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Analysis of the Guangdong Case

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Abbreviations

CCP	Chinese Communist Party
EII	Ecological Impact Index
GBA	Greater Bay Area
GDP	Gross Domestic Product
GNP	Gross National Product
HDI	Human Development Index
HDR	Human Development Report
IMF	International Monetary Fund
MPS	Material Product System
PRC	People's Republic of China
PRD	Pearl River Delta
SDG	Sustainable Development Goals
SDI	Sustainable Development Index
SNA	System of National Accounts
UNDP	United Nations Development Program
WTO	World Trade Organisation

前言

过去二十年的特点是各种危机，这些危机使一个多世纪以来形成我们发展概念的思想受到质疑。最引人注目的例子是 2008 年的全球金融危机和 2019 冠状病毒病大流行；就时间而言，这两件事现在离我们很遥远，但仍在我们的脑海中根深蒂固，它们的影响留下了根深蒂固的创伤，其愈合需要更多的时间和分析。这种分析的范围不仅应该包括学术界，还应该包括政府、政策制定者、民间行为者和公民，因为这些危机以许多不同的方式影响了全世界的人口。

2008 年金融危机起源于雷曼兄弟破产和房地产泡沫破裂后的美国，但其基础和后果遍及全球经济体系，给全球经济环境留下了深刻的印记。它引发了严重的经济衰退，失业率飙升，对金融机构和银行的信任日益丧失，GDP 增长率直线下降，被认为是 1929 年华尔街崩盘后最严重的经济危机。虽然 2009 年 6 月标志着危机的结束，但其复苏速度惊人地缓慢，经济持续疲软 (Weinberg, 2013)。显然，已经取得了一些进展，但即使在 20 年后，仍有有待改进的领域：正如地狱之翼所声称的那样，监管改革是在危机后实施的，但它们忽视了对危机机制和原因的全面分析。此外，虽然人们的理解是，损失应主要由股东和债务持有人承担，但欧洲联盟对一些债权人给予豁免。这导致了救助那些被认为“太大而不能倒”的债权人的持续模式，这些救助依赖于纳税人的钱 (2021)。

其次，最近发生的 2019 年 Covid-19 危机是一场灾难性事件，它不仅直接改变了经济，而且改变了全球数十亿人的生活。根据世界卫生组织(2023)的数据，这场大流行造成了近 700 万人死亡，根据戴维斯、麦科凯尔、沃格尔和托波尔 (2023)的数据，受长冠状病毒感染的人近 6500 万。长冠状病毒是一种使人衰弱的疾病，严重影响个人的生活质量。与此同时，对全球经济的影响也很严重：就在大流行开始后，富时指数、道琼斯指数和日经指数都出现了大幅下跌，严重影响了金融部门，失业率飙升，多个国家陷入衰退 (Jones, Palumbo, & Brown, 2021)。此外，虽然 Covid-19 病例仍在增长，但各国政府仍在努力寻找可行的解决方案，以提高国家增长率并处理仍在进行的病例。像 Tooze 这样的著名经济学家指出，问题在于“西方资本主义”制度的结构和设计 (Zakaria, 2018)。

这两次危机产生了巨大的后果，塑造了我们对世界的看法，并可能在未来几年扩大其影响。然而，我认为，在过去二十年中，由于这些危机，特别是

Covid - 19 危机，出现的最引人注目的话题是经济和社会不平等的突出问题。有关世界范围内日益加剧的不平等的统计数据 and 公布的数据令人震惊。10%的人口掌握着全球 52% 的收入，但新冠肺炎疫情使 1.6 亿多人陷入贫困。国与国之间的不平等预计将加剧，这将是一代人以来首次出现这种情况。在美国，由于缺乏医疗保健，生活在较贫困地区的人的死亡率几乎是富裕地区的两倍。此外，据估计，不平等每天造成约 21,000 人死亡 (Elliott, 2023; Batha, 2022; Reuters, 2022; Endara, 2022)。这些只是不平等差距似乎每天都在扩大的部分证据。由于全球化、大众传媒、社交媒体和其他信息工具的发展，不平等严重的现实每天都摆在我们眼前，并引起越来越多的关注。据 Laviertes (2021) 称，疫情期间，人们对收入差距的担忧有所加剧，在 18 至 34 岁的受访者中，有三分之一的人声称，他们对收入不平等的担忧超过对经济增长或失业的担忧；“沮丧、害怕、失望、感觉‘我再也没有希望了’”的情绪也在上升。

在一个日益不平等和担忧的世界里，虽然政府专注于提高经济增长率，但许多人声称需要进行结构性变革，也需要关注日益增长的需求，以解决气候危机的影响，气候危机导致越来越多的自然现象，其严重程度不断升级-例如风暴丹尼尔，他最近摧毁了利比亚的德尔马市，目前死亡人数为 6000 人 (AJLabs, 2023)。此外，全球气候危机正在导致越来越多的山洪暴发、干旱和极端天气，加剧了世界上富裕地区和贫穷地区之间已经存在的不平等。空气、水和土壤污染正显示出其负面影响，越来越多的健康问题，如世界范围内越来越多的癌症，都可以追溯到污染因素的根源。

正如 Mazzucato (2023) 所说，“我们应该问的问题不是我们能实现多少增长，而是我们能实现什么样的增长。[...] 让公共机构围绕雄心勃勃的使命重新定位——而不是沉迷于狭隘的增长目标——将使我们能够应对 21 世纪的重大挑战，并确保经济朝着正确的方向增长。” 这变革需要政府的参与，让政府官员意识到，他们拥有塑造经济、引导增长走上更可持续道路的工具。

这就是我的论文的动机。因此，下面的论文将深入研究人类可持续发展的复杂性，分析其概念化和定义，重点关注已制定的衡量指标和分析世界各地不平等的模式。这些方面将作为一个框架，对中国广东省在短短 20 多年里如何提高其可持续人类发展水平进行全面分析。

第一章将集中讨论人类发展概念的发展，它对国内生产总值作为发展衡量标准的反对，它通过人类发展指数进行计算，以及它对多个国家和全球经济行动者的发展观念的影响。之后，我将分析 Hickles 在 2020 年提出的可持续发展指数，该指数考虑了 HDI 中包含的维度，并将其与环境质量维度结合起来。此外，中国与 GDP 和 HDI 指数的关系将被解释，显示它们如何影响中国政府的目标。第二章将专门分析围绕政府干预的不同争论，以及它们与中国治理和发展模式的关系。其次，讨论产业政策的概念和定义。最后，焦点将转向中国。

第二章将专门分析围绕政府干预的不同争论，以及它们与中国治理和发展模式的关系。其次，讨论产业政策的概念和定义。最后，重点将转移到中国，详细说明在过去的四十年中，中国如何提出了另一种治理和发展模式，这引发了华盛顿与北京共识的辩论。

第三章采用可持续发展指数对广东省 2000 年、2010 年和 2021 年的相关数据进行计算。本文将对广东地区实施的产业政策与利率的关系进行描述。然后，对广东省数据的分析将被用作检验这些产业政策在其发展中所起作用的结构。这项研究的目的是找出政府参与与通过使用工业政策可能减少环境退化和社会不平等之间的关系，即使在一个惊人的经济增长伴随着严重不平等的国家也是如此。

总之，本文的目的是找到政府参与与人类发展速度增加之间的可能关系，特别是在环境质量和污染的背景下。其假设是，政府行动可以通过使用社会和产业政策来确定和鼓励各国的可持续发展道路。我支持这样一种观点，即政府和私人行为体应该合作，实现不仅关注经济增长，而且关注人类发展的目标，以应对和解决日益严重的损害人们生活质量的的不平等现象。

Introduction

The last two decades have been marked with crises that have put into question the ideas that have fashioned our concept of development for over a century. The most compelling examples are the 2008 global financial crisis and the COVID 19 pandemic of 2019; both events are now, in terms of time, far from us but still ingrained in our minds, and their effects have left deep seated wounds whose healing requires more time and analysis.

The 2008 financial crisis, originating in the United States after the collapse of Lehman Brothers and the burst of the housing bubble, but having its basis in the worldwide economic system, has left a deep mark on the global economic environment. Sparking severe recession, soaring unemployment, increasing loss of trust towards financial institutions and banks, plummeting GDP growth rates, it was considered the greatest economic crisis after the Wall Street Crash of 1929. While June 2009 marked the end of the crisis, its recovery rates were surprisingly slow, with persisting economic weakness (Weinberg, 2013). Some progress has, obviously, been made, but even after two decades there are still areas of improvement: as claimed by Hellwing, regulatory reforms were applied after the crisis, but they disregarded a comprehensive analysis of its mechanisms and causes. Moreover, while it had been understood that losses should mainly be sustained by shareholders and debt holders, the European Union provided exemptions to some creditors. This led to a continued pattern of bailing out those creditors that were deemed “too big to fail”, bail outs that relied on taxpayers’ money.

Secondly, the recent Covid 19 crisis of 2019, which was a catastrophic event that directly altered not only the economy, but also the lives of billions of people around the world. According to the World Health Organization (2023), the pandemic caused almost 7 million deaths, and according to Davis, McCorkell, Vogel, and Topol (2023) the people affected by long covid, a debilitating illness that greatly impacts the quality of life of an individual, are almost 65 million. Concurrently, the impacts on the worldwide economy have been severe: just after the beginning of the pandemic the Dow Jones, FTSE, and Nikkei all reported great falls in their rates and greatly affected the financial sector, the rates of unemployment skyrocketed, and multiple nations entered recession. (Jones, Palumbo, & Brown, 2021) Furthermore, while Covid 19 cases are still growing, national governments are still struggling to find viable solutions to improving national growth rates and handling the still ongoing cases. Eminent economists like Tooze, state that the

problem lies in the “Western capitalism” system, in its structures and design (Zakaria, 2018).

These two crises had massive aftermaths that have shaped our vision of the world and will probably extend their influence in the following years. However, the most compelling topic that emerged during the last two decades owing to these crises, especially the Covid 19 one, was the glaring problem of inequality, both economic and social. The statistics and data published about the growing worldwide inequality are abysmal. While 10% of the population holds 52% of the global income, the Covid 19 pandemic has led over 160 million people into poverty. Inequality among nations is expected to increase, marking the first rise of this kind in a generation. In the US, those living in poorer counties died at almost twice the rate compared to those living in richer ones, due to a lack of access to healthcare. Furthermore, inequality is estimated to contribute to the death of about 21,000 people every day (Elliott, 2023; Batha, 2022; Reuters, 2022; Endara, 2022). These are only part of the evidence of an inequality gap that seems to keep growing every day.

Due to globalisation, mass media, social media and other tools of information, the reality of the severity of inequality is daily before our very eyes, and it is causing growing concern. According to Laviertes (2021), people’s concern about the income gap has risen during the pandemic, with one third of the people interviewed between 18 and 34 years of age claiming that they are more concerned about income inequality than economic growth or unemployment; feelings of “*being upset, being afraid, feeling let down, feeling like ‘I have no prospective anymore’*” are also on the rise.

