

# **Influential Article Review - Examining Data from China: Industrial Policy, Structural Reform, and Economic Development**

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*This paper examines economics. We present insights from a highly influential paper. Here are the highlights from this paper: Industrial policy is an important means for governments to promote industrial development and accelerate economic growth. This paper mainly uses the Chinese Law and Regulation Database as the source of the relevant laws and regulations of China's industrial policies from 2003 to 2015. On this basis, it empirically examines the impact of industrial policies on economic growth. The study finds that China's industrial policy has significant positive effects on economic growth and that industrial structure rationalization is an important channel of industrial policy to improve economic growth. The findings are also valid under a series of robustness tests and endogenous corrections. The results of heterogeneity tests confirm that there are heterogeneous effects pertaining to industrial policy on economic growth among different sub-regional areas, administrative levels, industrial development stages, and industrial policy types. Overall, this paper supports the hypothesis that industrial policy has positive effects on economic growth and, accordingly, provides a basis for industrial policy implementation. For our overseas readers, we then present the insights from this paper in Spanish, French, Portuguese, and German.*

*Keywords: Economic growth, Industrial policy, Industrial structure, Structure rationalization, China*

## **SUMMARY**

- Mechanism test. Several studies show that China's economic growth is related to industrial structural transformation. The industrial structure is the mediation variable, including industrial structure rationalization and industrial structure upgrade. The methods to examine whether the mediation effect exists can be summarized in the following four steps. First, the significance of the estimation coefficient  $\beta_1$  is tested, and the second step test is continued if  $\beta_1$  is significant. Second, the significance of the estimation coefficients  $\beta_3$  and are tested.
- Mechanism test. The regression result shows that the first step in the mediation effect test is passed. Further, according to the regression results of the columns , , , and in Table 5, industrial policy has a significant positive impact on the industrial structure rationalization, but has no obvious effect on the industrial structure upgrade. The possible explanation for this result is that industrial policy plays an

active role in optimizing resource allocation and guiding the flow of resources to high-productivity industries, which in turn leads to the rationalization of industrial structure.

- Heterogeneity test: different sub-regional areas. Considering the heterogeneities of industrial structure and development levels in sub-regional areas in China, this paper further tests the effects of industrial policy on economic growth in different sub-regional areas. According to the China National Bureau of Statistics, we divide China into four sub-regional areas for economic analyses: the east, the west, the northeast and the midland.<sup>Footnote6</sup> This paper further tests the relationship between industrial policy and economic growth in these sub-regional areas.
- Heterogeneity test: different administrative levels. Administrative levels of cities may influence efficiency in resource allocation, and further influence economic growth. This paper further examines the effects of industrial policy on economic growth at different administrative levels.<sup>Footnote7</sup> Specifically, this paper divides cities into two groups, which are the sub-provincial cities and the other cities.
- Heterogeneity test: different industrial development stages. This paper further divides cities into the secondary industry dominant type and the tertiary industry dominant type.<sup>Footnote8</sup> On the basis of this, the paper examines whether there are heterogeneous effects of industrial policy on economic growth in these two types of cities.
- Heterogeneity test: different industrial policy types. Industrial policy can be roughly divided into selective industrial policy and functional industrial policy. Although China has gradually increased its emphasis on the formulation of functional industrial policy, selective industrial policy is still the main body of industrial policy in China. Selective industrial policy calls for direct government intervention in the market and may restrict competition, which is based on the idea of «picking winners.» Specifically, the government supports the development of specific industries or enterprises through approval, guidance, subsidies, tax incentives, and other administrative means. However, the main characteristic of functional industrial policy is «market-oriented,» which means the government should be a supplement to the market mechanism and maintain a competitive market environment. The empirical results of heterogeneity tests discussed above show that industrial policy has heterogeneous effects on economic growth in different sub-regional areas, administrative levels, industrial development stages, and industrial policy types, which confirms Hypothesis 2.
- Change the estimation method: Specifically, this paper further uses the random effect and the pooled least-squares method to estimate. Table 10 shows the detailed estimated results. It demonstrates that after changing the estimation methodology, industrial policy still has a significant positive effect on economic growth.
- Use the weak endogenous sample: The motivation and ability of local governments to design and implement industrial policies may be related to economic development. Specifically, when economic development reaches a certain level, the economy may enter an adjustment period. At this stage, local governments may have more incentives to implement corresponding industrial policies. However, gaps in the ability of local governments to design and implement industrial policies may exist. The areas with high economic development level are more likely to have effective and reasonable industrial policies. Therefore, lesser endogenous problems caused by the two-way causality between the level of economic development and industrial policy may exist. Thus, the paper uses a weak endogenous sample; that is, this paper selects the sample with economic growth below the median level for analysis. As can be seen in Table 10, the regression results of the weak endogenous sample also support the conclusion that industrial policy contributes to economic growth.

## **HIGHLY INFLUENTIAL ARTICLE**

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

Chen, J., & Xie, L. (2019). Industrial policy, structural transformation and economic growth: evidence from China. *Frontiers of Business Research in China*, 13(1), 1–19.

This is the link to the publisher's website:

<https://fbr.springeropen.com/articles/10.1186/s11782-019-0065-y>

## INTRODUCTION

The New Structural Economics emphasizes the role of government intervention on market economy, and holds the view that governments should provide judicious guidance according to various circumstances, especially to solve external problems that enterprises may face in the process of industrial upgrading and to coordinate the infrastructure investment that cannot be internalized by an enterprise's decision-making (Lin 2012). In fact, industrial policy is an important tool for a government to guide economic development. By implementing industrial policy, the government intervenes in the process of resource allocation and the distribution of benefits, restricts or induces the behavior of enterprises, and influences the direction of industrial development (Wang and Qi 1996). This paper therefore aims to examine the effects of industrial policy in China.

In recent years, a large number of studies have presented useful discussions and research on industrial policy, primarily focusing on strategy, objective, and effect of industrial policy (Aghion et al. 2015; Beason and Weinstein 1996; Criscuolo et al. 2012; Haeri and Arabmazar 2018; Han et al. 2017; Krueger and Tuncer 1982; Li and Zheng 2016; Nathan and Overman 2013; Pack and Saggi 2006; Sanjaya 2004; Song and Wang 2013; Yu et al. 2016). However, most existing studies discuss industrial policy qualitatively, while only a few attempt to analyze the effects from the quantitative perspective. In addition, most existing quantitative studies use financial and fiscal tools or specific policy to measure industrial policy.

Specifically, in terms of quantitative research regarding the effects of industrial policy, Krueger and Tuncer (1982) use trade protection policy to test the infant industry protection theory. The results show that trade protection policy does not significantly improve the productivity of infant industries, which indicates that the infant industry protection theory is not verified. Beason and Weinstein (1996) use tax incentives, subsidies, and industrial protection as proxy variables for industrial policy. The empirical results also show that industrial policy does not improve total factor productivity (TFP). Criscuolo et al. (2012) use the changes in industrial policy rules to measure industrial policy. Their study finds that industrial policy has a positive effect on employment, investment and net entry of plants, but does not significantly improve TFP. Song and Wang (2013) use three Five-Year Plans to represent key industrial policy. Their study demonstrates that industrial policy does promote overall industrial productivity. Aghion et al. (2015) use tax incentives, government subsidies, and R&D subsidies to measure industrial policy. Based on both the innovation scale effect theory and competition theory, their study analyzes the impact of industrial policy on TFP of industrial sectors in China. The empirical results show that if industrial policy can promote competition, it will be beneficial to TFP. Li and Zheng (2016) and Yu et al. (2016) focus on whether industrial policy can promote innovation. Their studies find that industrial policy does contribute to more patents, but most firms pursue innovation by quantity rather than by quality for support-seeking purposes. Han et al. (2017) innovatively measure industrial policy by using the number of industrial policies and regulations included in the Chinese Law and Regulation Database, and their study finds that industrial policy does promote industrial structure transformation.

