Corruption in economics: a bibliometric analysis and research agenda

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ABSTRACT

We conducted a bibliometric analysis of the literature on corruption in the discipline of economics (4,488 articles) over the past 51 years between 1968–2019. Through this methodology, we identified seven research streams: (1) the economic framework of crime and corruption, (2) the legal institutions and corruption, (3) the effect of corruption on aspects of national economics, (4) the combating and monitoring of corruption, (5) the determinants of corruption, (6) political institutions and corruption, and (7) the effect of corruption on firms. In addition to these research clusters, we also identified the key journals, articles, countries, institutions, authors, data sources, measurements, theoretical frameworks, and networks dealing with this issue. Finally, we suggested 20 future research questions.

KEYWORDS

Corruption; crime; economics; content analysis; bibliometric citation analysis

JEL CLASSIFICATION

A10; D73; F43; F63

I. Introduction

Economists traditionally view corruption as a misuse of power for private gain (Shleifer and Vishny 1993; Treisman 2000). Corruption has been blamed for the failure of policy in some developing countries (Treisman 2000) and found to reduce investment, economic growth, and development (Mauro 1995; Bardhan 2017). As a result, academic researchers, controlling bodies (e.g., the IMF,1 OECD,2 and World Bank) and nations (e.g., America’s FCPA of 19773 and the OECD committee on bribery 19894) started reviewing and analysing the pathology of corruption and crime in the economy and society. Consequently, a substantial but scattered body of literature on corruption in economics has developed. We synthesized 51 years of research (between 1968 and 2019) (see Figure 1) to provide more clarity on the research clusters and research directions in the field.

To explore the literature, we conducted a bibliometric citation analysis of 4,488 articles on corruption in economics (Yuret 2014, 2018; Rath and Wohlrabe 2015a; Zupic and Čater 2015; Sommer and Wohlrabe 2016; Meyer and Wohlrabe 2017; Bahoo, Alon, and Paltrinieri 2019; Bahoo 2020). Our analysis contributes to the literature by answering the following questions: (1) What are the leading research streams in the literature on corruption in economics? (2) What are the key journals, articles, countries, institutions, authors, data sources, measurements, theoretical frameworks, and networks in this field? (3) What are the future research directions?

II. Method

Our method consists of two techniques. The first is bibliometric analysis (Broadus 1987; Mingers and Leydesdorff 2015; Zupic and Čater 2015; Bahoo, Alon, and Paltrinieri 2020). The second is content analysis (Gaur and Kumar 2018; Ahmed, Bahoo, and Ayub 2019; Ahmed, Bahoo, Aslam, and Qureshi 2020). We utilized these techniques to conduct five analyses: (1) citation analysis, (2) co-citation analysis, (3) cartography analysis, (4) citation network analysis, and (5) content analysis. Our software tools consisted of the HistCite and VOSviewer software programmes.
Using 18 keywords for corruption that included combinations of the words ‘economics,’ ‘economy,’ and ‘economic,’ we searched the ISI Web of Knowledge (WOK) database for articles on the topic. We selected these words using a systematic, three-step process outlined in Table A1. Our first search resulted in 5,671 articles. In the next step, we excluded irrelevant articles by reviewing titles and abstracts. Our final set included 4,488 articles published between 1968 and 2019 dealing with corruption in economics. Figure 1, which illustrates the growth in articles per year on the topic, shows a sharp growth trend beginning in the 1990s after the Western world passed anti-corruption laws and formed an OECD committee on bribery.

III. Results

Influential aspects of the literature

Key journals and networks

Three hundred seventy-two journals published the 4,488 articles in our sample. Using HistCite, we ranked the top 11 journals that had the largest...
number of citation references and articles published on the topic (see Table A2). In both rankings, the journals *Applied Economics* and *Applied Economics Letters* emerged as the most influential and provided quality research on corruption in economics. Furthermore, using VOSviswer we determined that *Applied Economics Letters* was also among the top-cited journal networks (see Figure 2).

**Influential countries, institutions, authors, articles, and networks**

Using these two software programs, we ranked the most influential countries, institutions, authors, and networks in the field (see Table A2). With regard to authors, 6,828 authors wrote the 4,488 articles in our sample. Figure 3 illustrates the top 11 authors and networks among them, which is useful for policymakers and prospective researchers for future projects. With regard to countries and institutions, most studies came from Western countries such as the US and Europe, reflecting the serious desire to overcome the problem of corruption and crime. China is also emerging as a major contributor.

Our sample of 4,488 articles had 10,629 total local citations (TLC) and 97319 total global citations (TGC). We also divided the top 11 trending articles from 1968 to 2019 into two categories based on TLC/t (total local citations per year) and TGC/t (total global citations per year) (see Table A2).

**Keyword networks to identify research areas**

The keywords assigned by authors or the ISI WOK database to a research article represent the field of study and directions of the literature. Therefore, using VOSviwer we created keyword networks based on the repetition of words, which is called cartography analysis. Figure 4 depicts the resulting networks and identifies the associated research areas. As the figure indicates, the most repeated keywords in the literature are corruption, crime, economy, economic growth, deterrence, punishment, law, institutions, models, determinants, causes, and consequences. On the other hand, the keywords that appeared least frequently are firm performance, firm, earning management, political institutions, politics. The findings from Figure 4 confirm that two critical areas of research—political institutions and corruption, and the effect of corruption on firms—are underdeveloped and neglected. These two areas of research contain knowledge gaps that suggest the need for further investigation.

