Wu, Dongwu; Wu, Linlin; Ye, Yongbo

Industrial structure optimization, economic development factors and regional economic risk prevention in post COVID-19 period: empirical analysis based on panel data of guangdong regional economy. (English) [Zbl 07610149] J. Comb. Optim. 44, No. 5, 3735-3777 (2022)

Summary: In the post-COVID-19 period, the regional economic development gap in Guangdong has expanded and the risk has increased. This is not conducive to building a well-off society in Guangdong in an all-round way. Optimizing the industrial structure, changing the mode of economic growth, preventing regional economic risks, and narrowing the regional economic development gap are the focus of Guangdong governments at all levels. Based on a two-sector economic growth model, the paper uses descriptive statistics and Deng’s grey correlation method to analyze the economic development panel data of 21 prefecture-level cities of Guangdong Province from 2011 to 2018, analyzes the characteristics of regional economic development in Guangdong, and makes experimental research of the effect of industrial structure optimization and economic development factors on economic growth in Guangzhou, Zhongshan, Shantou, Maoming and Meizhou at different stages of development. The results show that: there are differences in the industrial structure and the level of economic development in different regions; the rationalization of industrial structure and upgrading of the industrial structure has an impact on economic growth and show different features during different stages; in different stages of economic development, foreign trade, scientific and technological innovation are the main factors affecting regional economic growth. This paper holds that the northwest of Guangdong Province and the Pearl River Delta should formulate industrial structure adjustment policies to promote the rationalization of regional industrial structure, expand foreign trade channels and innovate financing mechanisms, and restrain regional economic risks in combination with regional characteristics. The new development pattern of domestic and international dual circulation and mutual promotion, further expands the level of opening up, effectively playing the role of free trade pilot areas, free trade ports, special economic zones, development zones, bonded areas, and other frontier highlands, improve the level and capacity of foreign trade.

MSC: 90Cxx Mathematical programming

Keywords: relevance; regional economic growth; industrial structure optimization; economic development factors; rationalization; economic risks; mutual promotion

Full Text: DOI

References:
[1] Acemoglu, D.; Guerrieri, V., Capital deepening and non-balanced economic growth, J Polit Econ, 116, 3, 467-498 (2006): doi:10.1086/589523
[2] Aghion, P.; Fally, T.; Scarpetta, S., Cyclical fiscal policy, credit constraints, and industry growth, J Monet Econ, 62, 41-58 (2014): doi:10.1016/j.jmoneco.2013.12.003
[3] Atay, M.; Eroğlu, Y.; UlusamSeçkiner, S., Investigation of breaking points in the airline industry with airline optimization studies through text mining before the COVID-19 pandemic, Transp Res Rec (2021): doi:10.1177/0361198120987238
[4] Baumol, WJ, Macro-economics of unbalanced growth: the anatomy of urban crisis, Am Econ Rev, 57, 3, 415-426 (1967)
[5] Boppart, T., Structural change and the Kaldor facts in a growth model with relative price effects and non-Gorman preferences, Econometrica, 82, 6, 2167-2196 (2014) · Zbl 1419.91488 · doi:10.3982/ECTA11354
[6] Cai W (2015) Structural change accounting with labor market distortions. Departmental Working Papers 57:54-64
[7] Chen, L.; Xu, L.; Xu, Q.; Yang, Z., Optimization of the urban industrial structure under the low-carbon goal and the water constraints: a case in Dalian, china, J Clean Prod, 114, 323-333 (2016): doi:10.1016/j.jclepro.2015.09.056
[8] Chenery H, Robinson S, Syrquin M (1986) Industrialization and growth: a comparative study. Published for the World Bank [by] Oxford University Press 13(4):591-596
[9] Coelli, TJ; PrasadaRao, DS; O’Donnell, CJ; Battese, GE, An introduction to efficiency and productivity analysis (2005), New
[10] De Gooijer, JG; Hyndman, RJ. 25 years of time series forecasting. Int. J. Forecast. 22, 3, 443–473 (2006)- doi:10.1016/j.ijforecast.2006.01.001

[11] Dube, K.; Nhamo, G.; Chikodzi, D., COVID-19 cripples' the global restaurant and hospitality industry, Curr. Issue Tour. 24, 11, 1487-1490 (2021).- doi:10.1890/13683500.2020.1773416

[12] Fagerberg, J., Technological progress, structural change, and productivity growth: a comparative study, Struct Chang Econ Dyn. 11, 4, 393-411 (2000).- doi:10.1016/S0954-349X(00)00025-4

[13] Harrigan, J., Technology, factor supplies, and international specialization: estimating the neoclassical model, Am. Econ. Rev. 87, 4, 475-494 (1997)

