln, wobei der Energiesektor zwischen 2004 und 2014 konzentriert wurde. Die Studie konzentrierte sich auf die DL-Elemente (Variablen) in Bezug auf Infrastruktur, Technologieverbreitung, Wissensmanagement und Erleichterung des Handels und des Zugangs zu Exportmärkten.

SCHLUSSFOLGERUNG

Daraus kann geschlossen werden, dass ausländische Direktinvestitionen die wirtschaftliche Entwicklung fördern können, indem sie zum Produktivitätswachstum und zu den Exporten in den Aufnahmeländern beitragen. Die genaue Art des Verhältnisses zwischen ausländischen Direktinvestitionen und den Gastwirtschaften ist jedoch je nach Branche und Land unterschiedlich. Es ist davon auszugehen, dass die Merkmale der Industrie und des politischen Umfelds des Gastlandes wichtige Determinanten für die Nettovorteile von direktileidenden Direktinvestitionen sind, zu denen das industrielle Wachstum, die verbesserte Technologie und die Infrastruktur im Land gehören.

Es wird behauptet, dass die ausländischen Direktinvestitionen den Ländern nicht nur dringend benötigtes Kapital für inländische Investitionen zur Verfügung stellen, sondern auch Beschäftigungsmöglichkeiten schaffen und den Transfer von Managementfähigkeiten und -technologien unterstützen, die alle zur wirtschaftlichen Entwicklung beitragen. Daher wird die Notwendigkeit anerkannt, ein günstiges Klima für die Anziehung von direkt i–at zu fördern, um zur wirtschaftlichen Entwicklung beizutragen. Tatsächlich ist der Weltmarkt für solche Investitionen sehr wettbewerbsfähig. Daher sollte die kenianische Regierung den Maßnahmen, die die direkt di. Die unverwechselbare Kombination von Vorteilen und geschaffenen Vermögenswerten, die Kenia potenziellen Investoren bieten kann, bleibt sehr wichtige wirtschaftliche Determinanten. Eine wichtige Folge dieser Studie ist, dass politische Entscheidungsträger Strategien entwickeln müssen, die günstige Rahmenbedingungen schaffen würden, um fdis anzuziehen.

Hauptziel dieser Studie war es, die Rolle ausländischer Direktinvestitionen für den Technologietransfer und das Wirtschaftswachstum in Kenia zu untersuchen. Diese Studie hat sich nicht explizit mit Fragen im Zusammenhang mit der Politik des Gastlandes im Bereich ausländischer Direktinvestitionen befasst, daher unterstreichen die Ergebnisse der Studie die Notwendigkeit zukünftiger Forschung in diesem Bereich. Empirische Literatur zeigt, dass Infrastruktur, technologische Verbreitung, Handelserleichterungen und Wissensmanagementelemente von DI Auswirkungen auf den Technologietransfer und damit auf das Wirtschaftswachstum haben. Die Studie legt nahe, dass ein geeigneter Proxy für diese Variablen identifiziert und gemessen werden sollte, um diese Forschung weiterzuentwickeln.

Die Hauptbeschränkung der Studie bestand darin, dass nicht mehr Sektoren in ganz Kenia erfasst wurden, was vergleichende und umfassendere Analysen ermöglicht hätte. Darüber hinaus wurde die Studie nicht über alle Interessengruppen in den Energiesektoren hinweg durchgeführt, um eine Verallgemeinerung der Studienergebnisse zu ermöglichen.

TRANSLATED VERSION: PORTUGUESE

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VERSÃO TRADUZIDA: PORTUGUÊS

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INTRODUÇÃO

Várias formas de transmissão de ideias e tecnologias têm sido citadas, que incluem o comércio internacional: importações de produtos de alta tecnologia (Coe e Helpman 1995; Coe et al. 1997; Kwark e Shyn 2006); pagamento de tecnologia estrangeira; adoção direta da tecnologia estrangeira (Soete e Patel 1985); e aquisição de capital humano (Parque 2004; Le 2008; Le e Bodman 2011). Além disso, o investimento estrangeiro direto (IED) é considerado um dos principais conduítes da difusão tecnológica entre fronteiras, uma vez que o fluxo de IED contém conhecimento sobre novas tecnologias e materiais, métodos de produção ou habilidades de gestão organizacional (Bodman e Le 2013).