**Citation mapping: identification of research streams, trends, and synthesis**

We used bibliometric co-citation analysis (Cainelli et al. 2012; Rath and Wohlrabe 2015b; Aria and Cuccurullo 2017; Paltrinieri et al. 2019) and content analysis (Bahoo et al. 2018; Gaur and Kumar 2018) to identify the research streams in the literature on corruption in economics. In the first step, bibliometrics co-citation analysis identified the 70 top-cited papers, resulting in the citation map depicted in Figure 5. Second, we applied traditional content analysis to these 70 articles to understand the content (Bahoo, Hassan, Paltrinieri, and Khan 2019). This quantitative and qualitative process resulted in the following seven research streams in the literature: (1) the economic framework of crime and corruption, (2) the legal institutions and corruption, (3) the effect of corruption on aspects of national economics, (4) the combating and monitoring of corruption, (5) the determinants of corruption, (6) political institutions and corruption,
and (7) the effect of corruption on firms. The 70 key papers are listed under each stream in Table A3.

These seven research streams are interconnected. The key frameworks of corruption and crime (Becker 1968; Rose-Ackerman 1975; Olken 2009) are helpful in explaining the effect of corruption on the economy (Macrae 1982; Mauro 1995; Fisman and Svensson 2007), businesses and firms (Shleifer and Vishny 1994; Dove 2017). Nations and controlling bodies have established laws and legal institutions (Tirole 1996; Devaraj and Patel 2017) to combat financial and political corruption (Alam 1989; Goel and Saunoris 2017) by identifying the key determinants of corruption (Dey 1989; Shleifer and Vishny 1993; Lee and Holoviak 2006).

We also reviewed the titles and abstracts of our sample to create a publication trend in each research stream during the last 51 years. Figure 6 shows that the first (the economic framework of crime and corruption) and third (the effect of corruption on aspects of national economics) research streams, which economists have been exploring extensively since 1990, peaked in 2015. The research on the second stream (legal institutions and corruption) has remained constant because researchers are concerned about the implementation of laws and regulations. The fourth (the combating and monitoring of corruption) and fifth (the determinants of corruption) streams are at the regeneration stage, as researchers are revisiting and exploring the measures and determinants of corruption and crime in this era of globalization and internationalization. However, the research on the sixth (political institutions and corruption) and seventh (the effect of corruption on firms) streams is underdeveloped and comparatively neglected. The keyword analysis in Figure 4 also confirmed the underdevelopment of the sixth and seventh research streams. Therefore, in Section 4, we recommend future research directions in these two areas.

Finally, we also summarized the data sources, measurements, and theoretical frameworks used in the 70 most influential papers in Table A4. This listing and summary of the critical aspects of

Figure 4. Keyword analysis to identify research areas in the literature through cartography analysis using VOSviewer.
these 70 papers should be helpful to researchers in producing additional quality research on the topic.

IV. Future research agenda

We used bibliometric citation and content analyses to identify future agendas (Bahoo 2020). First, we created a citation map (Figure 5) using the top 70 papers. Second, through HistCite we determined the trending (between 2009–2019) and most influential articles and reviewed them. Third, we analysed recent articles published in 2017, 2018, and 2019 to avoid citation bias. Fourth, we used the idea of putting ‘old wine in new bottles’ (Dunning, Kim, and Park 2008, 158) to re-explore past frameworks, theories, models, and inferences concerning corruption and crime in developing, emerging, and developed countries. Finally, we converted these researches into.

Figure 5. Research streams in the literature created by HistCite. *Top 70 influential articles with a minimum of 20 TLCs, resulting in the seven research streams listed in Table A3.

Figure 6. Publication trends in the seven research streams between 1968 and 2019. *However, more extensive research started on the topic in the 1990s.
gaps into future research questions under each research stream. The results appear in Table A5.

V. Conclusion

Corruption is a significant challenge for all societies and has a negative effect on their economic growth and development. It is one of the main reasons for the slow growth of developing countries. It exists in several forms: financial, non-financial, public, private, petty, and grand. It also occurs at the upper, middle, and lower levels of society in developed as well as underdeveloped countries. Due to globalization and the digitalization of the world economy, it has become an even more complex phenomenon. Thus, we must establish anti-corruption systems and revisit economic frameworks and models of corruption and crime. In addition, political corruption is a critical challenge for countries at all levels of development. Hence, it is essential to understand and explore the economic model of crime and corruption and its relationship to legal institutions, political institutions, and firms. These goals motivated our desire to summarize the literature on corruption in economics. While we used the full ISI WOK database, we recommend that future bibliometric studies on the topic use Scopus and Google Scholar database to validate our findings.

Disclosure statement

No potential conflict of interest was reported by the authors.

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References

Acemoglu, D., S. Johnson, and J. A. Robinson. 2012. “The Colonial Origins of Comparative Development: An Empirical Investigation: Reply.” American Economic Review 102 (6): 3077–3110.

Acemoglu, D., and T. Verdier. 1998. “Property Rights, Corruption, and the Allocation of Talent: A General Equilibrium Approach.” The Economic Journal 108 (450): 1381–1403.

Acemoglu, D., and T. Verdier. 2000. “The Choice between Market Failures and Corruption.” American Economic Review 90 (1): 194–211.

Ades, A., and R. Di Tella. 1999. “Rents, Competition, and Corruption.” The American Economic Review 89 (4): 982–993.

Ahmed, F., S. Bahoo, and A. Ayub. 2019. “Accountability, Governance, and Structure of Non-Profit Organizations: Evidence from Ghana, South Africa, and Zimbabwe.” New Horizons 13 (2): 19–36.

Ahmed, F., S. Bahoo, S. Aslam, and M. A. Qureshi. 2020. “Meta-Analysis on American Presidential Election-2016 and American Stock Market.” Estudios de Economia Aplicada 38(1): 1–10.

Aidt, T., J. Dutta, and V. Sena. 2008. “Governance Regimes, Corruption, and Growth: Theory and Evidence.” Journal of Comparative Economics 36 (2): 195–220.

Alam, M. S. 1989. “Anatomy of Corruption: An Approach to the Political Economy of Underdevelopment.” American Journal of Economics and Sociology 48 (4): 441–456.