In conclusion, the current research includes many theoretical discussions and empirical studies on the effects of industrial policy. However, research which measures industrial policy at the micro level and regards industrial structural transformation as the potential mechanism for industrial policy to impact economic growth is still quite rare. In fact, industrial policy is an important tool for governments to accelerate structural transformation, enhance efficiency and promote economic growth (Chang et al. 2013). Exploring whether industrial policy can promote economic growth and examining if industrial structural transformation is the potential mechanism can reveal the effects of industrial policy more thoroughly and practically.

In addition to researching prospective innovation, this paper contributes to emerging literature by measuring industrial policy at the micro level. Specifically, based on theory analyses, this paper draws from

Han et al. (2017), which provides a micro-level quantitative measurement of industrial policy by using the Chinese Law and Regulation Database. Measuring industrial policy at the micro level can lead to a more accurate evaluation of effects of industrial policy, and also provide a more objective basis of industrial policy design for governments. In addition, although this research draws from Han et al. (2017) for industrial policy measurement, it measures industrial policy at the city level rather than at the provincial level. Considering the great heterogeneities existing in Chinese cities, industrial policy may have heterogeneous effects at the city level. Therefore, in order to obtain more reliable results, it is necessary to further conduct research at city level.

The study results show that China's industrial policy has significant effects on economic growth, and industrial structural rationalization is the potential industrial policy mechanism for economic growth. Moreover, the effects of industrial policy are heterogeneous in different sub-regional areas, administrative levels, industrial development stages, and industrial policy types.

The rest of this paper is organized as follows. The second part presents theoretical analyses and hypotheses on the impact of industrial policy; the third part explains model specifications and variable measurement; the fourth part presents results and analyses of the basic regression and heterogeneity tests; the fifth part focuses on the results and analyses of robustness checks and endogenous corrections; and the sixth part concludes and gives limitations of this study.

## **CONCLUSION**

This paper collects the relevant laws and regulations of China's industrial policy from 2003 to 2015 by using the Chinese Law and Regulation Database and other database, and constructs a two-dimensional city-level panel data set including the annual number of industrial policies. Based on this, it empirically tests the impact of industrial policy on economic growth, and examines whether industrial structural transformation is the potential mechanism of industrial policy effecting economic growth. The basic regression and a series of robustness checks and endogenous corrections all show that China's industrial policy has significant effects on economic growth, and that industrial structure rationalization is the potential mechanism. Furthermore, the empirical results of the heterogeneity tests show that industrial policy does have heterogeneous effects on economic growth in different sub-regional areas, administrative levels, industrial development stages, and policy types.

Although this paper is very cautious about variable measurement and estimation methods, the conclusions herein should still be generalized with caution. First, this paper uses the cumulative number of industrial policies to measure the key independent variable industrial policy. The underlying assumption for this variable measurement to be reasonable is that the number of industrial policies should be positively correlated with the real effects of industrial policy. Second, this paper only covers a sample of China from 2003 to 2015, and the effects of industrial policy may be influenced by many factors. It may therefore be inappropriate to simply extend the conclusions of this paper to the other countries or regions. Future research can expand the scope of this paper. Third, this paper tries to control a series of observable and unobservable variables which may affect economic growth, and uses the methods including fixed-effect model, random-effect model, pooled OLS, IV estimation and dynamic model to estimate. All results show that industrial policy has positive effects on economic growth. However, although this paper tries to address endogenous problems and conduct a series of robustness checks, whether causality between industrial policy and economic growth exists still needs further cautious evaluation. In future research, the method such as quasi-experiment may provide more solid and convincing evidence for the casual relationship between industrial policy and economic growth.

## **APPENDIX**

### **TABLE 1 VARIABLE MEASUREMENT METHOD**

Label	Variable	Measurement
Dependent variable		
Economic growth	<i>Y</i>	Real GDP (unit: trillion RMB)
Independent variable		
Industrial policy	<i>IP</i>	The cumulative number of industrial policies (units: pieces)
Control variables		
Capital scale	<i>Capital</i>	Per labor capital stock (unit: 10,000 RMB/person)
Population scale	<i>Popu</i>	Population density (unit: person/square kilometer)
Informatization level	<i>Info</i>	The number of telephone users (units: 10,000 households)
Transportation level	<i>Trans</i>	Per capita public cars (unit: standard station/person)
Human capital level	<i>Labor</i>	The ratio of students in universities to resident population (unit: %)
Opening-up level	<i>Open</i>	Per labor foreign investment amount (unit: 10,000 RMB/person)
Government intervention	<i>Govern</i>	The ratio of local financial expenditure excluding scientific and educational expenses to GDP (unit: %)
Structure rationalization	<i>Structure<sub>1</sub></i>	The reciprocal of Theil's Index
Structure upgrade	<i>Structure<sub>2</sub></i>	The ratio of output of tertiary industry to second industry

**TABLE 2**  
**DESCRIPTIVE STATISTICS FOR 2003 AND 2015**

Variable	Max	Min	Mean	Std.	Obs.
Year:2003					
Economic growth ( <i>Y</i> )	0.6566	0.0032	0.0465	572.271	214
Industrial policy ( <i>IP</i> )	21	0	5.281	4.458	231
Year:2015					
Economic growth ( <i>Y</i> )	2.3133	0.0188	0.2552	3293.764	233
Industrial policy ( <i>IP</i> )	440	53	174.124	75.368	251

**TABLE 3**  
**CHARACTERISTICS OF INDUSTRIAL POLICY**

The legal level of industrial policy				
	Administrative regulations	Judicial interpretation	Minister's regulations	Local regulations
Number	1	1	75	6697
Percentage	0.0104	0.0104	0.7770	69.3774
	Military regulation	Policy discipline	Industry regulations	Government documents
Number	1	112	112	2654
Percentage	0.0104	1.1603	1.1603	27.4938
Geographical distribution of industrial policy				
	East (number of cities)	Midland (number of cities)	West (number of cities)	Northeast (number of cities)
Number	4104 (84)	2408 (77)	2406 (78)	735 (32)
Percentage	42.5153	24.9456	24.9249	7.6142
	Sub-provincial cities (number of cities)		The other (number of cities)	
Number	2797 (33)		6856 (238)	
Percentage	28.9754		71.0246	
Types of industrial policy				
	Selective industrial policy		Functional industrial policy	
Number	7575		2078	
Percentage	78.4730		21.5270	