Bodman e Le (2013) estudaram o impacto da tecnologia incorporada no FDI sobre a produtividade total dos fatores (TFP) dos países receptores do FDI, lançando uma nova luz sobre onde estão as fontes de pesquisa e desenvolvimento (P&D) e abordando diretamente a questão importante de se mais IED leva a uma força de trabalho mais bem treinada. Suas descobertas são de que os países que adotaram um regime de investimento internacional relativamente mais aberto geralmente cresceram significativamente mais rápido do que outros que não o fizeram. Sugere-se que o fato de o IED transmitir conhecimento tecnológico, além de contribuir para o capital físico, abertura para investimento físico direto, bem como para o comércio e fluxos financeiros, proporciona um importante motor do crescimento econômico. Verificou-se também que, além do capital humano ser necessário para o aprimoramento geral direto do próprio nível tecnológico, também é essencial para a capacidade de aprender com fontes tecnológicas estrangeiras.

O crescimento da produção internacional é impulsionado pelas forças econômicas e tecnológicas. Também é impulsionado pela liberalização contínua do IED e das políticas comerciais. Hansen e Rand (2006) argumentam que as evidências de que o IED gera repercussões positivas para os países-sede são fracas. Anteriormente, os estudiosos analisaram os determinantes do FDI Wanjala (2001), o impacto do investimento privado local (King'ang'i 2003) ou pesquisaram sobre as maiores implicações regionais sem olhar para o impacto específico do investimento estrangeiro direto em áreas como o desenvolvimento de infraestrutura e transferência de tecnologia. Assim, este estudo buscou preencher a lacuna de conhecimento existente para estabelecer os efeitos do IED na transferência de tecnologia e no crescimento econômico no Quênia com foco no setor de energia entre 2004 e 2014. O estudo concentrou-se nos elementos do FDI (variáveis) relacionados à infraestrutura, difusão de tecnologia, gestão do conhecimento e facilitação do comércio e acesso aos mercados de exportação.

CONCLUSÃO

Pode-se concluir que o investimento estrangeiro direto pode promover o desenvolvimento econômico contribuindo para o crescimento da produtividade e exportações nos países de acolhimento. No entanto, a natureza exata da relação entre o investimento estrangeiro direto e as economias anfitriãs varia entre as indústrias e os países. É razoável supor que as características da indústria e do ambiente político do país anfitrião são importantes determinantes dos benefícios líquidos do IED que incluem crescimento industrial, tecnologia aprimorada e infraestrutura no país.

Alega-se que o IED não só fornece aos países o capital necessário para o investimento interno, mas também cria oportunidades de emprego e ajuda na transferência de habilidades gerenciais e tecnologia, que contribuem para o desenvolvimento econômico. Assim, há reconhecimento pela necessidade de fomentar um clima favorável à atração do IED, a fim de contribuir com o desenvolvimento econômico. De fato, o mercado mundial para tal investimento é altamente competitivo. Consequentemente, o governo do Quênia deveria prestar mais atenção às medidas que facilitam ativamente o IED. A combinação distinta de vantagens e ativos criados que o Quênia pode oferecer a potenciais investidores permanecem determinantes

econômicos muito importantes. Uma das principais implicações deste estudo é que os formuladores de políticas devem elaborar políticas que criem um ambiente propício para atrair fdis.

O principal objetivo deste estudo foi investigar o papel do investimento estrangeiro direto na transferência de tecnologia e no crescimento econômico no Quênia. Este estudo não tem tratado explicitamente de questões relacionadas às políticas de países-sede sobre investimento estrangeiro direto, portanto, os achados do estudo destacam a necessidade de futuras pesquisas nessa área. A literatura empírica indica que a infraestrutura, a difusão tecnológica, a facilitação do comércio e os elementos de gestão do conhecimento do IED têm um efeito na transferência de tecnologia e, consequentemente, no crescimento econômico. O estudo sugere que um proxy adequado para essas variáveis seja identificado e medido para desenvolver-se ainda mais nesta pesquisa.

A principal limitação do estudo foi que mais setores em todo o Quênia não foram cobertos, o que teria facilitado a análise comparativa e mais ampla. Além disso, o estudo não foi realizado em todos os stakeholders dos setores de energia para possibilitar a generalização dos achados do estudo.