Alon, I., S. Li, and J. Wu. 2016. “Corruption, Regime Type, and Economic Growth.” Public Finance and Management 16 (4): 332–361.

Alon, I., and T. T. Herbert. 2009. “A Stranger in A Strange Land: Micro Political Risk and the Multinational Firm.” Business Horizons 52 (2): 127–137. doi:10.1016/j.bushor.2008.09.004.

Andvig, J. C., and K. O. Moene. 1990. “How Corruption May Corrupt.” Journal of Economic Behavior & Organization 13 (1): 63–76.

Aria, M., and C. Cuccurullo. 2017. “Bibliometrix: An R-tool for Comprehensive Science Mapping Analysis.” Journal of Informetrics 11 (4): 959–975.

Bahoo, S. 2020. “Corruption in Banks: A Bibliometric Review and Agenda.” Finance Research Letters. (In Press). doi:10.1016/j.frl.2020.101499.

Bahoo, S., I. Alon, and A. Paltrinieri. 2019. “Corruption in International Business: A Review and Research Agenda.” International Business Review. (In Press). doi:10.1016/j.ibusrev.2019.101660.

Bahoo, S., I. Alon, and A. Paltrinieri. 2020. “Sovereign Wealth Funds: Past, Present, Future.” International Review of Financial Analysis. (In Press). doi:10.1016/j.irfa.2019.101418.

Bahoo, S., M. K. Hassan, A. Paltrinieri, and A. Khan. 2019. “A Model of the Islamic Sovereign Wealth Fund.” Islamic Economic Studies 27 (1): 2–22.

Bahoo, S., S. Saeed, M. J. Iqbal, and S. Nawaz. 2018. “Role of China-Pakistan Economic Corridor in Pakistani’ S Trade, Investment, Energy, Infrastructure, and Stock Market.” Journal of Independent Studies and Research-Managemen, Social Sciences and Economics 16 (1): 63–84.

Bai, J., S. Jayachandran, E. J. Maleksy, and B. A. Olken. 2017. “Firm Growth and Corruption: Empirical Evidence from Vietnam.” The Economic Journal 129 (618): 651–677.

Baltagi, B. H. 2006. “Estimating an Economic Model of Crime Using Panel Data from North Carolina.” Journal of Applied Econometrics 21 (4): 543–547.
Banerjee, A. V. 1997. “A Theory of Misgovernance.” The Quarterly Journal of Economics 112 (4): 1289–1332.

Bardhan, P. 1997. “Corruption and Development: A Review of Issues.” Journal of Economic Literature 35 (3): 1320–346.

Bardhan, P. 2017. “Corruption and Development: A Review of Issues.” In Political Corruption (3rd), 1–850. New York: Routledge.

Barr, A., and D. Serra. 2010. “Corruption and Culture: An Experimental Analysis.” Journal of Public Economics 94 (11–12): 862–869.

Basu, K., S. Bhattacharya, and A. Mishra. 1992. “Notes on Bribery and the Control of Corruption.” Journal of Public Economics 48 (3): 349–359.

Becker, G. S. 1968. “Crime and Punishment: An Economic Approach.” The Economic Dimensions of Crime 76 (2): 169–217.

Beltrán, A. 2015. “Does Corruption Increase or Decrease Employment in Firms?” Applied Economics Letters 23 (5): 361–364.

Berdiev, A. N., Y. Kim, and C.-P. Chang. 2013. “Remittances and Corruption.” Economics Letters 118 (1): 182–185.

Bertrand, M., and S. Mullainathan. 2004. “Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination.” American Economic Review 94 (4): 991–1013.

Besley, T., and J. McLaren. 1993. “Taxes and Bribery: The Role of Wage Incentives.” The Economic Journal 103 (416): 119.

Bliss, C., and R. D. Tella. 1997. “Does Competition Kill Corruption?” Journal of Political Economy 105 (5): 1001–1023. doi:10.1086/262102.

Broadus, R. 1987. “Toward a Definition of “Bibliometrics”. “ Scientometrics 12 (5–6): 373–379.

Cadot, O. 1987. “Corruption as A Gamble.” Journal of Public Economics 33 (2): 223–244.

Cainelli, G., M. A. Maggioni, T. E. Uberti, and A. D. Felice. 2012. “Co-Authorship and Productivity among Italian Economists.” Applied Economics Letters 19 (16): 1609–1613.

Des, A., and R. D. Tella. 1997. “National Champions and Corruption: Some Unpleasant Interventionist Arithmetic.” The Economic Journal 107 (443): 1023–1042.

Devaraj, S., and P. C. Patel. 2017. “An Examination of the Effects of 2014 Concealed Weapons Law in Illinois on Property Crimes in Chicago.” Applied Economics Letters 25 (16): 1125–1129.

Dey, H. K. 1989. “The Genesis and Spread of Economic Corruption: A Microtheoretic Interpretation.” World Development 17 (4): 503–511.

Donohue, J., and S. Levitt. 2001. “The Impact of Legalized Abortion on Crime.” The Quarterly Journal of Economics 116 (2): 379–420. doi:10.1162/003355301557103

Dove, J. A. 2017. “Some Additional Evidence on the Interplay between Corruption, Tax Policy and Firm Entry Using US States.” Applied Economics Letters 24 (18): 1307–1310.

Duggan, M. 2001. “More Guns, More Crime.” Journal of Political Economy 109 (5): 1086–1114. doi:10.3386/w7967.

Dunning, J., C. Kim, and D. Park. 2008. “Old Wine in New Bottles: A Comparison of Emerging-market TNCs Today and Developed-country TNCs Thirty Years Ago.” In The Rise of Transnational Corporations from Emerging Markets: Threat or Opportunity?, edited by K. P. Sauvant, 158–182. New York: Edward Elgar.