**TABLE 4**  
**BASIC REGRESSION**

Independent variable	Dependent variable: Y			
	(1)	(2)	(3)	(4)
<i>IP</i>	0.0563** (0.0232)	0.0414* (0.0226)	0.0426* (0.0227)	0.0370* (0.0193)
<i>Capital</i>		-0.1506*** (0.0333)	-0.1508*** (0.0341)	-0.1350*** (0.0287)
<i>Popu</i>		-0.0622* (0.0360)	-0.0622* (0.0361)	-0.0565* (0.0336)
<i>Info</i>			-0.0106 (0.0160)	-0.0072 (0.0135)
<i>Trans</i>			8.4185 (19.3317)	0.1167 (18.1706)
<i>Labor</i>			-0.0046 (0.0048)	-0.0093** (0.0040)
<i>Open</i>				-0.0280 (0.0449)
<i>Govern</i>				-0.0174*** (0.0041)
<i>Constant</i>	0.6595*** (0.0340)	1.5928*** (0.2552)	1.6366*** (0.2632)	1.8242*** (0.2462)
<i>Year_FE</i>	Yes	Yes	Yes	Yes
<i>City_FE</i>	Yes	Yes	Yes	Yes
<i>N</i>	2991	2970	2926	2662
<i>Adj.R<sup>2</sup></i>	0.787	0.797	0.796	0.836

Notes. (1) \* means  $P < 10\%$ , \*\* means  $P < 5\%$ , \*\*\* means  $P < 1\%$ ; (2) The estimated coefficients in parentheses are the robust standard errors clustering to the city level

**TABLE 5**

## MECHANISM TEST

Industrial policy—Industrial structure				
	Structure <sub>1</sub>		Structure <sub>2</sub>	
	(1)	(2)	(3)	(4)
<i>IP</i>	0.0476 (0.0998)	0.2157** (0.0921)	-0.0895 (0.0966)	0.0476 (0.0427)
Control variables	No	Yes	No	Yes
Year_FE	Yes	Yes	Yes	Yes
City_FE	Yes	Yes	Yes	Yes
<i>N</i>	2937	2610	3185	2662
<i>Adj.R</i> <sup>2</sup>	0.025	0.136	0.028	0.073
Industrial structure—Economic growth				
	(5)	(6)	(7)	(8)
Structure <sub>1</sub>	0.0515*** (0.0114)	0.0557*** (0.0083)		
Structure <sub>2</sub>			-0.0626** (0.0274)	-0.0700*** (0.0252)
<i>IP</i>	0.0518** (0.0217)	0.0239 (0.0183)	0.0592** (0.0238)	0.0403** (0.0200)
Control variables	No	Yes	No	Yes
Year_FE	Yes	Yes	Yes	Yes
City_FE	Yes	Yes	Yes	Yes
<i>N</i>	2937	2842	3289	2919
<i>Adj.R</i> <sup>2</sup>	0.799	0.854	0.781	0.835

Notes. (1) \*\* means  $P < 5\%$ , \*\*\* means  $P < 1\%$ ; (2) The estimated coefficients in parentheses are the robust standard errors clustering to the city level

**TABLE 6**  
**HETEROGENEITY TEST: DIFFERENT SUB-REGIONAL AREAS**

Independent variable	Dependent variable: <i>Y</i>			
	East	Midland	West	Northeast
<i>IP</i>	-0.0001 (0.0351)	0.0670* (0.0360)	-0.0214 (0.0320)	-0.0295 (0.0713)
Control variables	Yes	Yes	Yes	Yes
Year_FE	Yes	Yes	Yes	Yes
City_FE	Yes	Yes	Yes	Yes
<i>N</i>	728	947	678	309
<i>Adj.R</i> <sup>2</sup>	0.897	0.878	0.864	0.659

Notes. (1) \* means  $P < 10\%$ ; (2) The estimated coefficients in parentheses are the robust standard errors clustering to the city level

**TABLE 7**  
**HETEROGENEITY TEST: DIFFERENT ADMINISTRATIVE LEVELS**

Independent variable	Dependent variable: Y	
	Sub-provincial cities	The other cities
<i>IP</i>	-0.0997** (0.0401)	0.0461** (0.0200)
Control variables	Yes	Yes
Year_FE	Yes	Yes
City_FE	Yes	Yes
<i>N</i>	165	2497
<i>Adj.R</i> <sup>2</sup>	0.955	0.836

Notes. (1) \*\* means  $P < 5\%$ ; (2) The estimated coefficients in parentheses are the robust standard errors clustering to the city level

**TABLE 8**  
**HETEROGENEITY TEST: DIFFERENT INDUSTRIAL DEVELOPMENT STAGES**

Independent variable	Dependent variable: Y	
	Secondary industry dominant	Tertiary industry dominant
<i>IP</i>	0.0463' (0.0243)	-0.0078 (0.0304)
Control variables	Yes	Yes
Year_FE	Yes	Yes
City_FE	Yes	Yes
<i>N</i>	1852	796
<i>Adj.R</i> <sup>2</sup>	0.854	0.827

Notes. (1) \* means  $P < 10\%$ ; (2) The estimated coefficients in parentheses are the robust standard errors clustering to the city level

**TABLE 9**  
**HETEROGENEITY TEST: DIFFERENT INDUSTRIAL POLICY TYPES**

Independent variable	Dependent variable: Y	
	Selective industrial policy	Functional industrial policy
<i>IP</i>	0.0348*** (0.0038)	0.0446*** (0.0066)
Control variables	Yes	Yes
Year_FE	Yes	Yes
City_FE	Yes	Yes
<i>N</i>	1030	329
<i>Adj.R</i> <sup>2</sup>	0.417	0.553

Notes. (1) \*\*\* means  $P < 1\%$ ; (2) The estimated coefficients in parentheses are the robust standard errors clustering to the city level

**TABLE 10**  
**RESULTS AFTER CHANGING ESTIMATION METHODS, CONTROLLING TIME-LAG EFFECTS AND USING DYNAMIC MODEL ESTIMATION**



Independent variable	Dependent variable: Y				
	RE	POLS	Weak endogenous	Time-lag effects	Dynamic model
IP	0.0370*	0.0370*	0.0324***	0.0431*	0.4484***
	(0.0203)	(0.0203)	(0.0121)	(0.0234)	(0.0885)
L. IP	No	No	No	Yes	No
L2. IP	No	No	No	Yes	No
L. Y	No	No	No	No	Yes
Control variables	Yes	Yes	Yes	Yes	Yes
Year_FE	Yes	Yes	Yes	Yes	Yes
City_FE	Yes	Yes	Yes	Yes	Yes

Notes. (1) \* means  $P < 10\%$ , \*\*\* means  $P < 1\%$ ; (2) The estimated coefficients in parentheses are the robust standard errors clustering to the city level besides the dynamic model column. The estimated coefficients in parentheses are the standard errors in the dynamic model estimation column

**TABLE 11**  
**RESULTS AFTER CONTROLLING UNOBSERVABLE EFFECTS, AND IV ESTIMATION**

Independent variable	Dependent variable: Y				
	Control unobservable effects				IV estimation
	(1)	(2)	(3)	(4)	2SLS
IP	0.0370*	0.0430**	0.0401*	0.0401*	0.0634***
	(0.0193)	(0.0203)	(0.0210)	(0.0210)	(0.0153)
Control variables	Yes	Yes	Yes	Yes	Yes
Time trend	Yes	Yes	No	Yes	No
Year_FE	Yes	Yes	Yes	Yes	Yes
City_FE	Yes	Yes	Yes	Yes	Yes
Region_FE	No	No	Yes	Yes	No
Region × Year_FE	No	No	Yes	Yes	No
Time trend × Province	No	Yes	No	No	No
Time trend × Region	No	No	No	Yes	No

Notes. (1) \* means  $P < 10\%$ , \*\* means  $P < 5\%$ , \*\*\* means  $P < 1\%$ ; (2) The estimated coefficients in parentheses are the robust standard errors clustering to the city level

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## **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**

La Nueva Economía Estructural hace hincapié en el papel de la intervención gubernamental en la economía de mercado y opina que los gobiernos deben proporcionar orientaciones juiciosas de acuerdo con diversas circunstancias, especialmente para resolver los problemas externos a los que pueden enfrentarse las empresas en el proceso de modernización industrial y para coordinar la inversión en infraestructura que no puede ser interiorizada por la toma de decisiones de una empresa (Lin 2012). De hecho, la política industrial es una herramienta importante para que un gobierno guíe el desarrollo económico. Mediante la aplicación de la política industrial, el gobierno interviene en el proceso de asignación de recursos y la distribución de beneficios, restringe o induce el comportamiento de las empresas e influye en la dirección del desarrollo industrial (Wang y Qi 1996). Por consiguiente, este documento tiene por objeto examinar los efectos de la política industrial en China.

