

Analysis of Green Total Factor Productivity in Guangdong Province -- Online Appendix

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Table A1 GTFP and its sub-indices in Guangdong, 2000-2018.

Year	GTFP Index	Technical efficiency Rate Index	Technology advancement Step index	Year	GTFP Index	Technical efficiency Rate Index	Technology advancement Step index
2000-2001	1.0640	0.9551	1.1152	2010-2011	1.0486	0.9898	1.0594
2001-2002	1.0265	0.9562	1.0773	2011-2012	1.0443	0.9697	1.0769
2002-2003	1.0025	0.9532	1.0524	2012-2013	1.0574	0.9838	1.0745
2003-2004	1.0341	0.9805	1.0555	2013-2014	1.0106	0.9907	1.0198
2004-2005	1.0423	0.9847	1.0587	2014-2015	1.0411	0.9794	1.0631
2001-2005	1.0339	0.9659	1.0718	2011-2015	1.0404	0.9827	1.0587
2005-2006	1.0539	0.9676	1.0953	2015-2016	1.0291	0.9737	1.0564
2006-2007	1.0532	0.9813	1.0745	2016-2017	1.0478	0.9991	1.0478
2007-2008	1.06890	0.9705	1.1008	2017-2018	1.0361	1.0190	1.0165
2008-2009	1.0484	0.9487	1.1049	2016-2018	1.0376	0.9973	1.0402
2009-2010	1.0455	0.9912	1.0544	Total mean value	1.0420	0.9769	1.0676
2006-2010	1.0540	0.9719	1.0860	General Trends	-0.0001	0.0023	-0.0027

Note: The GTFP Index, Technological Progress Index and Technical Efficiency Index for each year in Guangdong Province are the arithmetic averages of the corresponding indices for each prefecture-level city under its jurisdiction. The overall trend values are the GTFP index and its Decomposition of the values of the linear regression coefficients with respect to time, respectively.

Table A2 GTFP impact factor indicators

Indicators	Measurement Method	Symbols	Directional expectations
Economic Development Level	Real GDP per capita in logarithm	GDP	Positive / Negative
Industry Structure	Value added of tertiary industry/value added of secondary industry	SEC	Positive / Negative
Government intervention	General fiscal expenditures/Gross regional product	GOV	Positive / Negative
Trade Opening	Total imports and exports / GDP	FT	Positive / Negative
Open for Investment	Actual utilization of foreign investment/regional GDP	FDI	Positive / Negative

Human Capital	Number of students enrolled in higher education/year-end resident population	HC	Positive
R&D investment	R&D investment/regional GDP	TC	Positive
Financial Development	Deposit balance/loan balance of financial institutions	FIN	Positive

Note: A positive directional expectation means that the explanatory variable has a facilitative effect on the explained variable, and vice versa has a suppressive effect.

Table A3 Estimation results of the green technology efficiency index model

Variables	Mixed regression	Random effects	Individual fixed effects	Time fixed effects	Two-way fixed effect
GDP	0.0289*** (4.79)	0.0280*** (4.29)	0.0283** (2.51)	0.0416*** (3.67)	-0.0720 (-1.56)
SEC	0.00748 (1.46)	0.00573 (1.05)	0.00156 (0.23)	0.00809 (1.53)	-0.0148* (-1.85)
GOV	0.0177 (0.39)	-0.0139 (-0.26)	-0.149 (-1.54)	0.0733 (1.12)	-0.330*** (-2.90)
FT	-0.0119*** (-2.68)	-0.0125** (-2.49)	-0.0250** (-2.59)	-0.0176*** (-3.46)	-0.0293*** (-2.81)
FDI	0.147* (1.73)	0.141 (1.57)	0.134 (1.13)	0.231** (2.49)	0.200 (1.51)
HC	-0.0510 (-0.29)	0.0441 (0.22)	0.298 (0.82)	-0.128 (-0.72)	0.176 (0.49)
TC	0.414 (1.01)	0.334 (0.72)	-0.465 (-0.66)	0.0530 (0.11)	-2.161*** (-2.77)
FIN	0.00931 (1.56)	0.0107* (1.66)	0.0136* (1.76)	0.00927 (1.35)	0.00719 (0.62)
_cons	0.652*** (9.60)	0.665*** (9.20)	0.696*** (5.84)	0.522*** (4.28)	1.697*** (3.76)
Panel Settings F-test	-	-	2.26 [0.0017]	1.97 [0.0122]	-
BP-LM test	-	3.90 [0.0241].	-	-	-
Hausman test	-	9.70 [0.2864].		-	-
N	378	378	378	378	378
R ²	0.14	-	0.09	0.11	0.21
adj. R ²	0.12	-	0.02	0.05	0.11

Note: The corresponding t-values of the parameters are in round brackets, and the p-values of the corresponding tests are in square brackets. ***, **, and * represent 1%, 5%, and 10% significance levels, respectively.

Table A4 Estimation results of the green technology progress index model

Variables	Mixed regression	Random effects	Individual fixation	Fixed time	Two-way fixed
GDP	-0.0187*** (-2.77)	-0.0250*** (-3.10)	-0.0547*** (-4.59)	0.0344*** (2.95)	-0.0184 (-0.39)
SEC	-0.0136** (-2.35)	-0.0123* (-1.94)	-0.0189*** (-2.70)	-0.0127** (-2.33)	-0.0101 (-1.26)
GOV	-0.214*** (-4.24)	-0.163** (-2.29)	0.0316 (0.31)	0.0708 (1.06)	0.223* (1.95)
FT	-0.00595 (-1.20)	-0.000766 (-0.12)	-0.0178* (-1.75)	-0.0197*** (-3.77)	-0.0173 (-1.64)
FDI	0.0824 (0.87)	0.0510 (0.49)	-0.158 (-1.27)	-0.0847 (-0.89)	-0.128 (-0.96)
HC	1.307*** (6.70)	1.293*** (4.66)	1.009*** (2.62)	1.007*** (5.49)	1.004*** (2.77)
TC	0.746 (1.62)	0.497 (0.85)	-0.599 (-0.80)	-0.282 (-0.58)	0.752 (0.96)
FIN	-0.00273 (-0.41)	0.000722 (0.10)	0.00518 (0.64)	0.0000425 (0.01)	-0.0110 (-0.94)
_cons	1.285*** (16.87)	1.335*** (15.42)	1.651*** (13.10)	0.735*** (5.87)	1.316*** (2.90)
Panel Settings F-test	-	-	4.77 [0.0000]	6.39 [0.0000]	-
BP-LM test	-	51.66 [0.0000]	-	-	-
Hausman test	-	14.16 [0.0776].		-	-
N	378	378	378	378	378
R ²	0.18	-	0.12	0.22	0.31
adj. R ²	0.16	-	0.05	0.16	0.22

Note: Same as Table A3.