Ehrlich, I. 1996. “ Crime, Punishment, and the Market for Offenses.” Journal of Economic Perspectives 10 (1): 43–67.

Engel, C. 2011. “Dictator Games: A Meta Study.” Experimental Economics 14 (4): 583–610.

Faccio, M. 2006. “Politically Connected Firms.” American Economic Review 96 (1): 369–386.

Fan, C. S., C. Lin, and D. Treisman. 2009. “Political Decentralization and Corruption: Evidence from around the World.” Journal of Public Economics 93 (1–2): 14–34.

Ferraz, C., and F. Finan. 2008. “Exposing Corrupt Politicians: The Effects of Brazil’s Publicly Released Audits on Electoral Outcomes.” Quarterly Journal of Economics 123 (2): 703–745. doi:10.1162/qjec.2008.123.2.703.

Ferraz, C., and F. Finan. 2011. “Electoral Accountability and Corruption: Evidence from the Audits of Local Governments.” American Economic Review 101 (4): 1274–1311.

Fisman, R., and E. Miguel. 2007. “Corruption, Norms, and Legal Enforcement: Evidence from Diplomatic Parking Tickets.” Journal of Political Economy 115 (6): 1020–1048.

Fisman, R., and J. Svensson. 2007. “Are Corruption and Taxation Really Harmful to Growth? Firm-Level Evidence.” Journal of Development Economics 83 (1): 63–75.

Franses, P. H., and B. D. Groot. 2015. “Corruption and Inequality of Wealth Amongst the Very Rich.” Quality & Quantity 50 (3): 1245–1252.

Friedman, E., S. H. Johnson, D. Kaufmann, and P. Zoido. 1999. “Dodging the Grabbing Hand: The Determinants of Unofficial Activity in 69 Countries.” Journal of Public Economics 76 (3): 459–493.

Gaur, A., and M. Kumar. 2018. “A Systematic Approach to Conducting Review Studies: An Assessment of Content Analysis in 25 Years in IB Research.” Journal of World Business 53 (2): 280–289.

Glaeser, E., and R. Saks. 2006. “Corruption in America.” Journal of Public Economics 90 (6): 1053–1072.

Goel, R. K., J. Budak, and E. Rajh. 2014. “Private Sector Bribery and Effectiveness of Anti-Corruption Policies.” Applied Economics Letters 22 (10): 759–766.

Goel, R. K., and J. W. Saunoris. 2017. “Political Uncertainty and International Corruption.” Applied Economics Letters 24 (18): 1298–1306.

Groogor, J. 1995. “The Effect of Arrests on the Employment and Earnings of Young Men.” The Quarterly Journal of Economics 110 (1): 51–71. doi:10.2307/2118510.

Harel, A., and U. Segal. 1999. “Criminal Law and Behavioral Law and Economics: Observations on the Neglected Role of
Uncertainty in Deterring Crime.” American Journal of Economics and Interpretation 1 (1): 276–312.

Hindriks, J., M. Keen, and A. Muthoo. 1999. “Corruption, Extortion, and Evasion.” Journal of Public Economics 74 (3): 395–430.

HistCite Glossary. (2018). “HistCite Glossary.” http://www.

Horovitz, A., and U. Segal. 2007. The Ambiguous Nature of Ambiguity and Crime Control. N.Y.U. J.L. LIBERTY 541.

Imai, S., H. Katayama, and K. Krishna. 2006. Crime and Young Men: The Role of Arrest, Criminal Experience, and Heterogeneity. Cambridge, MA: NBER.

Jiménez, A., and I. Alon. 2018. “Corruption, Political Discretion and Entrepreneurship.” Multinational Business Review 26 (2): 111–125. doi:10.1108/mbr-01-2018-0009.

Kim, J., and S. J. McMillan. 2008. “Evaluation of Internet Advertising Research: A Bibliometric Analysis of Citations from Key Sources.” Journal of Advertising Research 37 (1): 99–112.

Knack, S. 2001. “Aid Dependence and the Quality of Governance: Cross-Country Empirical Tests.” Southern Economic Journal 68 (2): 310. doi:10.2307/1061596.

Keefer, P., and S. Knack. 1997. “Why Don’t Poor Countries Catch Up? A Cross-National Test of an Institutional Explanation.” Economic Inquiry 35 (3): 590–602.

Lee, D. Y., and S. J. Holoviak. 2006. “Unemployment and Crime: An Empirical Investigation.” Applied Economics Letters 13 (12): 805–810.

Levitt, S. 1995a. “Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime.” American Economic Review 92: 1236–1243. doi:10.3386/w4991.

Levitt, S. 1995b. “Why Do Increased Arrest Rates Apear to Reduce Crime: Deterrence, Incapacitation, or Measurement Error?” Economic Inquiry 36: 353–372. doi:10.3386/w5268.

Levitt, S. D. 2004. “Understanding Why Crime Fell in the 1990s: Four Factors that Explain the Decline and Six that Do Not.” Journal of Economic Perspectives 18 (1): 163–190.

Li, Q., and W. Long. 2017. “Do Parole Abolition and Truth-In-Sentencing Deter Violent Crimes in Virginia?” Empirical Economics 55 (4): 2027–2045.

Macrae, J. 1982. “Underdevelopment and the Economics of Corruption: A Game Theory Approach.” World Development 10 (8): 677–687.

Mauro, P. 1995. “Corruption and Growth.” Quarterly Journal of Economics, 110 (3): 681–712.

Mayer, J. W., W. Pyle, and P. M. Sommers. 2002. “Does Governance Explain Unofficial Activity?” Applied Economics Letters 9 (8): 537–539.

Mehrir, C., M. Palme, and M. Schnabel (2012). “The Effect of Education Policy on Crime: An Intergenerational Perspective.” Working Paper No. 18145, NBER.