En los últimos años, un gran número de estudios han presentado debates útiles e investigaciones sobre política industrial, centrándose principalmente en la estrategia, el objetivo y el efecto de la política industrial (Aghion et al. 2015; Beason y Weinstein 1996; 2012; Haeri y Arabmazar 2018; 2017; Krueger y Tuncer 1982; Li y Zheng 2016; Nathan y Overman 2013; Pack y Saggi 2006; Sanjaya 2004; Song y Wang 2013; 2016). Sin embargo, la mayoría de los estudios existentes discuten cualitativamente la política industrial, mientras que sólo unos pocos intentan analizar los efectos desde la perspectiva cuantitativa. Además, la mayoría de los estudios cuantitativos existentes utilizan herramientas financieras y fiscales o políticas específicas para medir la política industrial.

Específicamente, en términos de investigación cuantitativa sobre los efectos de la política industrial, Krueger y Tuncer (1982) utilizan la política de protección del comercio para probar la teoría de la protección de la industria infantil. Los resultados muestran que la política de protección del comercio no mejora significativamente la productividad de las industrias infantiles, lo que indica que la teoría de la protección de la industria infantil no está verificada. Beason y Weinstein (1996) utilizan incentivos fiscales, subsidios y protección industrial como variables proxy para la política industrial. Los resultados empíricos también muestran que la política industrial no mejora la productividad total de los factores (PTF). (2012) utilizan los cambios en las normas de política industrial para medir la política industrial. Su estudio constata que la política industrial tiene un efecto positivo en el empleo, la inversión y la entrada neta de plantas, pero no mejora significativamente la PTF. Song y Wang (2013) utilizan tres planes quinquenales para representar la política industrial clave. Su estudio demuestra que la política industrial promueve la productividad industrial general. (2015) utilizan incentivos fiscales, subvenciones gubernamentales y subsidios a la I+D para medir la política industrial. Basado tanto en la teoría del efecto de la escala de innovación como en la teoría de la competencia, su estudio analiza el impacto de la política industrial en la PTF de los sectores industriales en China. Los resultados empíricos muestran que si la política industrial puede promover la competencia, será beneficioso para la PTF. Li y Zheng (2016) y Yu et al. (2016) se centran en si la política industrial puede promover la innovación. Sus estudios encuentran que la política industrial contribuye a más patentes, pero la mayoría de las empresas persiguen la innovación por cantidad y no por la calidad con fines de búsqueda de apoyo. (2017) miden de manera innovadora la política industrial utilizando el número de políticas y reglamentos industriales incluidos en la base de datos de leyes y reglamentos chinos, y su estudio constata que la política industrial promueve la transformación de la estructura industrial.

En conclusión, la investigación actual incluye muchos debates teóricos y estudios empíricos sobre los efectos de la política industrial. Sin embargo, la investigación que mide la política industrial a nivel micro y considera la transformación estructural industrial como el mecanismo potencial para que la política industrial influya en el crecimiento económico sigue siendo bastante rara. De hecho, la política industrial es una herramienta importante para que los gobiernos aceleren la transformación estructural, mejoren la eficiencia y promuevan el crecimiento económico (Chang et al. 2013). Explorar si la política industrial puede promover el crecimiento económico y examinar si la transformación estructural industrial es el mecanismo potencial puede revelar los efectos de la política industrial de manera más exhaustiva y práctica.

Además de investigar la innovación prospectiva, este documento contribuye a la literatura emergente midiendo la política industrial a nivel micro. Concretamente, sobre la base de análisis teóricos, este documento se basa en Han et al. (2017), que proporciona una medición cuantitativa de micronivel de la política industrial mediante la base de datos de leyes y reglamentos de China. La medición de la política industrial a nivel micro puede conducir a una evaluación más precisa de los efectos de la política industrial, y también proporcionar una base más objetiva del diseño de políticas industriales para los gobiernos. Además, aunque esta investigación se basa en Han et al. (2017) para la medición de la política industrial, mide la política industrial a nivel de ciudad y no a nivel provincial. Teniendo en cuenta las grandes heterogeneidades existentes en las ciudades chinas, la política industrial puede tener efectos heterogéneos a nivel de la ciudad. Por lo tanto, con el fin de obtener resultados más fiables, es necesario seguir llevando a cabo la investigación a nivel de la ciudad.

Los resultados del estudio muestran que la política industrial de China tiene efectos significativos en el crecimiento económico, y la racionalización estructural industrial es el mecanismo potencial de política industrial para el crecimiento económico. Además, los efectos de la política industrial son heterogéneos en diferentes áreas subregionales, niveles administrativos, etapas de desarrollo industrial y tipos de políticas industriales.

El resto de este documento se organiza de la siguiente manera. La segunda parte presenta análisis teóricos e hipótesis sobre el impacto de la política industrial; la tercera parte explica las especificaciones del modelo y la medición variable; la cuarta parte presenta resultados y análisis de las pruebas básicas de regresión y heterogeneidad; la quinta parte se centra en los resultados y análisis de las comprobaciones de robustez y las correcciones endógenas; y la sexta parte concluye y da limitaciones de este estudio.

## **CONCLUSIÓN**

Este documento recoge las leyes y reglamentos pertinentes de la política industrial de China de 2003 a 2015 utilizando la base de datos de leyes y reglamentos de China y otras bases de datos, y construye un conjunto de datos bidimensional a nivel de ciudad que incluye el número anual de políticas industriales. Sobre la base de esto, prueba empíricamente el impacto de la política industrial en el crecimiento económico, y examina si la transformación estructural industrial es el mecanismo potencial de la política industrial que afecta al crecimiento económico. La regresión básica y una serie de controles de robustez y correcciones endógenas muestran que la política industrial de China tiene efectos significativos en el crecimiento económico, y que la racionalización de la estructura industrial es el mecanismo potencial. Además, los resultados empíricos de las pruebas de heterogeneidad muestran que la política industrial tiene efectos heterogéneos en el crecimiento económico en diferentes áreas subregionales, niveles administrativos, etapas de desarrollo industrial y tipos de políticas.