In a world of growing inequality and concerns, while governments focus on improving their economic growth rates, many claim that there is a need for structural change, one that also focuses on the growing need to address the effects of the climate crisis, which is leading to an increasing number of natural phenomenon with escalating severeness – e.g. storm Daniel, who has recently devastated the Libyan city of Derma and has a current death toll of 6,000 people (AJLabs, 2023). As Mazzucato (2023) claims, “*the question we should be asking is not how much growth we can achieve, but what kind. [...] Reorienting public organisations around ambitious missions — instead of obsessing over narrow growth targets — will allow us to tackle the grand challenges of the twenty-first century and ensure that the economy grows in the right direction.*” A change that requires government involvement, for government officials to realise that they have the tools to shape the economy and steer growth to a more sustainable path.

Here lies the motivation of my work. The following thesis will thus delve into the intricacies of sustainable human development, analysing its conceptualisation and definition, focusing on the indexes that have been formulated to measure it and analyse the patterns of inequality around the world. These aspects will be used as a framework to conduct a comprehensive analysis on how the Chinese province of Guangdong has improved its level of sustainable human development in just over twenty years.

The first chapter will focus on the development of the concept of human development, its opposition to GDP as a measure of development, its calculation through the HDI, and its influence on multiple nations and global economic actors' idea of development. Afterwards, we will analyse the index proposed by Hickles in 2020, the Sustainable Development Index, which considers the dimensions included in the HDI and combines them with environmental quality dimensions. Further, China's relationship with both the GDP and HDI indexes will be explained, showing how they have affected China's government aims.

The second chapter will be dedicated to analysing the different debates surrounding government intervention, and how they relate to the Chinese model of governance and development. Secondly, the concept and definition of industrial policy will be debated. Conclusively, the focus will shift to China, detailing how in the last forty years it has proposed an alternative model of governance and development, which sparked the Washington vs Beijing Consensus debate. Further, Hu Jintao's and Xi Jinping's models of development will be analysed to comprehend the link between these economic and political frameworks and China's concept of sustainable growth, to analyse how they were reflected in Guangdong's local government, and how it shaped the latter's policymaking.

The third chapter will focus on data calculation related to the Guangdong province in the years 2000, 2010 and 2021 using the Sustainable Development Index. The results will then be used to compare the development rates after Hu Jintao's and Xi Jinping's governance, analysing the rates' relationship with the industrial policies applied in the Guangdong region. The analysis of Guangdong's data will then be used as a structure to examine the role those industrial policies played in its development. The aim of this study is to find a relation between government involvement, through the use of social and industrial policies, and a reduction in inequalities, even in a country where striking economic growth was accompanied by severe inequalities.

In conclusion, the aim of this thesis is to find a possible relationship between government involvement and increasing rates of human development, especially in the context of environmental quality and pollution. The central questions of this research were if it is possible to pursue a different model of development that can incentivise both economic growth and human development without compromising the environment, and if so through which tools it can be achieved. We claim that governments and private actors should collaborate to achieve goals that will not only focus on economic growth, but human development as well, to tackle and answer the growing inequalities that undermine people's quality of life.

Chapter 1: The changing definition of development and its measurement

1.1 Development as production and growth: the GDP index

One of the main focuses of economics is the study of growth, the advancement of a country's economy and its wealth; the field of study that analyses these elements is called development theory, a cluster of research and postulates on economic development, and how to achieve a desirable change in society (Todaro & Smith, 2009). We can first see the father of modern economics, Adam Smith, searching for the sources of wealth in "An Inquiry into the Nature and the Causes of the Wealth of Nations", written in 1776; here, he stated that the wealth of a nation depends on two elements: division of labour and extent of the market. The work of Adam Smith was the first symptom of a progression borne from the first industrial revolution in Europe, which brought systematic reflections on what development meant and how it could be obtained. Unquestionably the history of this field became deeply intertwined with colonialism, with this sort of inquiry applied to colonies in Africa, Asia, and Latin America: at this point, the term development economics rose in popularity (Oslington, Mahmood 1993).

After the end of World War II, with the uncertainty of post-war society and the precariousness in the global economy, the Keynesian revolution took its roots; the Bretton Woods Conference led to the birth of international institutions that would be governing for years to come – the International Monetary Fund (IMF), the World Bank, the World Trade Organization (WTO) – creating a milieu where development was equated with capital accumulation and saving ratios, and, consequently, becoming indistinguishable from the growth of per capita GDP, which had its origins in the 17th century (Oslington, Mahmood 1993). GDP (Gross Domestic Product) is defined as "The total final output of goods and services produced by the country's economy, within the country's territory, by residents and nonresidents, regardless of its allocation between domestic and foreign claims." (Todaro, Smith 2009, pp.17) It is usually associated with the GNP (Gross National Product), which includes the same elements, whether they are produced in the contemplated country. According to Yale economist William Nordhaus, the GDP was "one of the greatest inventions of the 20th century" since it made it possible to track the changes and crises in each economy and to quickly implement informed policy feedback (NYT 2010).

Thus, a bias was actualized, where economic growth was inherently analogous to development: the higher the GDP or GNP, the higher the level of development of a country. The history of this bias is even deeper: even before GDP was an existing concept, different countries – such as the US – started to analyse how much they could produce annually, especially for war purposes. This presumption led to a concept of policies whose only objective was to find the most efficient way to obtain the highest rate of economic growth; as stated by David and Klugman in their work: *“the assumption – often explicit – is that maximising growth should be the policymakers' only objective, and the multidimensionality of wellbeing is often ignored.”* (2011, p.81) This deep-seated conception can be also linked to the concept of trickle-down economics, the idea that the growth of GNP or income per capita would naturally translate into gains for the whole society as new economic opportunities, aka “trickling down” from the top to the bottom of the population. This concept came to be so well-known and respected that it became a crucial point in the programs of politicians, most notably Thatcher and Reagan, during the 80s. Despite that, already during the 70s, this theory was beginning to be criticised: James P. Grant wrote that *“a major rethinking [was] taking place, compelled by a single fact: growth rates achieved by most countries during the 1960s had little or no effect on most of the world's people, who continue to live in desperate poverty”* (1973). In his article published in 1983, Arndt dispels this myth, to the point of even claiming that the theory never existed in the first place (1983).

However, as explained by Mazzucato (2019), it is essential to remember that our notion of development and the elements that we analyse to measure it are all based on social conceptions which reflect the theories, ideas, and ideologies of the period in which they were devised. Therefore, they are not based on measurable facts or laws, but on conscious evolving choices. The modern accounting concept of GDP is also an example of this, being defined and shaped according to the underlying theory of value that is used to define and calculate it. After the marginalist revolution, value came to be associated with productivity: according to marginalists value derives from price, therefore whatever attains a high amount of earnings has a high productivity and worth, disregarding value creators like the government whose value is computed differently compared to industrial and financial entities.

All the aforementioned elements illustrate why, until the 21st century, GDP was globally considered as the main major macroeconomic objective to be pursued. However, over time, the dominance of the GDP came to be questioned; criticisms against GDP can

be found coming from all different authors, not only those belonging to the economic field. Dervis and Klugman (2011) claim that it is only one “intermediate” indicator, while Fu (2011) claims that, even though education and longevity are strongly positively connected with income, this does not equate to a direct correlation with an increased quality of life. Hence, the necessity of finding an alternative or related measure, one that considers the multidimensionality of the elements that can define both economic growth and sustainable human development.

Nowadays, whilst not impossible, it is difficult to find an economist who is genuinely convinced that capital aggregation is the sole indicator of development for a country: most are persuaded that development can only be correctly analysed through a lens that considers its multidimensionality. How did this change happen? What has shifted the paradigm from economic wealth to a concept that considers not only that but also human and social well-being? As stated by Stanton (2007), what brought this change was the Humanist revolution initiated by economist and philosopher Amartya Sen. Sen’s work brought forward the innovative concept of assessing the development of human well-being in terms of more objective functioning and capabilities, inspiring the creation of multidimensional indicators of human development (Martins, 2022). The work of Sen, who earned him a Nobel prize in 1998 for his contributions to welfare economics and social choice theory, would then inspire the United Nations Development Programme (UNDP) to create a new index, one that could consider what is the true meaning of development. In his work with Nussbaim, they defined a new outlook on development, one in which they focused not on one’s possessions, but rather on their possibilities and potentials, creating a clear separation between utility and capabilities, between means and ends. They claimed that other than individual utility, well-being and agency are important, and must be considered to give an adequate measure of the actual development level of a country (Stanton, 2007).

1.2 A new concept of development: the HDI

The concept of growth and development, as previously stated, has been the object of intense debates, especially when it comes to determining its measurement. However, the contemporary idea of development as a multidimensional concept is relatively recent. The turning point in development theory was the publication of the *Human Development Report (HDR)* by the United Nations Development Programme (UNDP) in 1990, which introduced the *Human Development Index* to the international debate.

The first UNDP report was born from the observation of the countries' unbalanced growth in human development during the 80s, and finalised during the tumultuous political and economic revolution that characterised the 90s; the key takeaway from this period was the conclusion that "*people must be at the centre of all development*". Its publication had a clear goal in mind: contributing to the definition, measurement, and policy analysis of human development (UNDP, 1990). The report authors have drawn their rationale from the writings of Amartya Sen, especially from his *capabilities approach* (Dervis, Klugman 2011), a theoretical framework whose main assertion is that the freedom to achieve well-being is of essential moral importance; welfare, however, should not only be understood simply as an economic term but as people's capabilities and functioning. It was a new approach that, unlike others before, considered the role of the person as an agent of their well-being, and the importance of other capabilities and freedoms (Robeyns et al., 2011). The HDI was the first groundbreaking attempt to follow the humanist revolution, doing so by developing an applied measure of social welfare; an attempt to go over the ordinalist revolution based on per capita and cost-benefit analysis (Stanton, 2007).

Created by the United Nations (UN), its impression on both the academic and the political world would be assured: in a 1990 article published in the New York Times, Crossette (1990) states that the HDI report was already "challenging traditional ways by which the world has measured the growth of nations", and, as explained by Sen, the index has become "a central part of the manifest reality of the global thinking on evaluation and action." (Amartya Sen, 2000) Coming from these bases, the concept of HDI would inevitably clash with that of GDP, which by that point had become completely pervasive both in the economic and political spheres.

The HDI made it possible to introduce a ranking system where the countries' achievements are easily comparable, based on three main dimensions: life expectancy, education, and income per capita. As stated in the overview of the first Human Development Report, it is based on the idea that while a person's access to income is important in guaranteeing the possibility of choice, it is not the only factor in giving people the possibility of developing their full potential (UNDP, 1990). In line with the perspective presented by Ivanova et al. (1993) in their articles, the HDI provided a new yardstick of human development that not only covered the single economic dimension but included new social ones that went overlooked before. Additionally, the HDI strengths are multiple: it is transparent, simple, and popular; its notoriety made it possible

to create a discussion that led to the outlining of more complex and comprehensive indexes that could be alternatives to the too-one-dimensional GDP. In addition, thanks to electronic access and online resources, its reach is broad and comprehensive (Dervis & Klugman, 2011).