Meyer, J., and K. Wohlrabe. 2017. “Standing on the Shoulder of Giants: The Aspect of Free-Riding in RePEc Rankings.” Applied Economics Letters 25 (4): 223–228.

Mian, A. R., and A. I. Khwaja. 2004. “Do Lenders Favor Politically Connected Firms? Rent Provision in an Emerging Financial Market.” SSRN Electronic Journal. doi:10.2139/ssrn.631703.

Mingers, J., and L. Leydesdorff. 2015. “A Review of Theory and Practice in Scientometrics.” European Journal of Operational Research 246 (1): 1–19.

Mo, P. H. 2001. “Corruption and Economic Growth.” Journal of Comparative Economics 29: 66–79.

Mookherjee, D., and I. P. L. Png. 1995. “Corruptible Law Enforcers: How Should They Be Compensated?” The Economic Journal 105 (428): 145.

Okunlola, O. C. 2018. “Political Regime Types and Economic Development in Nigeria: Significance of Conflict and Corruption.” Journal of Interdisciplinary Economics 31 (2): 183–216.

Olken, B. A. 2006. “Corruption and the Costs of Redistribution: Micro Evidence from Indonesia.” Journal of Public Economics 90 (4–5): 853–870.

Olken, B. A. 2007. “Monitoring Corruption: Evidence from a Field Experiment in Indonesia.” Journal of Political Economy 115 (2): 200–249.

Olken, B. A. 2009. “Corruption Perceptions Vs. Corruption Reality.” Journal of Public Economics 93 (7–8): 950–964.

Paltrinieri, A. M. K. Hassan, S. Bahoo, and A. Khan. 2019. “A Bibliometric Review of Sukuk Literature.” International Review of Economics & Finance. (In Press). https://www.

Pellegrini, L., and R. Gerlagh. 2004. “Corruptions Effect on Growth and Its Transmission Channels.” Kyklos 57 (3): 429–456.

Polinsky, A., and S. Shavell. 2001. “Corruption and Optimal Law Enforcement.” Journal of Public Economics 81 (1): 1–24. doi:10.1016/s0047-2727(00)00127-4.

Rath, K., and K. Wohlrabe. 2015a. “Recent Trends in Co-Authorship in Economics: Evidence from RePEc.” Applied Economics Letters 23 (12): 897–902.
Rath, K., and K. Wohlhrabe. 2015b. “Trends in Economics Publications Represented by JEL Categories between 2007 and 2013.” Applied Economics Letters 23 (9): 660–663.

Rauch, J. E., and P. B. Evans. 2000. “Bureaucratic Structure and Bureaucratic Performance in Less Developed Countries.” Journal of Public Economics 75 (1): 49–71.

Rose-Ackerman, S. 1975. “The Economics of Corruption.” Journal of Public Economics 1 (3): 207–230.

Sah, R. K. 1991. “Social Osmosis and Patterns of Crime.” Journal of Political Economy 99 (6): 1272–1295.

Saha, A., and G. Poole. 2000. “The Economics of Crime and Punishment: An Analysis of Optimal Penalty.” Economics Letters 68 (2): 191–196.

Sahay, A., and R. W. Vishny. 1993. “Corruption.” The Quarterly Journal of Economics 108 (3): 599–617.

Shleifer, A., and R. W. Vishny. 1994. “Politicians and Firms.” The Quarterly Journal of Economics 109 (4): 995–1025.

Simeon Djankov, S., L. La Porta, F. Lopez-de-Silanes, and A. Shleifer. 2003. “Courts.” The Quarterly Journal of Economics 118 (2): 453–517.

Sommer, V., and K. Wohlhrabe. 2016. “Citations, Journal Ranking and Multiple Authorships Reconsidered: Evidence from Almost One Million Articles.” Applied Economics Letters 24 (11): 809–814.

Strîmbu, O., and P. González. 2017. “Does Transparency Reduce Political Corruption?” Journal of Public Economic Theory 20 (2): 123–135.

Svensson, J. 2000. “Foreign Aid and Rent-seeking.” Journal of International Economics 51 (2): 437–461.

Svensson, J. 2003. “Who Must Pay Bribe and How Much? Evidence from a Cross Section of Firms.” The Quarterly Journal of Economics 118 (1): 207–230. doi:10.1162/00335530360535180.

Swamy, A., S. Knack, Y. Lee, and O. Azfar. 2001. “Gender and Corruption.” Journal of Development Economics 64: 25–55.

Thanh, L. T. 2017. “Corruption, Provincial Institutions, and Capital Structure: New Evidence from a Transitional Economy.” Organizations and Markets in Emerging Economies 8 (1): 105–117.

Tirole, J. 1996. “A Theory of Collective Reputations with Applications to the Persistence of Corruption and to Firm Quality.” The Review of Economic Studies 63 (1): 1.

Trawick, M. W., and R. M. Howsen. 2006. “Crime and Community Heterogeneity: Race, Ethnicity, and Religion.” Applied Economics Letters 13 (6): 341–345.

Treisman, D. 2000. “The Causes of Corruption: A Cross-National Study.” Journal of Public Economics 76 (3): 399–457.

Van der Ploeg, F. 2011. “Natural Resources: Curse or Blessing?” Journal of Economic Literature 49 (2): 366–420.

Witt, R., A. Clarke, and N. Fielding. 1998. “Crime, Earnings Inequality and Unemployment in England and Wales.” Applied Economics Letters 5 (4): 265–267.

Xu, C., and K. V. T. Veld. 2019. “Social Influence and Economic Incentives: Complements or Substitutes? — the Case of Fighting Crimes.” Economics Letters 180: 80–84.