[14] Healy, T., Cote S (2001) The well-being of nations: the role of human and social capital, education and skills. sourced employment (2), I-121(122)

[15] LeSage JP, Pace RK (2008) Introduction to spatial econometrics. rei (123):19-44

[16] Li B (2018) Association study of the fluctuations in gold futures and actuals markets. In: Proceedings of 2018 international symposium on social science and management innovation (SSMI 2018), pp 350-358

[17] Li, Y.; Shan, H., The fuzzy grey relational analysis of the factors influencing farm produce logistics, Asian Agric Res, 2014, 5, 1-4 (2014)

[18] Lin Y (2011) New structural economics: a framework for rethinking development. Policy Research Working Paper Series 51(3):323-326

[19] Lin, Y.; Liu, S., Several programming models with unascertained parameters and their applications. J Multi-Criteria Decis. Analysis, 8, 4, 206-220 (1999).- Zbl 0959.90032 - doi:10.1002/(SICI)1099-1360(199907)8:4<206::AID-MCDA246-3.0.CO;2-S

[20] Luo, X.; Yang, Y.; Ge, Z.; Wen, X.; Guan, F., Fuzzy grey relational analysis of design factors influencing maintainability indices, Proc Inst Mech Eng Part E J Process Mech Eng, 229, 1, 78-84 (2015).- doi:10.1177/095440891522616

[21] Pan, WT; Huang, QY; Yang, ZY; Zhu, FY; Pang, YN; Zhuang, ME, Determinants of tourism stocks during the COVID-19: evidence from the deep learning models, Front Public Health (2021).- doi:10.3389/fpubh.2021.675801

[22] Pang, S.; Yang, J., Social reputation loss model and application to lost-linking borrowers in a P2P platform, Peer-to-Peer Netw Appl, 13, 1193-1203 (2020).- doi:10.1007/s12083-019-00848-7

[23] Pang, S.; Xian, H.; Li, R., A default penalty model based on C2VP2C mode for internet financial platforms in the Chinese market, Electron Commer Res, 10, 1-13 (2020)

[24] Park, S-H, Linkages between industry and services and their implications for urban employment generation in developing countries, J Dev Econ, 30, 6, 359-379 (1989)- doi:10.1016/0022-0531(89)90009-6

[25] Peneder, M., Industrial structure and aggregate growth, Struct Chang Econ Dyn, 14, 4, 206-220 (1999).- Zbl 0959.90032 - doi:10.1002/(SICI)1099-1360(199907)8:4<206::AID-MCDA246-3.0.CO;2-S

[26] Qa, X.; Lee, L., Estimating a spatial autoregressive model with an endogenous spatial weight matrix - Science Direct, J Econom, 184, 2, 209-232 (2015).- doi:10.1016/j.jeconom.2014.08.008

[27] Reinikka, R.; Svensson, J., Coping with poor public capital, J Dev Econ, 69, 1, 51-69 (2002).- doi:10.1016/S0304-3878(02)00052-4

[28] Rostow, WW, The stages of economic growth, Econ Hist Rev, 12, 1, 1-16 (1959).- doi:10.1111/j.1468-0289.1959.tb01829.x

[29] Scholtens, B.; Dam, L., Banking on the equity are banks that adopted the equity principles different from non-adopters?, World Dev, 35, 8, 1367-1328 (2007).- doi:10.1016/j.worlddev.2006.10.013

[30] Setiawan, T.; Putro, FHA, Optimization of economic less contact through digital marketing techniques in the MSME industry at SIMO district, Boyolali Regency, Int J Multi-Sci, 2, 8, 72-82 (2021)

[31] Singh A (2007) Globalization, industrial revolutions in India and china and labor markets in advanced countries: implications for national and international economic policy. MPRA Paper

[32] Wang, Y.; Ke, Y.; Ma, X.; Ren, Y., What are the Industrial Structure Changes in China?, J Syst Sci Inf, 06, 487-503 (2020)

[33] Wang M, Chou L (2018) Research on Industrial Production Performance of Chinese Prefecture-level Cities. In: Proceedings of 2018 international conference on information, teaching and applied social sciences (ITASS 2018). Singapore Management University, Singapore, pp 77-81

[34] Yahya M, Gunawan I, Viandani T (2022) Optimizing the village-owned business agencies (Bumdes) to develop village-based halal industry in the new adaptation of Covid-19 outbreak

[35] Zheng, X.; Yu, Y.; Wang, J.; Deng, H., Identifying the determinants and spatial nexus of provincial carbon intensity in china: a dynamic spatial panel approach, Reg Environ Change, 14, 4, 1651-1661 (2014).- doi:10.1007/s10113-014-0611-2

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.