1.2.1 Concept

As stated in the UNDP report (1990), the decision that brought the Programme to develop a new index was borne from the idea that development – more than GNP growth, capital accumulation and production – is crucial in enlarging people’s ability to make choices. Starting from this idea, the UNDP committee selected the parameters of development by pinpointing those elements that it considered essential in defining a true freedom of choice. It addresses not only the access to these capabilities but their consequent use; the reason being, if there is a lack of balance between the two, human potential will nevertheless be frustrated. Therefore, the HDI is based on three basic variables:

1. A long and healthy life, represented by the Life Expectancy index, measured through life expectancy at birth.
2. Access to education, represented by the Education index, measured through the adult literacy ratio and gross enrolment ratio.
3. A decent standard of living, measured through the GDP index.

After 2010, the calculation of these variables was modified: the EI is now based on the Mean Years of Schooling Index and the Expected Years of Schooling Index; the Income index was introduced, based on GNI per capita.

Other elements and variables were considered for additional indexes that have the purpose of expanding and enhancing the findings of the HDI, such as the Gender Development Index and Inequality-adjusted HDI.

The HDI has been created not for forecasting or measuring purposes but to effectively measure countries' levels of human development. As a result, correlations with performance criteria are not possible, because the HDI is the actual performance criterion (Ivanova, Arcelus, & Srinivasan, 1999).

1.2.2 Calculation

In 1990, the HDI for a country was calculated following a finite number of steps: The first step in the calculation of HDI is the definition of a “*deprivation measure*”; this is calculated as follows:

1. For each of the three basic variables – life expectancy (X_1), literacy (X_2), and the log of real GDP per capita (X_3) - the minimum and maximum values are identified.
2. A rating between 0 to 1 is given, based on the difference between the two values.

Consequently, based on the difference between these two values, each country is rated in a range from 0 to 1 based on its measure of deprivation. Thus, I_i is the deprivation indicator for a country with respect to the i th variable and it's defined as:

$$I_i = \frac{\max X_i - X_i}{\max X_i - \min X_i}$$

Then an average deprivation indicator is calculated as a simple average of the three indicators.

$$I = \sum_{i=1}^3 I_i$$

The HDI is then defined as one minus the average deprivation index. (UNDP, 1990)

$$(HDI) = (1 - I)$$

In their work Ivanova, Arcelus, & Srinivasan (1999) have analysed the information validity of the HDI, on different bases – predictive, construct, content, discriminant, and time. The most interesting results are those referring to its construct and content validity. For the former, they claim that the differences in scale and the equal weight assigned to the indicators cause the index to lose its construct validity; eliminating the LEI or GNII will cause the country ranking to change minimally. This problem is still not tackled, since the HDI is still today calculated through a geometric mean. Regarding the latter, they contend that the indicators components require some honing, claiming – for example – that a universal definition of literacy is not feasible, and even if accurate, comparisons are challenging. Furthermore, the HDI ranking provides little more information compared to that of each component.

As previously mentioned, in its 2010 report the UNDP presented a change in the calculation method of the index. This change was mainly brought by the major constraint represented by a consistent lack of reliable data, to address criticisms against the previous

model, and employ more pertinent indicators. Some of these changes even answer the criticisms presented by Ivanova et al., with the adoption of GNI per capita along with Purchase Power Parity, and an Education Index based on mean and expected years of schooling instead of literacy.

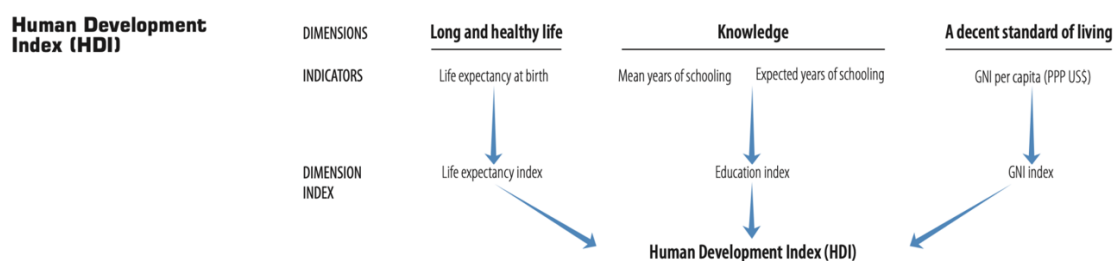


Figure 1 Graphic representation of the calculation of the Human Development Index (HDI) (Source: UNDP, 2010, p.215).

In addition to the reworking of the HDI, another three measures were introduced in the same year: the Inequality-adjusted HDI, the Gender Inequality Index and the Multidimensional Poverty Index.

1.2.3 Data

As can be inferred by its formula and concept, the calculation of the HDI requires precise and readily available data. The limits regarding the needed figures were already underlined in the first UNDP report, published in 1990, where the authors had to omit certain indicators and subject areas due to the inadequate and/or limited coverage of countries, lack of timeliness, unreliability, and broad approximations. Some scholars even claimed that all components of the HDI suffered from data quality problems: unconvincing, incomplete coverage, measurement errors and subjective bias (李 & 庄, 2008). Nowadays, this problem is basically non-existent: statistical analysis is globally widespread, and countries that were not included before now can measure their level of human development. Nonetheless, it's necessary to remember that the problem of data reliability persists in some countries, which could skew the perception of their actual development.

1.3 Criticisms and changes to the HDI

As previously stated, the publication of HDI was crucial in starting a larger and more in-depth discussion on the necessity of analysing economic development not just as a tool for economic growth, but mainly as a means to improve the living conditions and future

opportunities of a population. Nonetheless, numerous criticisms and alternatives have been proposed in the years following its compilation – some of these even already identified by the committee in its first report – and the UNDP has taken great interest in investigating possible improvements, both in the index’s concepts and calculation, leading to multiple reworkings.

In the UNDP 2010 report’s introduction, Amartya Sen straightforwardly states that the HDI is a crude measure, much like GNP, due to its limitedness to only three dimensions. However, he also emphasises that it nevertheless fulfilled its objective: working as a simple metric – like GNP – but without neglecting anything other than commodities and income (UNDP, 2010).

The problems that are usually addressed regarding the HDI are mainly related to four aspects: problems with the underlying data, problems with the weighting, problems with the calculation methods and problems with sustainability (Li & Zhuang, 2008). This claim is also supported by Wu, Fan, and Pan (2014), who claim that “(1) *the weights and mechanisms used to synthesise three normalised indices into a single index are still ambiguous and subjective; (2) the role of the inputs used to generate the three normalised indices is ignored; (3) whether the inputs are over-used relative to the HDI has not yet been investigated*” (p. 656).

An example of the discussion around these issues can be found in ample amounts of articles. In Ivanova, Arcelus, and Srinivasan’s study (1999), they argue the presence of a redundancy of information provided, questioning the ability of the HDI to provide its advantages over its individual measures, and that it is limited in being only a performance assessment tool concerned with short-term objectives. Additionally, there is a discrepancy between the achievements coming from the top countries and the bottom ones: the former’s accomplishments are likely to appear less significant than the latter’s, which may not correctly reflect reality. Moreover, in their work, Li and Zhuang (2008) argue that a model that has the objective of measuring human development and sustainable development should not disregard the impact of the environmental aspect. Furthermore, they state that the data averages approach can easily conceal disparities within countries, especially in underdeveloped ones. The equal weighting assumption ignores the role of the possible high correlation between the three sub-indicators, implying that they are always constant: thus, alongside other scholars, they maintain that the results, instead of being arbitrarily assigned, should be generated from the objective data itself.

In conclusion, as stated by Dervis and Klugman (2011), while these criticisms are valid, it is critical to emphasise that the HDI's goal is not to create an infallible indicator of being, but rather to redirect attention to people-centred development and to foster debate about how we may improve the advancement of societies; on both of these fronts, the HDI has had irrefutable success.

1.4 The influence of HDI

Despite the numerous criticisms, adjustments and possible improvements that were suggested for the index, its influence on worldwide politics and economics is undoubted; even stronger is its influence on the academic world, sparking widespread debates and ideas and leading to the creation of new indexes focusing on different aspects of socio-economic growth that were before overlooked.

In his article titled *A Decade of Human Development*, Amartya Sen (2000) analyses the impact that the HDI had globally, ten years after its creation. He claims that the reason for its recognition is that, instead of focusing on the traditional measure of progress such as GNP and similar indexes, the HDI presented an official and unified method that involved the analysis of what constitutes wealth and progress in the life of a human being living in a society, so without focusing on single concepts and instead including all the different aspects influencing the life of an individual. This brought a “pluralist conception of progress” to the discussion around development and its measurement, a change in course that was extremely crucial in a field dominated by utilitarianism, where those who wanted to analyse data, evolution, and alternative possibilities, could only relate their questions to a single variable – utility – which consequently suppressed the claims of other rival theories.

The greatest innovation made by Mahbub ul Haq – an important figure also involved in the progress of Human Development Theory and the redaction of the HDR – and his collaborators was that of intercepting the wave of restlessness and opposition against the idea of development just as simply economic growth, creating a concept that could ideally satisfy those requests. As stated by Sen:

Mahbub took on the leadership of large armies of discontent that were gunning, somewhat sporadically, at the single-minded concentration on the GNP. There were activists arguing for the recognition of 'basic needs'. There were international interventionists lamenting 'the state of the world's children'. There were relief

organizations concerned with hunger and epidemics. There were writers focusing on 'disparities' between the actual lives of the rich and the poor. There were humanists voicing the need for social justice in the quality of life. There were advocates of measures of physical quality of life. There were even some philosophically oriented critics wondering about the bigger insights into social ethics provided in the far-reaching works of Aristotle, Adam Smith, Karl Marx, and even of John Stuart Mill. (Sen, 2000, p. 21)

The HDI made an original, and perhaps most lasting, contribution to our understanding of development by demonstrating that levels and trends in human development can and do differ significantly from levels and trends in income and GDP growth, and that there is no significant correlation between economic growth and improvements in health and education, at least in the short and medium term. Simultaneously, as is commonly acknowledged, the link between HDI and income levels is substantially higher. Income disparities are greater over the world, although education and health tend to converge (Dervis, Klugman 2011).

Moreover, as it was stated by Dervis and Klugman, the HDI has led numerous countries to advance their measurements not only on a country level, but also on local, national, and regional ones, thus facilitating the analysis of their level of development and the critical areas that need further attention. As can be observed by simply accessing the official resources of the United Nations Development Programme, there has been extensive study and advocacy work centred on the more than 700 regional, national, and sub-national Human Development Reports produced in over 140 countries. This is one of the main reasons why the HDI has been adopted and used by a variety of governments in their own planning and allocation processes. Nevertheless, the linked participatory processes regularly provoke heated debate among policymakers, scholars, civil society, and the general public regarding how to assess and advance human development (ibid., 2011).