Yu, F., Y. Guo, F. Lettic, and S. J. Barnes. 2019. “Regional Anti-Corruption Effort, Political Connections, and Firm Innovation Effort: Evidence from China.” Bulletin of Economic Research 71 (1): 18–32.

Yuret, T. 2014. “Why Do Economists Publish Less?” Applied Economics Letters 21 (11): 760–762.

Yuret, T. 2018. “Citation Performance of Thirty Keywords in Economics.” Applied Economics Letters 26 (14): 1167–1170.

Zhong, H. 2016. “Measuring Corruption in China: An Expenditure-based Approach Using Household Survey Data.” Economica 85 (338): 383–405.

Zupić, I., and T. Čater. 2015. “Bibliometric Methods in Management and Organization.” Organizational Research Methods 18 (3): 429–472.
### Table A1. Key methodological concepts and sample section process.

#### (i)-Key bibliometric terms used in the method (Kim and McMillan 2008)

| Terms                          | Explanation/Details                                                                 |
|-------------------------------|-------------------------------------------------------------------------------------|
| Co-Citation Analysis          | This term means that the same content and topics in articles are citing each other.  |
| Cartography Analysis          | Also called keyword analysis, it is based on the repetition of keywords in articles.|
| HistCite Software             | This programme is built to deal with the bibliometric data of ISI WOK. It accepts citation data as inputs and provides multiple outputs. |
| VOSviewer Software            | Another program that accepts ISI WOK bibliometric data and gives multiple outputs.  |

#### (ii)-HistCite software key output patterns (HistCite Glossary 2018)

| Pattern | Explanation/Details                                                                 |
|---------|-------------------------------------------------------------------------------------|
| P_corc  | It shows the number of articles published on the topic: Corruption in Economics.    |
| TLC     | Total Local Citations: Denotes the number of times an article is cited by others in the sample literature. |
| TGC     | Total Global Citations: Denotes the citations of an article based on the full ISI WOK count. An example is Becker (1968) in Table A3, which has the largest number of global citations in the ISI WOK. |
| TLC/t   | Total Local Citations Per Year: Calculated as the TLC divided by time (i.e., Mauro 1995). |
| TGC/t   | Total Global Citations Per Year: Represents the average citations per year (i.e., Becker 1968). |
| TLCe    | Total Local Citations indicate the number of citations an article received during the last three years at the end of the period of the study. In our case, that was between January 2016 and December 2019. |
| TLCR    | The total local cited references indicate how many times the references of the article or journal were cited by other articles in our sample of 4,488 articles. |

#### (iii)- Sample selection process for bibliometric analysis (Bahoo, Alon, and Paltrinieri 2019)

| Steps                                      | Explanation/Details                                                                 |
|--------------------------------------------|-------------------------------------------------------------------------------------|
| Database for citation data                | i. ISI Web of Knowledge (ISI WOK) ii. Available from 1945 and containing high-quality journals. |
| Keyword selection for literature in the database | i. 18 keywords for corruption: 'Corruption, Bribery, Bribe, Fraud, Crime, Criminal, Abuse, Manipulation, Extortion, Misconduct, Misrepresentation, Wrongdoing, Falsification, Criminal, Manipulating, Graffiti, Degradation, and Rent-Seeking.' ii. Corruption keywords are searched in the database in combination with the words 'Economics, Economic, and Economy.' |
| Keyword selection criteria                | i. First step: Content analysis of several papers on corruption in economics to identify keywords. ii. Second step: Create synonyms for corruption. iii. Third step: Search ISI WOK using these synonyms combined with 'Economics, Economic, and Economy.' |
| Key filters applied                        | (i) Article category: Economics. (ii) Search filters: Topic (Search keywords in title, abstract, or authors’ keywords). (iii) Paper type and language: Articles and English. (iv) Period of search: 1945 to December 2019 (1st paper published in 1968). |
| Initial Sample                            | 5,671                                                                               |
| Final Sample for Bibliometric Analysis (Screening of irrelevant and overlapping articles by reading titles and abstracts) | 4,488 |

**Note:** The table shows information about key bibliometric terms, HistCite software output patterns, and sample selection process for analysis.
Table A2. Influential aspects of the literature.

| Rank | Influence Journals | Influence Countries | Influence Institutions | Influence and Trending Articles | Influence Authors |
|------|--------------------|----------------------|------------------------|---------------------------------|------------------|
| 1    | Journal of Economic Behavior & Organization | USA | NBER | (Mauro 1995) | Gary S Becker |
| 2    | Applied Economics | UK | Harvard Univ | (Shleifer and Vishny 1993) | Susan Rose-Ackerman |
| 3    | Journal of Public Economics | Germany | World Bank | (Treisman 2000) | Andrei Shleifer |
| 4    | Applied Economics Letters | Italy | University of Chicago | (Bardhan, 1997) | Simon Johnson |
| 5    | Economics Letters | Australia | MIT | (Acemoglu, Johnson, and Robinson 2012) | Daron Acemoglu |
| 6    | American Economic Review | People's Republic of China | University of Pennsylvania | (Ollken 2007) | James A. Robinson |
| 7    | Economic Modelling | Canada | University of California Berkeley | (Ades & Tella) | Paolo Mauro |
| 8    | American Economic Review | France | IZA-institute of Labour Econ | (Ollken and Pande 2012) | Robert W. Vishny |
| 9    | European Economic Review | Spain | Stanford University | (Svensson 2003) | Simeon Djankov |
| 10   | Economic Journal | Netherlands | CEPR | (Simeon Djankov et al. 2003) | Steven D. Levitt |
| 11   | Games and Economic Behaviour | Ukraine | University of Michigan | (Ferraz and Finan 2008) | Edward L. Glaeser |