Aunque este documento es muy cauteloso con respecto a los métodos de medición y estimación variables, las conclusiones del presente documento deben generalizarse con cautela. En primer lugar, este documento utiliza el número acumulado de políticas industriales para medir la política industrial variable independiente clave. El supuesto subyacente de que esta medición variable sea razonable es que el número de políticas industriales debe estar correlacionado positivamente con los efectos reales de la política industrial. En segundo lugar, este documento sólo abarca una muestra de China de 2003 a 2015, y los efectos de la política industrial pueden verse influidos por muchos factores. Por lo tanto, puede ser inapropiado simplemente extender las conclusiones de este documento a los demás países o regiones. Las investigaciones futuras pueden ampliar el alcance de este documento. En tercer lugar, este documento trata de controlar una serie de variables observables e inobservables que pueden afectar al crecimiento económico, y utiliza los métodos que incluyen el modelo de efecto fijo, el modelo de efecto aleatorio, el OLS agrupado, la estimación IV y el modelo dinámico para estimar. Todos los resultados muestran que la política industrial tiene efectos positivos en el crecimiento económico. Sin embargo, aunque este documento trata de abordar los problemas endógenos y llevar a cabo una serie de controles de solidez, la existencia de causalidad entre la política industrial y el crecimiento económico todavía necesita una evaluación más cautelosa. En futuras investigaciones, el método, como el cuasi-experimento, puede proporcionar pruebas más sólidas y convincentes de la relación casual entre la política industrial y el crecimiento económico.

## **TRANSLATED VERSION: FRENCH**

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 TRADUITE: FRANÇAIS**

Voici une traduction approximative des idées présentées ci-dessus. Cela a été fait pour donner une compréhension générale des idées présentées dans le document. Veuillez excuser toutes les erreurs grammaticales et ne pas tenir les auteurs originaux responsables de ces erreurs.

## **INTRODUCTION**

La nouvelle économie structurelle met l'accent sur le rôle de l'intervention gouvernementale sur l'économie de marché et est d'avis que les gouvernements devraient fournir des orientations judicieuses en fonction de diverses circonstances, en particulier pour résoudre les problèmes externes auxquels les entreprises peuvent être confrontées dans le processus de modernisation industrielle et pour coordonner

l'investissement dans les infrastructures qui ne peut être internalisé par la prise de décision d'une entreprise (Lin, 2012). En fait, la politique industrielle est un outil important pour un gouvernement qui guide le développement économique. En mettant en œuvre la politique industrielle, le gouvernement intervient dans le processus d'allocation des ressources et de répartition des avantages, restreint ou induit le comportement des entreprises et influence l'orientation du développement industriel (Wang et Qi, 1996). Ce document vise donc à examiner les effets de la politique industrielle en Chine.

Ces dernières années, un grand nombre d'études ont présenté des discussions et des recherches utiles sur la politique industrielle, principalement axées sur la stratégie, l'objectif et l'effet de la politique industrielle (Aghion et al., 2015; Beason et Weinstein, 1996; Criscuolo et coll. 2012; Haeri et Arabmazar 2018; Han et coll. 2017; Krueger et Tuncer, 1982; Li et Zheng 2016; Nathan et Overman 2013; Pack et Saggi 2006; Sanjaya, 2004; Song et Wang 2013; Yu et coll. 2016). Toutefois, la plupart des études existantes traitent qualitativement de la politique industrielle, tandis que seules quelques-unes tentent d'analyser les effets du point de vue quantitatif. En outre, la plupart des études quantitatives existantes utilisent des outils financiers et fiscaux ou des politiques spécifiques pour mesurer la politique industrielle.

Plus précisément, en ce qui concerne la recherche quantitative sur les effets de la politique industrielle, Krueger et Tuncer (1982) utilisent la politique de protection commerciale pour tester la théorie de la protection de l'industrie naissante. Les résultats montrent que la politique de protection commerciale n'améliore pas significativement la productivité des industries naissantes, ce qui indique que la théorie de la protection de l'industrie naissante n'est pas vérifiée. Beason et Weinstein (1996) utilisent les incitations fiscales, les subventions et la protection industrielle comme variables indirectes pour la politique industrielle. Les résultats empiriques montrent également que la politique industrielle n'améliore pas la productivité totale des facteurs (PTF). Criscuolo et coll. (2012) utilisent les modifications apportées aux règles de politique industrielle pour mesurer la politique industrielle. Leur étude constate que la politique industrielle a un effet positif sur l'emploi, l'investissement et l'entrée nette des usines, mais n'améliore pas significativement la PTF. Song et Wang (2013) utilisent trois plans sur cinq ans pour représenter la politique industrielle clé. Leur étude démontre que la politique industrielle favorise la productivité industrielle globale. Aghion et coll. (2015) utilisent des incitations fiscales, des subventions gouvernementales et des subventions à la R-D pour mesurer la politique industrielle. Basée à la fois sur la théorie de l'effet d'échelle de l'innovation et sur la théorie de la concurrence, leur étude analyse l'impact de la politique industrielle sur la PTF des secteurs industriels en Chine. Les résultats empiriques montrent que si la politique industrielle peut promouvoir la concurrence, elle sera bénéfique pour la PTF. Li et Zheng (2016) et Yu et coll. (2016) se concentrent sur la question de savoir si la politique industrielle peut promouvoir l'innovation. Leurs études constatent que la politique industrielle contribue à un plus grand nombre de brevets, mais la plupart des entreprises recherchent l'innovation par la quantité plutôt que par la qualité à des fins de recherche de soutien. Han et coll. (2017) mesurent de façon novatrice la politique industrielle en utilisant le nombre de politiques et de réglementations industrielles incluses dans la base de données sur le droit et la réglementation chinois, et leur étude révèle que la politique industrielle favorise la transformation de la structure industrielle.

En conclusion, la recherche actuelle comprend de nombreuses discussions théoriques et des études empiriques sur les effets de la politique industrielle. Toutefois, la recherche qui mesure la politique industrielle au niveau micro et considère la transformation structurelle industrielle comme le mécanisme potentiel de la politique industrielle pour avoir un impact sur la croissance économique est encore assez rare. En fait, la politique industrielle est un outil important pour les gouvernements afin d'accélérer la transformation structurelle, d'améliorer l'efficacité et de promouvoir la croissance économique (Chang et al., 2013). Examiner si la politique industrielle peut promouvoir la croissance économique et examiner si la transformation structurelle industrielle est le mécanisme potentiel peut révéler les effets de la politique industrielle de manière plus approfondie et plus pratique.

En plus de faire des recherches sur l'innovation prospective, cet article contribue à la littérature émergente en mesurant la politique industrielle au niveau micro. Plus précisément, sur la base d'analyses théoriques, cet article s'inspire de Han et coll. (2017), qui fournit une mesure quantitative de micro-niveau de la politique industrielle à l'aide de la base de données chinoise sur le droit et la réglementation. La

mesure de la politique industrielle au niveau micro-économique peut conduire à une évaluation plus précise des effets de la politique industrielle et fournir aux gouvernements une base plus objective de conception des politiques industrielles. De plus, bien que cette recherche s'inspire de Han et coll. (2017) pour la mesure de la politique industrielle, elle mesure la politique industrielle au niveau de la ville plutôt qu'au niveau provincial. Compte tenu des grandes hétérogénéités qui existent dans les villes chinoises, la politique industrielle peut avoir des effets hétérogènes au niveau de la ville. Par conséquent, afin d'obtenir des résultats plus fiables, il est nécessaire de poursuivre la recherche au niveau de la ville.

Les résultats de l'étude montrent que la politique industrielle de la Chine a des effets significatifs sur la croissance économique, et la rationalisation structurelle industrielle est le mécanisme potentiel de politique industrielle pour la croissance économique. En outre, les effets de la politique industrielle sont hétérogènes dans différents domaines sous-régionaux, niveaux administratifs, stades de développement industriel et types de politiques industrielles.