1.5 The Sustainable Development Index

As we have previously detailed, the HDI, while it provided a new conception and tool to understand development, shifting the target of development economics from national income accounting to people-centred development and key social outcomes, has been the target of numerous criticisms during the years. One main point of disapproval was its

disregarding the environmental aspect of development. As a matter of fact, a crucial issue is looming over the world's head: climatic change. Climate change is defined by the World Bank as:

changes over the 20th century [that] include increases in global air and ocean temperature, rising global sea levels, long-term sustained widespread reduction of snow and ice cover, and changes in atmospheric and ocean circulation as well as regional weather patterns, which influence seasonal rainfall conditions. These changes are caused by extra heat in the climate system due to the addition of greenhouse gases to the atmosphere. These additional greenhouse gases are primarily input by human activities such as the burning of fossil fuels (coal, oil, and natural gas), deforestation, agriculture, and land-use changes” (2021, p. 8).

The effects of climate change on the world's population have been severe, in terms of death, degradation of resources, climate immigration, and even in economic terms: the financial costs of the ten most severe climate-related disasters in 2022 reached the record figure of almost \$40 billion (Aid, 2022). Climate change is a serious issue that has profound and far-reaching consequences, aggravating multiple socio-economic problems like poverty, inequality, and food insecurity. The inequality aspect is even more severe considering that those who bear the effects are the communities of low-income countries that do not have the resources to confront and adapt to the increasingly harsh conditions of living.

Furthermore, the significance of the environment in determining the quality of life has been proven by numerous studies, showing that pollution affects prenatal and postnatal health, increasing health expenditure, aggravating health issues, lack of resources, and a general deceleration in human development rates (Schell, Gallo, & Ravenscroft, 2009; Gasimli et al., 2022; Kassouri & Altıntaş, 2020). With a growing number of environmental crises and ecological collapse, the environment topic should be considered more thoroughly, and nations should have a measure index like the HDI that can be used as a tool to measure and compare levels of environmental decline, and subsequently act to improve their current levels. Highlighting the importance of this topic, the UNDP, in its Human Development Report for the period 2021/2022, also delineated a dashboard of ten indicators of environmental sustainability – i.e., coal energy consumption, carbon dioxide emissions, renewable energy consumption, solar

photovoltaic energy capacity, freshwater withdrawals, use of fertiliser nutrient nitrogen and fertiliser nutrient phosphorus per area of cropland, domestic material consumption per capita, and prevalence of severe food insecurity, and three of environmental threat – i.e., numbers of deaths and missing persons attributed to disasters, terrestrial protected areas, and the International Union for Conservation of Nature’s Red List Index.

The increasing number of environmental crises caused by climate change, the increasing global average temperature, and the political discussion that has interested the world’s nations – e.g., the Kyoto Protocol of 1997 – stirred the debate on the necessity to measure comprehensively not only a country’s level of human development, but also its environmental conditions. Many academics proposed alternatives to the HDI, creating models able to consider elements of sustainability with human development. In his article, Jason Hickel (2020) also tried to overcome this gap, by presenting an alternative index. He claimed that previous attempts had significant downsides to be tackled, mainly: inconsistency with the planetary boundary framework, considering only one of the dimensions of ecological impact, and utilising the concept of ecological footprint. Therefore, he developed the Sustainable Development Index (SDI), based on a composite metric measuring both the HDI and ecological impact, comprising CO₂ emissions per capita and material footprint per capita. Furthermore, he modified the HDI by introducing a sufficiency threshold to the income indicator, with the maximum value being \$20,000 per capita. The reason for this change lies in the correlation between income and ecological impact, where a high level of income has a higher impact on the environment compared to the education and health dimensions of HDI, thus acknowledging the difficulty in achieving high levels of income and high results in the HDI without impairing the environment.

The SDI represents an important step forward in our understanding and measurement of sustainable human development. Hickel coherently included ecological elements to the HDI that considered both emissions and extraction of natural resources, while also considering the concept of planetary boundaries that stresses the necessity of fostering the environment without considering trade-offs between its abuse and economic growth. Furthermore, he addressed the intrinsic issue of the HDI rewarding the countries that are contributing the most to climate change, whose development model would inevitably lead to environmental collapse, while simultaneously empowering those countries that have obtained high levels of social development without high levels of income. Using this index, in 2020 the countries with the best rates were Cuba, Costa Rica,

Sri Lanka, and Albania, while those that were the top scorers in the HDI rank fell significantly, due to their high impact on the environment. Even more importantly, as claimed by Hickel himself, the SDI “*implies heterogenous prescriptions for progress, disrupting unilineal normative trajectories and usefully speaking to the varied predicaments of countries in the real world*” (p. 9), meaning that it provides an index showing that alternative models of development, ones able to achieve sustainable human development, are possible and achievable while recognising that each country faces its unique problems in doing so.

Obviously, there are some limitations to the SDI. Hickel himself highlighted its *deficit of success* – i.e., no country in the index has successfully achieved comprehensive sustainable human development. In addition, we can see that this index does not include other important elements of pollution that have significant consequences on both the environment and its inhabitants, like other greenhouse gases. Nonetheless, it is important to remember that finding a truly comprehensive and sound index is probably an impossible challenge, due to the ever-changing nature of our social, economic, and environmental international background. The importance of developing an index able to realistically – and not perfectly – describe the environment and quality of life of a country lies in its being a tool that can be used by society and policymakers to approach a different path.

Index	Elements
Gross Domestic Product (GDP)	Private and public consumption, Investments, Government spending, Net exports
Human Development Index (HDI)	Health, Education, Income
Sustainable Development Index (SDI)	Health, Education, Income (with sufficiency threshold), CO2 emissions per capita, Material footprint per capita

Table 1 *Table summarising the elements considered in each index* (Source: author).

1.6 China: from GDP to HDI

Considering the scope of this thesis, we should analyse how the GDP and HDI have been used in China, and their influence within the country. A crucial point, however, is how these theories and thoughts can be applied to countries like China; Western thought is, as it is simply inferred by a brief analysis, based mainly on Western experiences, and as already stated, the roots of development theory are deep-seated in colonialism. However,

in the last century, we have seen great growth and development in numerous non-western countries, and it is natural to ask if these theories can be validated for these countries in the same way. The UNDP and its projects have an international scope, but since the objective of this thesis is to analyse sustainable human development in the Guangdong province, it is naturally important to analyse how they have been embraced and utilised in China, both in the academic and political environment.

To correctly investigate the role of these two indexes in the last century of Chinese history, it is crucial to first consider the incredibly different history and political development of China. Since the 1949 revolution, with the establishment of the People's Republic of China, China has been governed by a communist government led by the Chinese Communist Party (CCP). In the same year, China implemented unified accounting methods based on Soviet-style double-entry bookkeeping: the Soviet-inspired Material Product System (MPS) (Lu & Aiken, 2003). Nonetheless, China was one of the last major countries to adopt the GDP, using a different measure of national income until the 1990s. Since its late introduction, GDP has taken on significant political and social significance for CCP governance. This is a critical decision to take, especially considering the country's different economic structures and a statistical bureaucracy unqualified to producing coherent GDP figures, a measure relying instead on the System of National Accounts (SNA), a global standard intended to capture aggregate economic activity in capitalist economies. This merge resulted in the creation of a hybrid system of national accounting, based on joining selected principles from the SNA into the MPS framework, which later contributed to the graft being abandoned and the SNA framework being adopted. It is also important to note that, despite common misconceptions, the adoption of GDP in China was mainly spurred by domestic actors, in a process that does not conform with the commonly observed patterns of assimilation of international norms, ideas, and institutions (van Heijster & DeRock, 2020).

Despite this, after almost four decades of using GDP to measure its growth and its objectives, the Chinese government's sole focus on one single measure of development showed its results, a limited vision that created blind spots that – by 2013 – were impossible to ignore. In his last speech as outgoing premier, Wen Jiabao claimed that China's development was “unbalanced, uncoordinated, and unsustainable” (Wallace, 2022). As stated by Mei, Yu, and Mei (2019), the Chinese government had the relentless pursuit of GDP growth as its main focus in order to fill the productive gap between China and other more developed countries. However, as the Chinese society and economy

progressed, the CCP administration realised that the measurement of economic development was no longer enough, and it had to include education, healthcare, and social development. Thus, nowadays we can see a stronger focus on development as a multidimensional concept that should consider not only economic elements but also social ones. As part of the UNDP, China each year provides statistical data that focuses on different dimensions of development – such as gender disparity, health, education etc. – and multiple scholars are proposing new models, or modifications to existing ones, to measure development. This theme will be further expanded upon in the second chapter of this thesis.

Additionally, as mentioned before, the concept of HDI has seen both praise and criticisms from Chinese scholars; nonetheless, its relevance in helping measure human development is undisputed, as can be seen in Fu's work (2011), claiming that the logical relationship between GDP and quality of life is not always guaranteed, and that, on the contrary, the HDI's component indicators are well-established statistical ones, able to avoid subjectivity and inconsistency, and that can actually give a – although approximated – measure of a country's people quality of life.

Conclusions

In this chapter we have analysed how the concept of human development came to be defined, in opposition to the GDP used as an index of development that only considered a country's economic growth to measure its milestones and advancement.

We then reviewed how the HDI came to be formulated, its goals and scope in the international economic environment, and how it is calculated. Moreover, we assessed the criticisms that it received, and how it was modified to be more comprehensive and inclusive. By reviewing the academic literature on HDI, we stated its importance in the debates regarding what is human development and how it can be measured. Afterwards, we analysed the Sustainable Development Index, its role in measuring sustainable human development, and its criticism.

Furthermore, we analysed the role that GDP had in the economic and political development of China, and how it came to be substituted by a more inclusive concept of development, represented by the HDI.

As underlined by Mazzucato (2019), the way we measure value and therefore economic growth can shape policymakers' view about what is productive and, thus how they can intervene to steer the economy. In this context, it is crucial to analyse the concept

of development and how it can be measured, so to show the possible paths that can be followed by governments and policymakers.

In the next chapter, we will review the literature concerning the government's role in the economy, and how China has created a model of development that defies the assumptions on market functioning, providing to developing countries with an alternative model of growth. Furthermore, we will analyse the last two Chinese presidents' political thought, and how it defines an alternative path of growth that is compatible with the concept of sustainable human development.

Chapter 2: The role of governments and the Chinese approach to market intervention

In the previous chapter, we delved into the extensive debates surrounding the definition and measurement of human development. Amidst these debates, the HDI emerged as a pivotal and widely embraced benchmark, notable for its accessibility to a broad audience. Nevertheless, a pressing question still looms large, demanding rigorous investigation: how can we actively foster the growth of human development? This question leads us to the very heart of policymaking, international cooperation, and individual initiatives. Contextually, we should recognize that there is no one-size-fits-all answer. To drive the growth of human development, it's imperative to address a multitude of interconnected factors, encompassing economic policies fostering fair wealth distribution, and investments in education, healthcare, and societal infrastructure. Yet, the equation doesn't end here. In addition to the previously mentioned aspects, social facets such as fostering a culture of inclusivity, gender equality, and sustainable environmental practices play an integral role, and they should not be considered mere afterthoughts. A holistic approach is required to the pursuit of increasing human development, which intertwines multiple different dimensions into a uniform schema.