Note: The table identifies the most influential journals, countries, institutions, key articles/topics, and authors. *1,3, and 4 = sorted based P_CREC; 7 sorted based on TGC; 5 & 6 are sorted based on TLC/t and TGL/t. 2 = sorted based on TLCR = Total local cited references denote the number of cited references of a journal in our sample of study 4488. NBER = National Bureau of Economic Research, CEPR = Centre of Economic Policy Research, MIT = Massachusetts Institute of Technology. *Influential authors affiliations: a = Colombia University, b = Yale University, c = Harvard University, d = MIT, e = MIT, f = University of Chicago, g = IMF, h = University of Chicago, i = World Bank Group, j = University of Chicago, k = Harvard University
Table A3. Key papers that create a citation map of the literature.

| Stream | Stream title                                      | Key articles in each stream                                                                                     |
|--------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 1st    | The economic framework of crime and corruption    | (Becker 1968), (Rose-Ackerman 1975), (Andvig and Moene 1990), (Sah 1991), (Basu, Bhattacharya, and Mishra 1992), (Levitt 1995a), (Levitt 1995b), (Ehrlich 1996), (Saha and Poole 2000), (Machin and Meghir 2004), (Imai, Katayama, and Krishna 2006), (Baftaghi 2006), (Fisman and Miguel 2007), (Olken 2009), (Barr and Serra 2010), (Xu and Veld 2019), (Shleifer and Vishny 1993). |
| 2nd    | The legal institutions and corruption             | (Andvig and Moene 1990), (Grogger 1995), (Tirole 1996), (Keefer and Knack 1997) (Banerjee 1997), (Polinsky and Shavell 2001), (Devaraj and Patel 2017), (Li and Long 2017), (Li, Alon, and Wu 2017). |
| 3rd    | The effect of corruption of aspects of national economics | (Macrae 1982), (Mauro 1995), (Mauro 1998), (Acemoglu and Verdier 1998), (Witt, Clarke, and Fielding 1998), (Friedman et al. 1999), (Mo 2001), (Lambsdorff 2003), (Pellegrini and Gerlagh 2004), (Olken 2006), (Fisman and Svensson 2007), (Olken and Pande 2012), (Franses and Groot 2015), (Alon, Li, and Wu 2016), (Ferraz and Finan 2008), (Olken 2009), (Mehir, Palme, and Schnabel 2012), (Bardhan 2017). |
| 4th    | The combating and monitoring of corruption        | (Lui 1986), (Besley and McLaren 1993), (Mookherjee and Png 1995), (Harel and Segal 1999), (Rauch and Evans 2000), (May, Pyle, and Sommers 2002), (Olken 2007), (Frazz and Finan 2008), (Olken 2009), (Mehir, Palme, and Schnabel 2012), (Bardhan 2017). |
| 5th    | The determinants of corruption                    | (Cadot 1987), (Dey 1989), (Des and Tell 1997), (Bliss and Tell 1997), (Hindriks, Keen, and Muthoo 1999), (Des and Di Tell 1999), (Treisman 2000), (Svensson, 2000), (Polinsky and Shavell 2001), (Mommy et al. 2001), (Knack 2001), (Donohue and Levitt 2001), (Duggan 2001), (Levitt 2004), (Trawick and Howson 2006), (Lee and Holovak 2006), (Glaeser and Saks 2006). |
| 6th    | Political institutions and corruption             | (Alam 1989), (Aidt, Dutta, and Sena 2008), (Fan, Lin, and Treisman 2009), (Frazz and Finan 2011), (Goel and Saunoris 2017), (Jimenez and Alon 2018), (Alon and Herbert 2009), (Jimenez et al. 2017). |
| 7th    | The effect of corruption on firms                 | (Shleifer and Vishny 1994), (Acemoglu & Verdier, 2000), (SimeonDjankov et al. 2003), (Svensson 2003), (Faccio 2006), (Goel, Budak, and Rajh 2014), (Beltran 2015), (Dove 2017). |

Note: The table shows the 70 top-cited papers that create the citation map in Figure 5. *Complete reference details of cited papers are provided in Appendix B.
Table A4. Summary of data sources, methods, and theoretical frameworks.

| Measurement of Corruption | Date Source | References |
|----------------------------|-------------|------------|
| Corruption index (i)-Data Sources | Business International (BI)-The Economist Intelligence Unit | (Mauro 1999), (Ades and Di Tella 1999), (Rauch and Evans 2000), (Treisman 2000). |
| Corruption Index | Peter Neumann Collections in 1994. | Des and Tella 1997 |
| Corruption Perception Index | Transparency International (TI) | (Treisman 2000), (Swamy et al., 2001), (Mo 2001), (Simeon Djankov et al. 2003), (Lambsdorff 2003), (Pellegrini and Gerlagh 2004), (Aidt, Dutta, and Sena 2008). |
| Corruption Index | International Country Risk Guide | (Mauro 1998), (Rauch and Evans 2000), (Friedman et al. 1999), (Swamy et al., 2001), (Faccio 2006), (Knack 2001). |
| Red Tape Index | Business and Environmental Risk Intelligence | (Rauch and Evans 2000) |
| Corruption Index | From Country Risk | (Keer and Knack 1997) |
| Corruption Index | World Competitiveness Report | (Des and Tella 1997), (Ades and Di Tella 1999) |
| Corruption Index | World Bank Governance Indices Survey | (Swamy et al., 2001), (Faccio 2006) |
| German Survey of Corruption | | (Faccio 2006) |
| Bribe Payment survey of Firms | Ugandan Industrial Enterprise Survey | (Fisman and Svensson 2007) |
| Bribe Payment by Firms | World Business Environment Survey (WBES) | (Fan, Lin, and Treisman 2009) |