Le reste de ce document est organisé comme suit. La deuxième partie présente des analyses théoriques et des hypothèses sur l'impact de la politique industrielle; la troisième partie explique les spécifications du modèle et la mesure variable; la quatrième partie présente les résultats et les analyses des tests de régression et d'hétérogénéité de base; la cinquième partie se concentre sur les résultats et les analyses des contrôles de robustesse et des corrections endogènes; et la sixième partie conclut et donne des limites à cette étude.

## **CONCLUSION**

Ce document rassemble les lois et règlements pertinents de la politique industrielle de la Chine de 2003 à 2015 en utilisant la base de données chinoise sur le droit et la réglementation et d'autres bases de données, et construit un ensemble de données en deux dimensions au niveau de la ville, y compris le nombre annuel de politiques industrielles. Sur cette base, il teste empiriquement l'impact de la politique industrielle sur la croissance économique et examine si la transformation structurelle industrielle est le mécanisme potentiel de la politique industrielle qui a une incidence sur la croissance économique. La régression de base et une série de contrôles de robustesse et de corrections endogènes montrent tous que la politique industrielle de la Chine a des effets significatifs sur la croissance économique, et que la rationalisation de la structure industrielle est le mécanisme potentiel. En outre, les résultats empiriques des tests d'hétérogénéité montrent que la politique industrielle a des effets hétérogènes sur la croissance économique dans différentes zones sous-régionales, niveaux administratifs, stades de développement industriel et types de politiques.

Bien que cet article soit très prudent au sujet des méthodes variables de mesure et d'estimation, les conclusions ci-après devraient tout de même être généralisées avec prudence. Premièrement, ce document utilise le nombre cumulé de politiques industrielles pour mesurer la politique industrielle variable indépendante clé. L'hypothèse sous-jacente pour que cette mesure variable soit raisonnable est que le nombre de politiques industrielles devrait être positivement corrélé avec les effets réels de la politique industrielle. Deuxièmement, ce document ne couvre qu'un échantillon de la Chine de 2003 à 2015, et les effets de la politique industrielle peuvent être influencés par de nombreux facteurs. Il peut donc être inapproprié d'étendre simplement les conclusions de ce document aux autres pays ou régions. Les recherches futures peuvent élargir la portée de cet article. Troisièmement, cet article tente de contrôler une série de variables observables et inobservables qui peuvent affecter la croissance économique, et utilise les méthodes, y compris le modèle à effet fixe, le modèle à effet aléatoire, le STO mis en commun, l'estimation IV et le modèle dynamique à estimer. Tous les résultats montrent que la politique industrielle a des effets positifs sur la croissance économique. Toutefois, bien que le présent document tente de résoudre les problèmes endogènes et de procéder à une série de contrôles de robustesse, la question de savoir s'il existe une causalité entre la politique industrielle et la croissance économique doit encore faire l'unanimité. Dans les recherches futures, la méthode telle que la quasi-expérience pourrait fournir des preuves plus solides et convaincantes de la relation occasionnelle entre la politique industrielle et la croissance économique.

**TRANSLATED VERSION: GERMAN**

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.

## **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**

Die Neue Strukturökonomie betont die Rolle staatlicher Eingriffe in die Marktwirtschaft und vertritt die Auffassung, dass die Regierungen unter verschiedenen Umständen vernünftige Leitlinien vorlegen sollten, insbesondere um externe Probleme zu lösen, mit denen Unternehmen im Prozess der industriellen Modernisierung konfrontiert sein können, und um die Infrastrukturinvestitionen zu koordinieren, die nicht durch die Entscheidungsfindung eines Unternehmens internalisiert werden können (Lin 2012). Tatsächlich ist die Industriepolitik ein wichtiges Instrument für eine Regierung, um die wirtschaftliche Entwicklung zu lenken. Durch die Umsetzung der Industriepolitik greift die Regierung in den Prozess der Ressourcenallokation und der Verteilung von Leistungen ein, schränkt oder induziert das Verhalten von Unternehmen und beeinflusst die Richtung der industriellen Entwicklung (Wang und Qi 1996). Dieses Papier zielt daher darauf ab, die Auswirkungen der Industriepolitik in China zu untersuchen.

In den letzten Jahren haben zahlreiche Studien nützliche Diskussionen und Forschungen zur Industriepolitik vorgelegt, die sich in erster Linie auf Strategie, Ziel und Wirkung der Industriepolitik konzentrieren (Aghion et al. 2015; Beason und Weinstein 1996; Criscuolo et al. 2012; Haeri und Arabmazar 2018; Han et al. 2017; Krueger und Tuncer 1982; Li und Zheng 2016; Nathan und Overman 2013; Pack und Saggi 2006; Sanjaya 2004; Song und Wang 2013; Yu et al. 2016). Die meisten bestehenden Studien diskutieren jedoch industriepolitische Maßnahmen qualitativ, während nur wenige versuchen, die Auswirkungen aus quantitativer Sicht zu analysieren. Darüber hinaus nutzen die meisten bestehenden quantitativen Studien finanzielle und fiskalische Instrumente oder spezifische Politik, um die Industriepolitik zu messen.

Insbesondere im Hinblick auf die quantitative Forschung über die Auswirkungen der Industriepolitik nutzen Krueger und Tuncer (1982) handelsschutzpolitische Maßnahmen, um die Theorie des Schutzes der Säuglingsindustrie zu testen. Die Ergebnisse zeigen, dass die Handelsschutzpolitik die Produktivität der Säuglingsindustrien nicht wesentlich verbessert, was darauf hindeutet, dass die Theorie des Schutzes der Säuglingsindustrie nicht überprüft wird. Beason und Weinstein (1996) nutzen Steueranreize, Subventionen und Industrieschutz als Stellvertretervariablen für die Industriepolitik. Die empirischen Ergebnisse zeigen auch, dass die Industriepolitik die Gesamtfaktorproduktivität (TFP) nicht verbessert. Criscuolo et al. (2012) nutzen die Änderungen der industriepolitischen Regeln, um die Industriepolitik zu messen. Ihre Studie kommt zu dem Schluss, dass sich die Industriepolitik positiv auf die Beschäftigung, Investitionen und den Nettoeintritt von Anlagen auswirkt, das TFP jedoch nicht wesentlich verbessert. Song und Wang (2013) nutzen drei Fünfjahrespläne, um wichtige Industriepolitik zu repräsentieren. Ihre Studie zeigt, dass industriepolitische Maßnahmen die industrielle Produktivität insgesamt fördern. Aghion et al. (2015) nutzen Steueranreize, staatliche Subventionen und fue-Subventionen, um die Industriepolitik zu messen. Basierend auf der Theorie des Innovationsmaßstabeffekts und der Wettbewerbstheorie analysiert ihre Studie die Auswirkungen der Industriepolitik auf TFP von Industriesektoren in China. Die empirischen Ergebnisse zeigen, dass die Industriepolitik, wenn sie den Wettbewerb fördern kann, für TFP von Vorteil sein wird. Li und Zheng (2016) und Yu et al. (2016) konzentrieren sich darauf, ob Industriepolitik Innovation fördern kann. Ihre Studien zeigen, dass die Industriepolitik zwar zu mehr Patenten beiträgt, aber die meisten Unternehmen verfolgen Innovation nach Quantität und nicht nach Qualität für



förderfördersuchende Zwecke. Han et al. (2017) messen die Industriepolitik innovativ, indem sie die Anzahl der Industriepolitiken und -vorschriften nutzen, die in der chinesischen Rechts- und Regulierungsdatenbank enthalten sind, und ihre Studie stellt fest, dass die Industriepolitik die Transformation der Industriestruktur fördert.