Nevertheless, to increase its human development standards, a nation's government must engage in a comprehensive journey of analysis and formulation of strategies, with a clear commitment to this overarching achievement. It is an effort that transcends the mere pursuit of economic power and a favourable standing in the global economic landscape. It represents a higher objective, one that encompasses not only increasing a nation's economic power but also ensuring an enhanced quality of life and a sustainable environment for its current citizens and future generations. It is an effort that goes beyond the concept of economic prosperity as an end itself, acknowledging that the well-being of the population, their participation in the benefits of progress, and the preservation of the environment are interwoven with the nation's economic accomplishments. Above all, it highlights that to manoeuvre a state toward equity and sustainability, the government must play a pivotal role.

Hence, the scope of this thesis lies in analysing how China, a nation that has accomplished unprecedented growth in both the economic and human aspects of development, has reached these remarkable achievements, and has tackled the problem of environmental degradation. Due to its vast geographical expanse and the intricate

interplay between the central and local governing policies, our analysis will be focused specifically on the Guangdong province, a region with great economic and strategic significance within the country. By doing so, we aim to gain insights into the policies, economic strategies, and government policies that have steered China's progress in the issue of environmental protection. Furthermore, to give a comprehensive analysis of the milieu that permitted China to reach never seen before levels of growth, in this chapter, we will also analyse the controversies around China's development. The main questions regarding these issues are when and how governments should intervene, what should be their scope and goals, the tools that they should implement, and what limits should be applied to their intervention.

2.1 The debate on government intervention

To grasp the origins of these controversies, it is useful to analyse the history of debates regarding government intervention. To do so, it is crucial to retrace the longstanding discourse revolving around government failure, a debate that has engrossed academics since the early 19th century and subsequently shaped global economic and political ideologies. In his article, Mason aptly defines the debate on government's role by stating that “*the critical question [...] is the extent to which government can shape, or is inevitably shaped by, the society of which it is a part*” (1960, p. 636). Hence, it is a debate that principally seeks to define where the equilibrium between government and the free play of market forces should lie, intricately moulded by the concepts of market failure and government failure. It is within this context that the Chinese economic system finds itself, sparking extensive debates, as it navigates the path between government guidance and market dynamics in a rapidly changing global economic landscape.

2.1.1 Successes and failures in the market and government

As previously stated, the underpinning rationale for justifying government intervention is the concept of market failure, a term defining the economic situation in which there is an inefficient distribution of goods and services in the free market. This notion, however, ignited a counter-debate among economists to advance new theories that bring into play the concept that government interventions, while well-intentioned, are usually costly and tend to fail, formulating the idea of government failure. Economists advocating for this perspective – usually viewed either as a deviation from adequate cost-benefit analysis or as a mismatch between normative expectations and public policies –

raise the concept of the invisible hand, formulated by Adam Smith, as a basis to claim that governments merely disrupt the self-regulating nature of the free market. However, this argument often ignores that Smith himself underlined the necessity of the State as a regulating force in the fifth book of *The Wealth of Nations* (Orbach, 2013). For instance, in his influential work *Capitalism and Freedom*, Milton Friedman (1962) proclaims the need to circumscribe the government's role. As he claimed, the basis of this claim lies in the fact that its initiatives will inevitably fail due to its coercion of individuals in going against their interest to follow an alleged collective good. As an alternative, he advocated that its role should instead be that of focusing on being an impartial arbiter ensuring a level playing field for all economic actors, who should follow its regulatory framework. Friedman's theory gained ample following and support, shaping the debate on governments' role for the following years.

Despite that, in the contemporary economic field, a steadily increasing number of economists and researchers propose the idea of going beyond this dichotomy, which conveys no clear solution. The problem with the historic discussion on government failure lies in its implicit assumption of inevitability, and this inexorably legitimises a state of mind that devalues the objective of investments in governments. While it is recognized that the government plays a vital role in defining the rules that warrant a market's functioning, economists promote the contradictory idea that investments in governments should be limited due to their assumed high rates of failure. This is a stance that ignores the reality of market failures, which can become even more plausible if the rules of the market are defined by a weak and inefficient government. Therefore, the accepted belief that either governments or markets will inevitably yield some forms of failure – such as rent-seeking, regulatory capture, natural monopolies, or externalities – for which the possible negative extent remains unclear is fruitless. The aim of this argument should be changed, shifting its focus towards the possible remedies for government failures, developing and bolstering effective governments, and investing in government capacity. Different scholars claim that the increasing number of economic crises and the growing disparities in worldwide economies underline the urgency of contemplating structural changes (Mazzucato, 2019). A change of this magnitude cannot be easily and quickly implemented; hence we should emphasise the crucial role of academic research in delineating how this can be accomplished, finding new viable approaches, and guiding government agents in the application of these solutions. In essence, the focus is shifting

from a binary debate to a pragmatic pursuit of the optimization of government performance.

2.1.2 Industrial policies: definition and role

When discussing the growth of East Asian countries – especially China – and the relationship between their governments and the market, it is necessary to also delve into the concept of industrial policy. There is evidence that these economies have been able to reach these staggering results due to a focus on industrial policies (Ha-Joon, 2006). While some experts argue that well-crafted policies can be conducive to fostering technological progress and economic growth, others warn against the potential drawbacks such as favouritism, inefficiency, and market distortions. Therefore, understanding their role and scope is crucial, as they often include government interventions aimed at fostering specific sectors or industries. Exploring the experiences of China can offer valuable insights into the ongoing debacle about the optimal relationship between market forces and government intervention, which can potentially allow the achievement of sustainable economic development. However, this emphasis has ignited fervent debates, primarily centred around defining the concept of industrial policy itself. The Chinese experience, in particular, highlights the complexities surrounding this topic.

As previously stated, it is difficult to find a unanimous definition of industrial policies. The attempts made at defining it are numerous, and still ongoing, due to the controversial nature of their application and their relation to the long-lasting debate on government intervention. While Eisinger (1990) claims that its fundamental common structural elements are:

an articulation of goals, an effort to fashion a framework for co-operative, institutionalized, public-private relationships in economic policy-making and implementation; some type of audit of economic strengths and weaknesses; and the enunciation of a regional policy to assist areas of severe disadvantage. These structural elements serve to make purposive and coherent several programmatic initiatives typically found in industrial policies. (p. 512)

Lincicome and Zhu (2020) claim that its four essential features instead are:

A focus on manufacturing, to the exclusion of services and agriculture; targeted and directed microeconomic (firm or industry-specific) support [...]; a government plan to

fix “market failures” (including negative “externalities”) and thereby achieve in targeted industries/companies clear, specific, and measurable commercial outcomes [...] that are better than what the market could provide in the absence of industrial policy; and a requirement that these market-beating commercial outcomes be generated within national borders. (p. 6)

Other researchers emphasise the longstanding historical role of this tool, employed by developing countries to bridge the gap with the developed economies. In this context, the government provides the market with the means to develop, at an increased pace, to develop and keep its competitiveness (Baliño, Bernasconi-Osterwalder, & Cosby, 2019). In his research, Ha-Joon (2006) proposes a definition that defines industrial policy as a policy that has the objective of impacting particular industries and firms to achieve goals that are perceived as useful to the economy as a whole, a view that is shared by Eisinger (1990), who further provides two other elements that, according to his opinion, are essential to industrial policies: a deliberate level of economic planning, and possessing elements that encompass both macro – e.g. strategic investments in education, workforce training, incentives to shape private investments, R&D – and microelements – e.g. direct actions taken by the government within industrial sectors or individual firms. The concept of industrial policy has also been used as a political tool, with its definition being shaped according to the narrative that needed to be fit. In the past the World Bank, while recognising the massive role that industrial policies played in the East Asian economies' growth, decided to give a rather narrow definition to industrial policies, distinguishing only between fundamental policies – for example, monetary restrictive policies, investments in human capital, openness to foreign trade and technology etc – and industrial policies – direct credit, selective industrial promotion and trade policies to favour non-traditional exports. At the same time, it claimed that industrial policies, unlike market-friendly ones, were largely ineffective, not resulting in changes in the industrial structure or other patterns of productivity (1994, pp. 312-316). The implications of these statements are clear: once again, the government should play a minimal role as a rule setter, because development and change are led by market forces, which would only be disrupted by the government's intervention, which through industrial policy could extend their capture on private actors by vested interest, or could “pick winners”, without being able to estimate the success changes of the actors chosen.

Despite longstanding debates on what can be defined as industrial policy, and whether its definition should be narrower or broader, multiple research projects have proven that there is a correlation between industrial policy and both economic and human development. As stated by Ha-Joon, the idea of industrial policies playing a crucial role in East Asian economies has been widely accepted since the 80s, and in his analysis, he recognises their contribution to the “economic miracle” of these countries. Moreover, they have also been extensively applied even in high-income countries, strengthening the credibility of the State playing a more active and direct role in economic development (Ferrannini, Barbieri, Biggeri, & Di Tommaso, 2020). It is a discussion that gains further significance when we consider episodes like the 18th National Congress, held from November 8th and to 15th 2012 where multiple state representatives, including Hu Jintao and Xi Jinping, tackled the idea of the necessity of a “change in the growth model” in the Chinese system (Full Text: Constitution of Communist Party of China (Adopted on Nov. 14, 2012), 2012).

During a meeting of the International Institute for Human Development, participants claimed that to increase interest in the topic of industrial policies, the objective should probably be to look for “less problematic terminology”, to include a more sustainable-oriented approach (Baliño, Bernasconi-Osterwalder, & Cosbey, 2019). Aiginger and Rodrik (2020) have proposed “productive development policies”, “structural transformation policies” or “innovation policies”. Nonetheless, denomination aside, we believe that in a changing global environment where the topic of human development is gaining increasing recognition and relevance, the tools of economic development must embrace the ideas of sustainable development. The focus should no longer be limited to bridging the gap, improving competitiveness, fixing market failures, or impacting particular economic actors to improve their performance. Industrial policies should have the ultimate goal of promoting change that can direct a nation – both developed and developing – towards long-term goals of environment sustainability, inclusiveness, and equality. To do so, we need a broader definition.

There are multiple examples of academics claiming that industrial policy conception should broaden its horizons to support a more sustainable growth path. In their report, Aghion, Boulanger, and Cohen (2022) claim that there are globally consequential factors that justify a review of our notion of industrial policies: that government intervention should promote clean production and innovation, given that there is a bias in innovation towards already existing environmentally harmful technologies; that

neoliberal policies have fostered a model where non-tradable sectors domain over tradable ones, which instead promote sustainable growth and competitiveness; that China, through industrial policies, was able to remedy previous economic failures. Therefore, their proposal states that it should be redirected towards three main goals: direct technological change towards green innovation, apply sector-specific policy and remedy to lack of financial development, and keep in mind that sectoral policy is more efficient if decentralised, if applied in specific sectors with equal terms, and if subsidies are less concentrated.