ii-Methods

| Method | References |
|--------|------------|
| Qualitative Analysis | References |
| Ordinary Least Square-Regression | (Mauro 1999), (Keer and Knack 1997), (Mauro 1998), (Ades and Di Tella 1999), (Des and Tella 1997), (Rauch and Evans 2000), (Treisman 2000), (Friedman et al. 1999), (Swamy et al., 2001), (Mo 2001), (Simeon Djankov et al. 2003), (Lambsdorff 2003), (Svensson 2003), (Pellegrini and Gerlagh 2004), (Olken 2006), (Fisman and Svensson 2007), (Fisman and Miguel 2007), (Ferraz and Finan 2008), (Fan, Lin, and Treisman 2009), (Olken 2009), (Ferraz and Finan 2011), (Machin and Meghir 2004), (Ilai, Kayama, and Krishna 2006), (Grogger 1995), (Knack 2001), (Donohue and Levitt 2001). |
| Randomized Field Experiment | (Olken 2007) |
| Literature Review | (Bardhan 2017) |
| Panel Regression | (Ades and Di Tella 1999), (Baltagi 2006), (Li and Long 2017), (Aidt, Dutta, and Sena 2008). |
| Jarque-Bera Measure | (Lambsdorff 2003) |
| Probit Regression | (Svensson 2003) |
| Economic Experiment | (Barr and Serra 2010) |

iii-Theoretical Frameworks

| Theory | References |
|--------|------------|
| Theory of Collective Reputations | (Tire 1996) |
| Theory of Misgovernance | (Banerjee 1997) |
| Principal-Agent Theory | (Hindriks, Keen, and Muthoo 1999) |
| Schumpeter's Theory of Economic Development | (Mo 2001) |
| Theory of Optimal Law Enforcement | (Polinsky and Shavell 2001) |
| Public Interest Theories of Regulation | (Simeon Djankov et al. 2003) |
| Public Choice View Theory | (Simeon Djankov et al. 2003) |
| Corporate Governance Theory | (Aidt, Dutta, and Sena 2008), (Knack 2001) |
| Political Agency Framework of Besley | (Ferraz and Finan 2011) |
| Economic Theory of Corruption | (Glaeser and Saks 2006) |
| Standard Economic Incentive Theory | (Olken and Pande 2012) |

Note: The table shows the data sources, methods, and theoretical frameworks applied in the 70 papers that create the citation map (Figure 5).
### Table A5. Future research questions.

| Stream                                      | Sr. No | Reference                     | Research Questions/Explanation                                                                                                                                 |
|---------------------------------------------|--------|-------------------------------|-------------------------------------------------------------------------------------------------------|
| 1st The economic framework of crime and corruption | 1      | (Ehrlich 1996)                | Is there any need to extend the market model of crime by analysing the hypothesis of positive and negative incentives empirically and the effect of punishment on the offenders in developing, emerging and developed economies in this era of digitalization? |
| 2nd The legal institutions and corruption   | 2      | (Horovitz and Segal 2007)     | How does ambiguity affect a person’s decision to commit a crime, and what is the role of ambiguity in the legal framework to combat crime? |
|                                             | 3      | (Harel and Segal 1999)        | How does the public perceive the certainty in criminal law and the efficiency of the criminal legal system in developing, emerging, and developed countries in the 21st century? |
| 3rd the effect of corruption on aspects of national economics | 4      | (Bliss and Tella 1997)        | Is corruption having any effect on the welfare of the economy and society in developing and emerging countries? |
|                                             | 5      | (Acemoglu & Verdier, 2000)    | What forms of corruption are most harmful and cost the most for the economy – bureaucratic corruption or private corruption? |
| 4th the combating and monitoring of corruption | 6      | (Fan, Lin, and Treisman 2009) | Are decentralization, centralization, and the appointment of honest officials useful measures to combat corruption? |
|                                             | 7      | (Imai, Katayama, and Krishna 2006) | Is there a racial bias in arrests and convictions? Are habitual criminals indeed able to better evade arrest? |
| 5th the determinants of corruption          | 8      | (Zhong 2016)                  | How can we measure corruption in China? What is the relationship between corruption and the shadow economy in China? |
|                                             | 9      | (Acemoglu and Verdier, 1998)  | Does the concept of a free lunch exist in developing and emerging countries such as China? Are developing and emerging countries tolerant of corruption, and what are the costs and benefits of corruption and the enforcement of property rights? |
|                                             | 10     | (Treisman 2000)               | Do the cultural and religious traditions of countries cause high-level corruption? |
|                                             | 11     | (Berdiev, Kim, and Chang 2013) | What is the effect of foreign remittances on the level of corruption, and what types of remittances have the most impact? |
| 6th the political institutions and corruption | 12     | (Ferraz and Finan 2008)       | What is the effect of the public dissemination of audits about the corruption activities of politicians on the improvement of corporate governance and the reduction of corruption? |
|                                             | 13     | (Ferraz and Finan 2011)       | What is the impact of electoral accountability on governance and the voters’ welfare? |
|                                             | 14     | (Strîmbu and González 2017).  | What is the effect of transparency (the monitoring of public officials) on political corruption? |
| 7th the effect of corruption on firms       | 15     | (Okunlola 2018)               | How do political regimes moderate the relationship between corruption and economic development? |
|                                             | 16     | (Tirole 1996)                 | Does the theory of collective reputations work as the aggregate of an individual’s (firm’s) reputation (level of corruption) in developing, emerging, and developed countries? |
|                                             | 17     | (Bai et al. 2017)             | Do firm growth and mobility help reduce the level of corruption at the country level internationally? |
|                                             | 18     | (Thanh 2017)                  | What is the effect of country-level corruption on the firm’s capital structure? |
|                                             | 19     | (Yu et al. 2019)              | What is the effect of the political connections of a firm’s leadership on the level of corruption at the country level? |
|                                             | 20     | (Yu et al. 2019)              | Do anti-corruption efforts moderate the relationship between a firm’s political connections and R&D investments? |

Note: The table shows 20 thought-provoking future research questions on the topics