Zusammenfassend lässt sich sagen, dass die aktuelle Forschung viele theoretische Diskussionen und empirische Studien über die Auswirkungen der Industriepolitik umfasst. Die Forschung, die die Industriepolitik auf Mikroebene misst und den industriellen Strukturwandel als den potenziellen Mechanismus für die Industriepolitik zur Auswirkung des Wirtschaftswachstums betrachtet, ist jedoch noch recht selten. Tatsächlich ist die Industriepolitik ein wichtiges Instrument für Regierungen, um den Strukturwandel zu beschleunigen, die Effizienz zu steigern und das Wirtschaftswachstum zu fördern (Chang et al. 2013). Die Prüfung, ob die Industriepolitik das Wirtschaftswachstum fördern kann, und die Prüfung, ob der industrielle Strukturwandel der potenzielle Mechanismus ist, kann die Auswirkungen der Industriepolitik gründlicher und praktischer aufzeigen.

Neben der Erforschung prospektiver Innovationen trägt dieses Papier zu neuer Literatur bei, indem es die Industriepolitik auf Mikroebene misst. Konkret basiert dieses Papier auf Theorieanalysen auf Han et al. (2017), das anhand der chinesischen Rechts- und Regulierungsdatenbank eine mikroquantitative Messung der Industriepolitik ermöglicht. Die Messung der Industriepolitik auf Mikroebene kann zu einer genaueren Bewertung der Auswirkungen der Industriepolitik führen und den Regierungen auch eine objektivere Grundlage für die Gestaltung der Industriepolitik bieten. Auch wenn diese Forschung von Han et al. (2017) für industriepolitische Messungen heranzieht, misst sie die Industriepolitik auf Stadtebene und nicht auf Provinzebene. Angesichts der großen Heterogenitäten, die in chinesischen Städten bestehen, kann die Industriepolitik heterogene Auswirkungen auf Stadtebene haben. Um zuverlässigere Ergebnisse zu erhalten, ist es daher notwendig, die Forschung auf Stadtebene weiter zu forschen.

Die Studienergebnisse zeigen, dass Chinas Industriepolitik erhebliche Auswirkungen auf das Wirtschaftswachstum hat, und die industrielle strukturelle Rationalisierung ist der potenzielle industriepolitische Mechanismus für Wirtschaftswachstum. Darüber hinaus sind die Auswirkungen der Industriepolitik in verschiedenen subregionalen Bereichen, Verwaltungsebenen, industriellen Entwicklungsstadien und industriepolitischen Typen heterogen.

Der Rest dieses Papiers ist wie folgt organisiert. Der zweite Teil enthält theoretische Analysen und Hypothesen über die Auswirkungen der Industriepolitik; der dritte Teil erklärt Modellspezifikationen und variable Messung; der vierte Teil enthält Ergebnisse und Analysen der grundlegenden Regressions- und Heterogenitätstests; der fünfte Teil konzentriert sich auf die Ergebnisse und Analysen von Robustheitsprüfungen und endogene Korrekturen; und der sechste Teil schließt und gibt Einschränkungen dieser Studie.

## **SCHLUSSFOLGERUNG**

Dieses Papier sammelt die relevanten Gesetze und Vorschriften der chinesischen Industriepolitik von 2003 bis 2015 unter Verwendung der chinesischen Rechts- und Regulierungsdatenbank und anderer Datenbanken und erstellt einen zweidimensionalen Panel-Datensatz auf Stadtebene, der die jährliche Anzahl der Industriepolitiken enthält. Auf dieser Grundlage testet sie empirisch die Auswirkungen der Industriepolitik auf das Wirtschaftswachstum und untersucht, ob der industrielle Strukturwandel der potenzielle Mechanismus der Industriepolitik ist, der das Wirtschaftswachstum bewirkt. Die grundlegende Regression und eine Reihe von Robustheitsprüfungen und endogenen Korrekturen zeigen alle, dass Chinas Industriepolitik erhebliche Auswirkungen auf das Wirtschaftswachstum hat und dass die Rationalisierung der Industriestruktur der potenzielle Mechanismus ist. Darüber hinaus zeigen die empirischen Ergebnisse der Heterogenitätstests, dass die Industriepolitik heterogene Auswirkungen auf das Wirtschaftswachstum in verschiedenen subregionalen Gebieten, Verwaltungsebenen, industriellen Entwicklungsstadien und Politiktypen hat.

Obwohl dieses Papier hinsichtlich der variablen Mess- und Schätzmethoden sehr vorsichtig ist, sollten die Schlussfolgerungen hierin dennoch mit Vorsicht verallgemeinert werden. Erstens wird in diesem Papier

die kumulative Zahl der Industriepolitiken verwendet, um die wichtigsten unabhängigen variablen Industriepolitiken zu messen. Die zugrunde liegende Annahme für diese variable Messung ist, daß die Zahl der Industriepolitiken positiv mit den realen Auswirkungen der Industriepolitik korreliert werden sollte. Zweitens deckt dieses Papier nur eine Stichprobe Chinas von 2003 bis 2015 ab, und die Auswirkungen der Industriepolitik können von vielen Faktoren beeinflusst werden. Es kann daher unangebracht sein, die Schlussfolgerungen dieses Papiers einfach auf die anderen Länder oder Regionen auszudehnen. Zukünftige Forschung kann den Umfang dieses Papiers erweitern. Drittens versucht dieses Papier, eine Reihe beobachtbarer und nicht beobachtbarer Variablen zu kontrollieren, die das Wirtschaftswachstum beeinflussen können, und verwendet die Methoden einschließlich des Modells mit festen Auswirkungen, des Zufallseffektmodells, der gepoolten OLS-, IV-Schätzung und des dynamischen Modells, um zu schätzen. Alle Ergebnisse zeigen, dass die Industriepolitik positive Auswirkungen auf das Wirtschaftswachstum hat. Obwohl dieses Papier versucht, endogene Probleme anzugehen und eine Reihe von Robustheitsprüfungen durchzuführen, muss die Ursache zwischen Industriepolitik und Wirtschaftswachstum noch einer weiteren vorsichtigen Bewertung unterzogen werden. In der künftigen Forschung könnte die Methode wie das Quasi-Experiment solidere und überzeugendere Beweise für die lockere Beziehung zwischen Industriepolitik und Wirtschaftswachstum liefern.

### **TRANSLATED VERSION: PORTUGUESE**

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.

### **VERSÃO TRADUZIDA: PORTUGUÊS**

Aqui está uma tradução aproximada das ideias acima apresentadas. Isto foi feito para dar uma compreensão geral das ideias apresentadas no documento. Por favor, desculpe todos os erros gramaticais e não responsabilize os autores originais responsáveis por estes erros.

### **INTRODUÇÃO**

A Nova Economia Estrutural enfatiza o papel da intervenção governamental na economia de mercado e defende que os governos devem fornecer orientações criteriosas de acordo com várias circunstâncias, especialmente para resolver problemas externos que as empresas possam enfrentar no processo de modernização industrial e coordenar o investimento em infraestruturas que não pode ser internalizado pela tomada de decisões de uma empresa (Lin 2012). Com efeito, a política industrial é um instrumento importante para um governo orientar o desenvolvimento económico. Ao implementar a política industrial, o governo intervém no processo de atribuição de recursos e na distribuição de benefícios, restringe ou induz o comportamento das empresas, e influencia a direção do desenvolvimento industrial (Wang e Qi 1996). Por conseguinte, este documento visa examinar os efeitos da política industrial na China.