A proposal that includes the elements stated is provided by Ferrannini, Barbieri, Biggeri, and Di Tommaso (2020) in their paper “*Industrial policy for sustainable human development in the post-Covid-19 era*”. As seen before, industrial policy was seen as a method to address market failures, but there is now a growing recognition that it can serve a broader role in achieving societal goals for long-term collective welfare. According to the authors, the Covid-19 pandemic has accelerated this shift by highlighting the importance of government intervention, to promote structural transformations and tackle both economic and societal challenges, it is time for a fundamental change where industrial policy fully incorporates the concept of sustainable human development, considering environmental concerns, inclusiveness, equal opportunities, well-being, and long-term societal prosperity. Industrial policy should be seen by governments and experts as both a technical and political tool for intervention aimed at redesigning future societies, guiding structural transformations, and balancing sustainability with development. It should be a tool that both contributing productivity and competitiveness enhancement and promotes social resilience. To summarise, according to the authors’ model, its defining elements are:

1. Being a tool for governing structural changes given systemic objectives influencing development direction, enhancing the system’s overall ability to evolve in the long run and maintaining a well-functioning and dynamic socio-economic system.
2. Having a set of principles shaping objectives, targets, and tools: equity, participation and empowerment, sustainability, and productivity.
3. Taking in consideration the existence of the society’s constitutive values, the meaning of development and systemic interests, together with external global influences.

2.2 A different model of development

When observed alongside Western economic models – more based on liberal economic thought – it may seem to the untrained eye that the Chinese economic model is increasingly resembling a capitalist one. However, a closer analysis shows that the Chinese government plays a clear and undoubtedly crucial role in its economy, which fundamentally shapes the very definition of its system. Since the presidency of Deng Xiaoping, the government has pursued a model of “socialism with Chinese characteristics”, a political theory created and evolved through successive presidencies, drawing from China’s last four presidents’ political thought – Deng Xiaoping Theory, the Three Represents, the Scientific Outlook on Development, and Xi Jinping thought – combining elements of socialism with a market-oriented approach. The application of this framework has multiple implications: the government exercises substantial control over institutions that, in most capitalist countries, operate with more liberalised propositions, such as banking, telecommunications, energy, financial markets etc. Concurrently, this effort is accompanied by strong investments in infrastructure and technology, to steer durable economic growth. While this involvement is both extensive and well-regulated, it continues to raise concerns about what should be the extent of state dominance and its possible impact on worldwide economic dynamics, especially in the major Western economies.

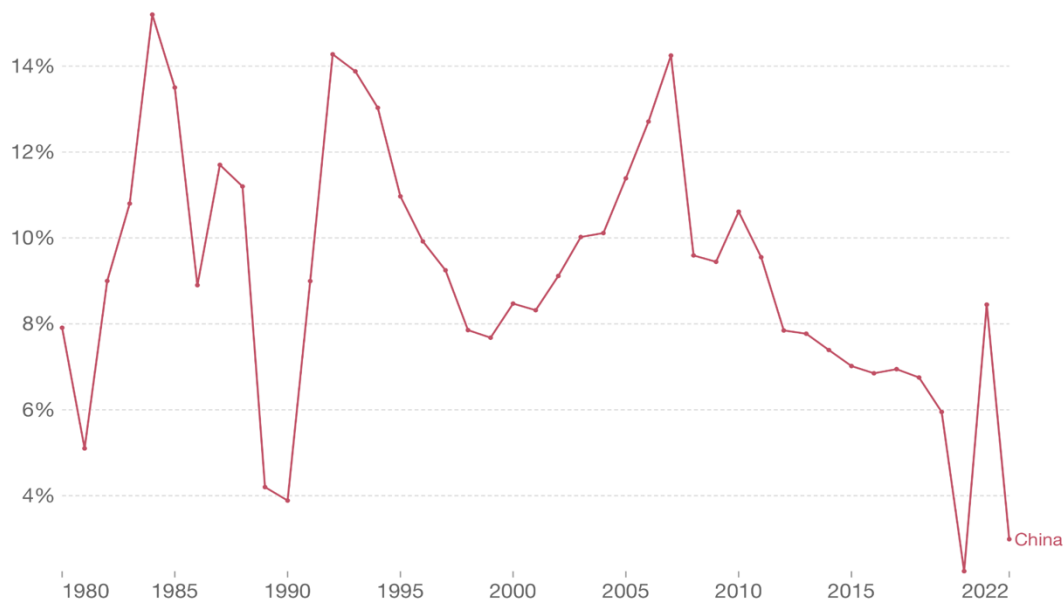
2.2.3 40 years of achievements: China from 1980 to 2020

As stated by Huang (2010), the topic of the staggering achievements that China has obtained in less than a century – and its possible future wavering – has generated innumerable debates, covering different academic fields. To understand the criticisms that have been and are still directed at the so-called Chinese model, we will first analyse its accomplishments over the years.

In 1979 the Chinese government halted the policy that was imposed to retain economic statistics and other information (Ishikawa, 1983). This decision permitted foreign countries and agents to analyse the statistical data released by the CCP to track the country’s economic growth and human development.

Annual growth of GDP, 1980 to 2022

Annual percent change in gross domestic product, with near-term projections. This data is adjusted for inflation.



Source: International Monetary Fund (2023)

OurWorldInData.org/economic-growth • CC BY

Figure 2 Annual Growth of GDP, 1980 to 2022 (Source: Our World in Data, 2022).

Figure 2 details the data on annual GDP growth from 1980 to 2023. Since the Opening-up reform (改革开放) introduced in 1978 by Deng Xiaoping, his political ideology – best represented by his slogan “*It doesn’t matter if the cat is black or white, as long as it catches mice*” (不管黑猫白猫，能捉到老鼠就是好猫) – focused on achieving the goal of obtaining economic growth, no matter the method. His economic reforms – which opened China to foreign trade and investment, introduced market mechanisms, spurred urbanisation, created Special Economic Zones, etc. – took the name of “socialism with Chinese characteristics, and they shaped China as we know it today. Growth in terms of GDP was staggering: in 1984, it reached its highest point at 15.2% (Kobayashi, Baobo, & Sano, 1999).

In the following forty years, while tackling some major economic and social crises – such as the Asian Financial Crisis – the Chinese economy saw exceptional growth, with an average annual GDP rate of 9.5%, compared to the global one of 2.9%. While the share of primary and secondary industry’s value added in GDP fell, the tertiary industry went from 24.6% to 51.6%. Its rate of foreign trade rose from \$20.6 billion to \$4.1 trillion, and foreign direct investment grew until reaching almost \$131 billion (China Daily, 2017).

While in the last few years – also due to the COVID-19 pandemic – China’s growth has slowed down, with the government recognising that the double-digit GDP growth model was no longer sustainable, the prediction is that it will still become the biggest world economy in the following years.

Trends in China's HDI 1990 – 2021

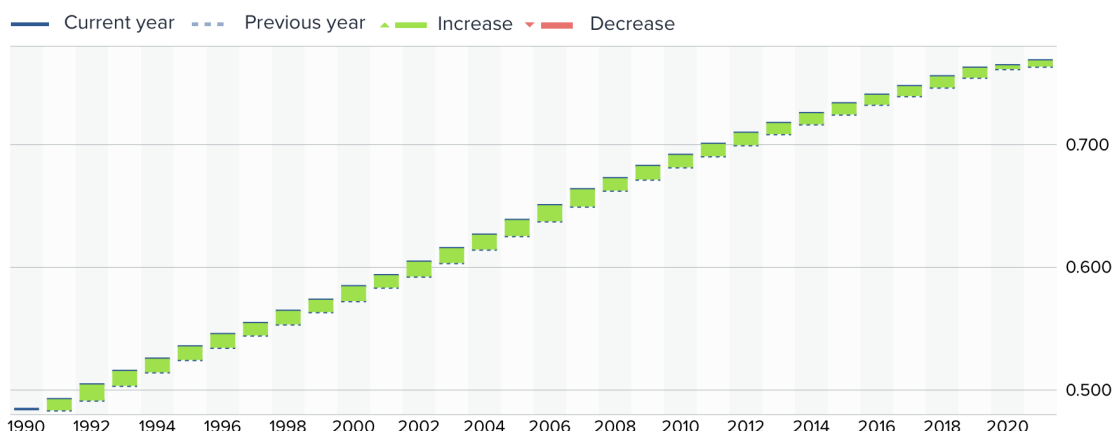


Figure 3 Trends in China's HDI 1990 – 2021 (Source: Human Development Reports, 2022)

Regarding the concept of sustainable human development, Chinese GDP growth rates have fluctuated during the decades, but its Historical Index of Human Development (HIHD) rates – an index based on life expectancy, adult literacy, educational enrolment rates and GDP per capita calculating the data that predates the conception of the HDI – have seen a steady growth between the 60s and the 80s, reaching the score of 0.31 in 1990 (Our World in Data (OWD), n.d.). In the data published by the UNDP analysing the period from 1990 to 2021, seen in Figure 2, we can see a constant increase in the HDI index, with China reaching 0.786; while a great achievement, it still does not reach the “Very High” ≥ 0.800 threshold, ranking it 79th worldwide.

Nevertheless, this rapid growth had some serious consequences. Between the 80s and the 90s, there was a steep increase in inequality, defining the divides that would later define the “five imbalances” included in the Chinese constitution. Some of these inequalities have been tackled and have become stable or slowly decreasing (Hu & Brueckner, 2023), but there are still pressing issues, like the high level of CO2 emissions that is incompatible with the CCP’s goal of reaching its peak in emissions in 2030 and carbon neutrality in 2060.

Different experts believe that these achievements lie in China’s use of industrial policies, applied through its model of planned policymaking that has its origins in Mao

Zedong's thought and presidency, based on the division based on short-term, medium-term, and long-term goals, and their most famous exemplification is the Five-Year Plan.

2.2.3 The China Model

Before analysing the connections between industrial policies and sustainable human development in China, it is essential to consider the various interplaying relationships that define the Chinese state as a unique case in the global environment and define the elements that make it stand out compared to others.

According to research, the idiosyncratic nature of the Chinese development model has its roots in this country's millennial culture. Cultural references are used to define the political thoughts and policies applied by the CCP, to create a relationship between state, culture and people that justifies and gives credence to the party's power, which presents itself as the "epitome of Chineseness". It is a discourse that on the one hand allows the party to deflect discussions regarding modern political ideologies (i.e., communism and capitalism), on the other hand clearly states to Western countries that foreign imported models will not succeed, because they cannot take root in the Chinese milieu (Smith, 2019).

After the global recession of 2007, numerous people started to question the effectiveness of the Western capitalist approach (Hou, 2014). In this environment, China's government model stands out as an exceptional hybrid, combining features of single-party rule with market-driven economic strategies. Under this system with no opposition parties, the Chinese Communist Party (CCP) maintains an unchallenged grasp on political power. An authoritarian political structure that coexists with a market-driven economic system, fostering rapid growth, this structure was defined as "socialism with Chinese characteristics". This blend and synergy between seemingly contrasting elements allow for limited capitalism within a controlled political environment. State-owned enterprises coexist with private businesses, and China leverages its state apparatus to plan and guide economic development. Given its policies it is complex to define it as a fully communist state; thus, according to Geis and Holt (2009), the idea of socialism with Chinese characteristics can be interpreted as "*firmly held power by the elite party members without the shackles of ideological definitions of Marxism and socialism*" (p.78).