Nos últimos anos, um grande número de estudos tem apresentado discussões úteis e investigação sobre política industrial, centrando-se principalmente na estratégia, objetivo e efeito da política industrial (Aghion et al. 2015; Beason e Weinstein 1996; Criscuolo et al. 2012; Haeri e Arabmazar 2018; Han et al. 2017; Krueger e Tuncer 1982; Li e Zheng 2016; Nathan e Overman 2013; Pack e Saggi 2006; Sanjaya 2004; Song e Wang 2013; Yu et al. 2016). No entanto, a maioria dos estudos existentes discutem qualitativamente a política industrial, enquanto apenas alguns tentam analisar os efeitos do ponto de vista quantitativo. Além disso, a maioria dos estudos quantitativos existentes utilizam instrumentos financeiros e fiscais ou políticas específicas para medir a política industrial.

Especificamente, em termos de investigação quantitativa sobre os efeitos da política industrial, Krueger e Tuncer (1982) utilizam a política de proteção comercial para testar a teoria da proteção da indústria infantil. Os resultados mostram que a política de proteção comercial não melhora

significativamente a produtividade das indústrias infantis, o que indica que a teoria da proteção da indústria infantil não é verificada. Beason e Weinstein (1996) utilizam incentivos fiscais, subsídios e proteção industrial como variáveis de procuração para a política industrial. Os resultados empíricos mostram também que a política industrial não melhora a produtividade total dos fatores (TFP). Criscuolo et al. (2012) usam as mudanças nas regras de política industrial para medir a política industrial. O seu estudo conclui que a política industrial tem um efeito positivo no emprego, no investimento e na entrada líquida de plantas, mas não melhora significativamente a TFP. Song e Wang (2013) usam três planos quinquens para representar a política industrial chave. O seu estudo demonstra que a política industrial promove a produtividade industrial global. Aghion et al. (2015) usam incentivos fiscais, subsídios governamentais e subsídios de I&D para medir a política industrial. Com base tanto na teoria do efeito de escala de inovação como na teoria da concorrência, o seu estudo analisa o impacto da política industrial na TFP dos sectores industriais na China. Os resultados empíricos mostram que, se a política industrial puder promover a concorrência, será benéfica para a TFP. Li e Zheng (2016) e Yu et al. (2016) focam-se na questão de saber se a política industrial pode promover a inovação. Os seus estudos constataam que a política industrial contribui para mais patentes, mas a maioria das empresas prossegue a inovação em quantidade e não em qualidade para fins de procura de apoio. Han et al. (2017) medem de forma inovadora a política industrial utilizando o número de políticas e regulamentos industriais incluídos na Base de Dados de Direito e Regulação Chinesa, e o seu estudo conclui que a política industrial promove a transformação da estrutura industrial.

Em conclusão, a investigação atual inclui muitas discussões teóricas e estudos empíricos sobre os efeitos da política industrial. No entanto, a investigação que mede a política industrial a nível micro e considera a transformação estrutural industrial como o mecanismo potencial para a política industrial para impactar o crescimento económico continua a ser bastante rara. De facto, a política industrial é um importante instrumento para os governos acelerarem a transformação estrutural, aumentarem a eficiência e promoverem o crescimento económico (Chang et al. 2013). Explorar se a política industrial pode promover o crescimento económico e examinar se a transformação estrutural industrial é o mecanismo potencial pode revelar os efeitos da política industrial de forma mais aprofundada e prática.

Para além da investigação da inovação prospetiva, este trabalho contribui para a literatura emergente, medindo a política industrial a nível micro. Especificamente, com base em análises teóias, este artigo é proveniente de Han et al. (2017), que fornece uma medição quantitativa micro-nível da política industrial utilizando a Base de Dados de Direito e Regulação Chinesa. A medição da política industrial a micro nível pode conduzir a uma avaliação mais precisa dos efeitos da política industrial e também proporcionar uma base mais objetiva da conceção da política industrial para os governos. Além disso, embora esta investigação se desvinda de Han et al. (2017) para a medição da política industrial, mede a política industrial a nível da cidade e não a nível provincial. Considerando as grandes heterogeneidades existentes nas cidades chinesas, a política industrial pode ter efeitos heterogéneos a nível da cidade. Por conseguinte, para obter resultados mais fiáveis, é necessário prosseguir a investigação a nível da cidade.

Os resultados do estudo mostram que a política industrial da China tem efeitos significativos no crescimento económico, e a racionalização estrutural industrial é o mecanismo potencial de política industrial para o crescimento económico. Além disso, os efeitos da política industrial são heterogéneos em diferentes áreas sub-regionais, níveis administrativos, fases de desenvolvimento industrial e tipos de política industrial.

O resto deste trabalho é organizado da seguinte forma. A segunda parte apresenta análises teóricas e hipóteses sobre o impacto da política industrial; a terceira parte explica as especificações do modelo e a medição variável; A quarta parte apresenta resultados e análises dos ensaios de regressão e heterogeneidade de base; a quinta parte centra-se nos resultados e análises dos controlos de robustez e das correções endógenas; e a sexta parte conclui e dá limitações a este estudo.

## **CONCLUSÃO**

Este documento recolhe as leis e regulamentos relevantes da política industrial da China de 2003 a 2015 através da base de dados chinesa de direito e regulação e de outras bases de dados, e constrói um conjunto

bidimensional de dados de painéis de nível urbano, incluindo o número anual de políticas industriais. Com base nisso, testa empiricamente o impacto da política industrial no crescimento económico e examina se a transformação estrutural industrial é o mecanismo potencial da política industrial que afeta o crescimento económico. A regressão básica e uma série de controlos de robustez e correções endógenas mostram que a política industrial da China tem efeitos significativos no crescimento económico e que a racionalização da estrutura industrial é o mecanismo potencial. Além disso, os resultados empíricos dos testes de heterogeneidade mostram que a política industrial tem efeitos heterogéneos no crescimento económico em diferentes regiões sub-regionais, níveis administrativos, fases de desenvolvimento industrial e tipos de políticas.

Embora este artigo seja muito cauteloso quanto aos métodos de medição e estimativa variáveis, as conclusões aqui presentes devem ainda ser generalizadas com cautela. Em primeiro lugar, este documento utiliza o número cumulativo de políticas industriais para medir a principal política industrial variável independente. O pressuposto subjacente para que esta medição variável seja razoável é que o número de políticas industriais deve ser positivamente correlacionado com os efeitos reais da política industrial. Em segundo lugar, este documento abrange apenas uma amostra da China de 2003 a 2015, e os efeitos da política industrial podem ser influenciados por muitos fatores. Por conseguinte, pode ser inadequado estender simplesmente as conclusões deste documento aos outros países ou regiões. A investigação futura pode expandir o âmbito deste trabalho. Em terceiro lugar, este artigo tenta controlar uma série de variáveis observáveis e não observáveis que podem afetar o crescimento económico, e utiliza os métodos que incluem o modelo de efeito fixo, o modelo de efeito aleatório, o OLS agrito, a estimativa IV e o modelo dinâmico a estimar. Todos os resultados mostram que a política industrial tem efeitos positivos no crescimento económico. No entanto, embora este documento tente resolver problemas endógenos e realizar uma série de controlos de robustez, se a causalidade entre a política industrial e o crescimento económico ainda necessita de uma avaliação mais cautelosa. Em futuras investigações, o método, como a quase-experiência, pode fornecer provas mais sólidas e convincentes para a relação casual entre a política industrial e o crescimento económico.