China has effectively reformed its economy over the past three decades using a gradualistic approach called "*crossing the river by touching the stones*" (摸着石头过河), a slogan formulated in 1950 by Chen Yun, one of the leaders of the CCP. This method

involves initiating small policy changes, usually in specific provinces, and gradually adjusting them based on the economy's response. It is a process that can take several months or even quarters, but it allows optimisation of policy through experimentation. After discerning the policy's results, if they are deemed positive, they are then applied on a national level (Brunnermeier, Sockin, & Xiong, 2017).

While China's remarkable economic growth – thanks to its unique economic model – has made it a formidable player on the world stage, it has also ignited contentious discussions regarding issues such as political freedom and human rights. Some say that the country's rapid economic growth has been accompanied by labour rights violations – including inadequate workplace safety, long working hours, and restrictions on labour unions. Critics argue that these policies prioritise economic development over workers' rights and well-being, prompting ongoing debates about the balance between economic progress and human rights in China's industrial landscape (Yu & Zhou, 2022). Others claim that this model, while it has been successful for over thirty years, has been lately compromised by the increasing complexity of the country's economic model, which is leading government agents to realise that they should cooperate with private players and financial markets (Brunnermeier, Sockin, & Xiong, 2017).

According to Jain (2017), the existence of a single and uniform Chinese model is still up for debate, due to different variables, like its fast-changing size and nature. It is without doubt that, in the period encompassing the presidency of Deng Xiaoping until now, the Chinese state has shown multiple significant changes, especially on the economic side. Due to this uncertainty, it has been given multiple definitions, whose origins may lie in either economic or political principles; some examples are the “market authoritarian model”, “state capitalism”, and “communist-capitalist-Confucian system”. The significance of this debate lies in the role that this country fulfils in the global economic setting: the image of China as a developing country that obtained never before success thanks to economic statism is influencing discussions on policies and business in the academic field, and other developing countries, like India, are looking at China for a model to emulate (Huang, 2010). China entering the G20, improving its foreign relations, and becoming one of the most influential economic actors in the world has led to a clash between two models: the Washington Consensus and the Beijing Consensus.

2.3.4 Washington vs Beijing: a new model of development?

The Washington Consensus is defined as “a set of economic policy recommendations for developing countries, and Latin America in particular, that became popular during the 1980s” (Hurt, n.d.). Often summarised as a compendium of privatisation, marketisation, and liberalisation, it is a theory proposing that to catch up, developing countries should emulate Western countries’ models of growth (Hou, 2014). As explained by Williamson (1990), who coined the term, it is based on a set of ten policy instruments promoted by Washington-based institutions – the United States Department of the Treasury, the International Monetary Fund, and the World Bank – as a standard of reform for developing countries. The designation of these policies is based on different economic elements – having objectives of growth, equitable income distribution, low inflation, and balance of payments. It was developed by observing Latin American economies, to understand the causes of their poor economic performance and find a more structured plan of development to apply to the severe debt crisis. These economies, while they had immense economic potential, were hindered by political and social problems that stilted their possibilities of development – e.g., rampant corruption, and drug cartels.

The Washington Consensus has consistently been a subject of debate; this is partly due to the absence of a shared understanding of its exact meaning, but also from substantial disagreements regarding the benefits and outcomes of the recommended policy measures. The origins of these disputes are easy to pinpoint: the Washington Consensus is mainly based on neoliberal thought; its policies are described as prudent, mainly promoting fiscal discipline, privatisation, market-oriented reforms, deregulation, and trade liberalisation (Williamson, 1990). It is easily inferred then that this approach, promoted by some of the most important institutions in the Western world, had the objective of promoting a reduction of the government’s role in the economy since development would be steered by free market forces and the private sector.

The idea gained ample following, yet its effects in the Latin American countries where it has been promoted are abysmal. Governments, financial markets, and economic analysts anticipated that the reforms would not only re-establish macroeconomic stability but also stimulate growth. Instead, as proved by Goldfajn, Martínez, and Valdés (2021)

Latin American economic performance has been disappointing over the last 30 years, both compared with other regions and emerging economies and relative to expectations at the beginning of the 1990s. [...] Growth performance improved relative to the lost

decade of the 1980s, but forecasts and targets made over the years, including by the IMF, show substantial economic underperformance. (p. 127)

Even Williamson (2002), in a speech held at the Center for Strategic & International Studies Washington, had to admit that the countries that a decade before had implemented his proposal had disappointing results, “to say the least” – although he blames this failure in crises, the incompleteness of the reforms, and that the Washington Consensus’ objectives were limited in scope. Several criticisms have been advanced against this model, some even before its implementation. Some claim that the policies proposed by it require a gradual model of implementation, especially regarding privatisation, since a rapid and simultaneous execution could lead to the rise of underground economy and corruption; others instead that it disregarded important areas of public concern that need to be addressed to obtain a more comprehensive and sustainable development (Rosser & Rosser, 2001; Goldfajn, Martínez, & Valdés, 2021). Furthermore, the topic of governments’ role and privatisation remain highly controversial, even after decades of debates.

As seen before, the Washington Consensus model was developed by observing the emerging economies of Latin America during the 90s; meanwhile, China and the Four Asian Tigers were growing and sharpening their teeth, amassing incredible rates of growth in a period spanning just forty years, starting from the 50s. Both world regions were constituted by emerging and still developing economies, but while one achieved staggering success, the other stagnated, showing only minimal rates of improvement. Where does the reason for this difference lie? According to Joshua Cooper Ramo (2004), the answer is in the Beijing Consensus, a term he coined in opposition to Williamson’s. He observed that China’s development had opposed every single Washington Consensus proposition, by employing state-led economic and social policies, as well as by committing to innovation and experimentation as the basis for its development. While in the 80s China followed the model of the Washington Consensus – stimulating private entrepreneurship, financial reforms, and political opening – in the 90s it shifted its aims, focusing on self-determination by employing policies based on financial support to the state, restrictions on the private sector while supporting State Owned Enterprises (SOEs), and higher political and financial control. In his research, Huang (2010) claims that during this period China, after reversing many of the programmes applied during the 80s, had proposed industrial and policy innovations that could influence the world’s developing

countries in the normative field. He makes another interesting point by criticising the idea of measuring the validity of a model of growth by using only the GDP metric, which conceals a slower rate of growth in personal income and consumption that had been higher during the 80s when China utilised more liberal reforms. Nonetheless, the Beijing Consensus model still presented a challenge to the prevailing law and development paradigm.

For decades, the economic growth model exemplified by the Washington Consensus, rooted in neoliberal ideology and a market-driven economy, was regarded as the sole and most superior development model; one has to just recall Margaret Thatcher's slogan "*There is no alternative*". As stated by Rosser and Rosser (2001), "*The centrally planned economies were viewed as having too much equality and not offering sufficient incentives for growth opportunities.*" Thus, the controlling state that stunted the market forces and the private-sector innovation was seen as a force that could only be halted by neoliberalism. However, as claimed by Chang and Grabel (2004), the idea that "*there is no alternative to neoliberal economic policies in developing countries is fundamentally and dangerously incorrect*" (p. 274). As stated by Liu (2018):

[...] *The Beijing Consensus should not be understood as an "anti-model" (Kroncke) of the Washington Consensus. Rather, it represents an anti-modelized way of thinking and questions whether we can find a "model" in the real world. It cautions against any "model" in national development; there are no universally applicable solutions for reforming a country and no single standard evaluating economic success.* (p. 377)

In conclusion, in the increasingly complex global economic environment, claiming to find a model of growth that is superior to others and has no room for improvement is too high of a pretence to have, and here lies the importance of fostering the academic debate on analysing alternative patterns of development.

2.4 The focus on Sustainable Growth in Chinese politics

As we have seen, the government plays a pivotal role in Chinese economics. Therefore, to understand the role that industrial policies played in its development, we will analyse the main political thoughts of two of the PRC presidents, who have governed during the last two decades: Hu Jintao (胡锦涛) and Xi Jinping (习近平). We believe that their line of thinking has greatly influenced both the Chinese and global conception of

what development is and how it should be achieved, leaving a mark on local governments' agents, who then proceed to include their line of thinking in their industrial policies.

2.4.1 Hu Jintao: a new path for development

Hu Jintao's election as the 6th president of the People's Republic of China (PRC) in 2002 was a major turning point in the history of the country on multiple fronts. Born December 21, 1942, in Taizhou, Jiangsu Province, he is a crucial figure in Chinese politics, having served as the paramount leader of the PRC from 2002 until 2012. A politician with a background in hydraulic engineering, his early career saw him in key positions in various provinces, where he was recognized as a competent and methodical leader. He obtained the presidency of the PRC during a delicate period: he succeeded Jiang Zemin, a popular leader who is considered as the architect who was able to lay down the framework that led to higher growth rates; leaving a difficult legacy to surpass (Shih, 2022).

Even more difficult for the new president was figuring out how to face and recognize the legacy left by Deng Xiaoping, and how to distance himself from its most controversial points while not rejecting it entirely. Deng's guidance shaped China as we know it today, due to the economic reforms carried out between the 70s and the 90s: his p'90scy of "Reform and Opening Up" created the grounds for loosening government control over market forces, and it encouraged both private enterprise and foreign direct investment. A critical change of course that, while it led China to unprecedented levels of economic growth, reaching the objective of becoming one of the main key actors in the global economic environment, it also led this nation towards creating an enormous divide between rural and coastal regions, and profound social disparities. Hu Jintao understood that this model could not be sustainable for much longer, lest it could cause – besides economic collapse – the complete disillusionment of Chinese citizens, leading them to lose faith in the government's power and potentially sparking social unrest. The first indication of this change of direction came during the APEC CEO Summit of October 2003, where Hu Jintao underlined the importance of development:

through science and education and through the strategy of coordinated development of different regions to improve the quality and efficiency of eco-development. [...] develop public health, education and culture, to develop a social security system, to promote social justice while simultaneously acknowledging mounting pressure on unemployment and social security. (Jain, 2017, p. 74)

The focus was officially shifted: while economic growth was still at the forefront of the government's objectives, Hu had highlighted the necessity of steering it in a direction that included the preservation of the elements at the core of a socialist state.

2.4.1.2 The Goal of *Harmonious Society*

The first point of clear detachment from Deng Xiaoping's legacy came during the 16th National Congress, where Hu Jintao's report underlined the question of the constant struggles present in China's path of development regarding social equity and environmental sustainability (Mohanty, 2012). Shortly after, Hu presented his new outlook on development, called "*Harmonious Society*" (和谐社会), which would be interconnected to another concept of his ideation, the "*Scientific Outlook on Development*" (科学发展观). Both concepts were then included in the government's 11th Five-Year Plan in 2005, and in the CCP constitution in 2007. While a "*Harmonious Society*" was the goal of the Hu administration, the Scientific Outlook on Development was the tool through which it could be built. This tool would make it possible, while still keeping economic growth as a main objective, to follow a strategy of development more comprehensive, balanced, and sustainable over the long term, at the same time ensuring that the results of this growth would be equally shared among all society's participants (Chan, 2010).

During a speech for a seminar aimed at the party's major leading cadres, held on the 19th of February 2005, he further delineated this new socio-political concept, claiming that comprehensively grasping the construction of a harmonious socialist society is a basic task of building socialism with Chinese characteristics. Proof of that is the philosophical basis of this approach, where Marxism thought is combined with the concept of "harmony" delineated in Confucius' work and the Book of Rites, both defining staples of Chinese philosophy (ZZW, 2005).

As previously stated, Hu could not explicitly disown Deng Xiaoping's contributions, no matter the scope of their negative consequences, due to the political status that he had obtained, elevating him to one of the founding figures in Chinese history alongside Mao Zedong. Therefore, in the same speech Hu Jintao claims that to reach this fabled harmonious society, it is necessary to follow Deng Xiaoping's *Three Represents*, together with the adherence to a socialist system, and the road of socialism with Chinese characteristics. He also claims that to achieve this goal, they should focus on the following ten aspects:

1. Effectively maintaining sustained, rapid, coordinated, and healthy economic development
2. Effectively developing socialist democracy
3. Effectively implementing the basic strategy of ruling the country according to law
4. Effectively strengthening the construction of ideology and morality
5. Effectively safeguarding and realising social fairness and justice
6. Effectively enhancing the creative vitality of society as a whole
7. Effectively strengthening social construction and management
8. Effectively handling internal contradictions among the people in the new situation
9. Effectively strengthening ecological environment construction and governance
10. Effectively doing a good job in maintaining social stability (ibidem, 2005).

From these ten aspects, it is clear what the goal of Hu's path is: changing the government's approach to growth, reorienting it instead towards social equity and environmental stability, according to the *Scientific Outlook* principle (Mohanty, 2012). This goal shift was also accompanied by other formulations that give a clearer insight into its implications: "putting people first", "handling five imbalances (economic and social development, rural and urban, inland and coastal, economy and ecology, and domestic and international sectors)", "building a harmonious society", "harmonious world" and "beautiful country" all reflect different areas of application of this different model. For example, "putting people first" consecrates the idea of abandoning the concept of GDP as the sole indicator of growth, and the need to focus on other aspects of development (ibidem, 2012; Chan, 2010).

2.4.1.2 Legacy and Outcomes

Hu Jintao proposed a new method of development aimed at challenging the deep-running problems of Chinese society, one that focused on the citizens' hindrances and disparities. It made it possible for the country to create a new path able to reach new economic goals while also considering its sustainability, to give the possibility of a better future. He is acknowledged for his role in being the president that spurred China into becoming the second-largest economy worldwide, cementing its status as a rising global power (FlorCruz, 2012). During his governance, the CCP also increasingly emphasized industrial policy in its government agenda. This focus on industrial policy was boosted by the Global Financial Crisis (GFC) in 2008, which prompted China to implement a substantial domestic stimulus, which gave central and local governments the resources to

actively pursue industrial policy measures. State-owned banks and enterprises were instrumental in executing these policies (Hofman, 2018).

Despite its role as the first president to introduce sustainable and equitable development to the Chinese constitution, several controversies have arisen. While the CCP claimed his presidency to be a “glorious decade”, respected scholars and the population – through the powerful medium of online forums – instead assigned it the title of “lost decade” (Mohanty, 2012). Some research (Hui & Chan, 2011) even claim that this social and political model was not acted upon, instead used as a hegemonic project aimed at culling growing unrest, to obtain popular approval towards the fast-changing economic model, especially from the labour class. In his article, FlorCruz (2012) recaps the ten years of Hu’s governance, with critics claiming that the inequality gap was still too considerable, with people becoming poorer. The widening gap was accompanied by rising corruption due to a lack of pluralism, transparency, and accountability, and a crackdown on political opposition based on censorship, the use of police and military, and imprisonment.

Nonetheless, he had obtained a certain degree of respect among Chinese citizens, thanks to his social security initiatives. His social policies focused on what were considered the most crucial aspects to be confronted to substantially improve people’s quality of life: he promoted the expansion of the health insurance system, getting close to covering virtually the whole population; introduced an allowance to the urban unemployed and to all those below the poverty line (which was, in turn, raised); adopt measures to support migrant labourers in major cities; promoted the construction of low-cost housing (Mohanty, 2012).

In his report made during the 18th Congress, Hu Jintao recognised the successes achieved by China throughout his ten years of presidency. He recalled the great achievements that the nation had obtained during his mandate, with a special remark on the importance of following the path for growth paved by his Scientific Look on Development. Nonetheless, he also acknowledged the obstacles yet to be overcome:

We must be keenly aware that there is still much room for improvement in our work and there are a lot of difficulties and problems on our road ahead. They include the following: Unbalanced, uncoordinated and unsustainable development remains a big problem. The capacity for scientific and technological innovation is weak. The industrial structure is unbalanced. Agricultural infrastructure remains weak. Resource

and environmental constraints have become more serious. Many systemic barriers stand in the way of promoting development scientifically. The tasks of deepening reform opening up and changing the growth model remain arduous. The development gap between urban and rural areas and between regions is still large, and so are income disparities. Social problems have increased markedly. There are many problems affecting people's immediate interests in education, employment, social security, healthcare, housing, the ecological environment, food and drug safety, workplace safety, public security, law enforcement, administration of justice, etc. Some people still lead hard lives. There is a lack of ethics and integrity in some fields of endeavour. (Central Committee of the CCP, 2012)

The crucial task of facing these hindrances and finding a new structure for the nation's development was passed to the succeeding leader, Xi Jinping.

2.4.2 Xi Jinping: achieving the Chinese Dream

Born in 1953, Xi Jinping is the son of Xi Zhongxun, who served as Mao's minister of propaganda and education, and later as vice president and secretary general of the State Council under Zhou Enlai. However, in 1962 he was purged, and Xi became one of the "sent-down youth" (知识青年), coerced into working in Shaanxi as an agricultural labourer from 1969 to 1975. After Mao's death his father was rehabilitated, becoming party secretary in Guangdong; during said period, after obtaining a degree in chemical engineering in 1979, he began his ascent in the political environment (Yuan, 2012). He was appointed on the 15th of November of 2012, and, after the National's People Congress removed the term limit in 2018, his regime is still ongoing.

2.4.2.1 The Chinese Dream and the objective of a Moderately Harmonious Society

On November 29th, 2012, just a few days after his election, Xi Jinping mentioned for the first time the concept of the Chinese Dream (中国梦), referring to it as a goal that had the objective of "rejuvenating the Chinese nation" (Liu, 2017). Since then, it has sparked numerous debates and interpretations, with Xi Jinping placing the realisation of this project at the forefront of his administration. This ambitious dream encompasses multiple targets: the Chinese Dream represents a modern power that is prosperous, strong, democratic, civilised, harmonious, and beautiful. During the 18th National Congress, these targets demonstrated the CCP's commitment to achieving simultaneous progress in

political, economic, social, cultural, and ecological development. Mainly, it showcased the CCP's objective of elevating the ecological dimension to the same level of importance as the others, an idea that was already proposed by Hu Jintao in 2003 but that became effective only after Xi Jinping's election. This is especially important since it demonstrates that Xi had accepted Hu Jintao's "five imbalances" heritage; however, according to the former, these goals could be obtained only by both asserting the government's prominent role and supporting the private sector (Mohanty, 2012).

As stated by Mohanty (2013) in his research, the editorial Qiushi (求实) claims that there are eight tasks as the basis of the Chinese Dream, which were announced during the 18th Party Congress: maintaining the dominant role of the people, promoting the liberation and development of productive forces in society, advancing ongoing reform with the intention of opening up to foreign markets and investments, progressing towards common prosperity, fostering social harmony, pursuing peaceful development, and upholding the Party's leadership. These tasks are crucial in understanding the political thought behind the Party's governance; for example, the focus on people's prosperity indicates the idea that macro development should not have priority over micro development, while the concept of social harmony refers to the increasing problem of social unrest and opposition. Another major change that was brought through this new political ideology is the idea of "rich people and a strong nation" (富民强国). In a communist country like China, the concept of richness is clearly controversial; however, Xi specified that much like being democratic did not mean following the Western model, being rich would have to be supplementary followed by being sustainable (ibid. 2013).

Summarising his political thought, during the G-20 Summit held in September 2016, Xi stated that "*Development is for the people; it should be pursued by the people and its outcomes should be shared by the people. This is what China's reform, opening-up and socialist modernization drive are all about*" (Jain, 2017, p. 76). Xi understood the importance of assuring the Chinese citizens of the CCP's commitment to inclusive growth, which resulted in the release of a white paper – government documents issued by the State Council that provide comprehensive policy statements. In this communication, the government emphasises the continued undertaking of socialism with Chinese characteristics, that equitable redistribution of resources would be facilitated, and that to achieve socially and environmentally sustainable development the Chinese society would have to accept a "new normal" of medium pace economic growth (ibid., 2017).

Another important object of Xi Jinping's regime is the focus on the Moderately Prosperous Society (小康社会). While the terms may be similar, there is a clear difference between Hu's Harmonious Society, a term that encompassed all the elements that defined his governance goals and directions, and Xi Jinping's Moderately Prosperous Society. During the 19th Party Congress held on 18 October 2017 – through which the CCP consecrated Xi Jinping's thought in the party's constitution – Xi mentioned the concept of "Moderately Prosperous Society" and stated the government's objectives of *"rejuvenating the Chinese nation, [...] focused on the party's tasks of solving people's day-to-day problems of providing adequate employment, education and health and stressed the need to fight corruption"* (Mohanty, 2012, p. 12). This idea represents one of the four pillars for reaching the objective of a new era of socialism with Chinese characteristics: it was first introduced by Deng Xiaoping during the 70s, as a goal of his Four Modernisations (Smith, 2019). Unlike his predecessors, Xi decided to explicitly state his focus on one of Deng's centenary goals, which was still to be obtained. The CCP's goal is to achieve a "decisive victory in establishing a moderately prosperous society" by 2020 and to transform China into a "great modern socialist nation characterised by prosperity, strength, democracy, cultural advancement, harmony, and beauty" by 2050. Furthermore, Xi's contribution to these objectives was to add an intermediate goal, planned for 2035, which contemplates the "basic realisation of socialist modernisation". His goal was to break the centenary goals into two parts, to create a work plan more concrete and attainable (Holbig, Mittelstaedt, Sautin, & Stanzel, 2017; Li, 2022).

Together with the Chinese Dream, we can see that Xi had formulated a clear path of development for the nation, one that comprehended not only economic growth – still one of the main objectives, even if at a slower pace compared to the previous decades – but also a focus on people's social and economic wellbeing, their need for participation, education, and environment protection. This intent is also exemplified by his proposal for a new principal contradiction (the 主要矛盾, a contradiction that characterises each period of social development according to the sinicised interpretation of Marxism thought, which in the history of the CCP has been changed only four times) that has its basis "between unbalanced and inadequate development and the people's ever-growing needs for a better life". The "backward social production", aka economic growth, was no longer the solution. To solve this contradiction the party would have to employ its forces in

coordinating “*well-rounded human development and all-around social progress*” (Holbig, Mittelstaedt, Sautin, & Stanzel, 2017, p. 4).

2.4.2.2 Legacy and Outcomes

On July 1st, 2021, Xi Jinping announced that China had achieved one of its centenary goals: achieving a moderately prosperous society. He claimed that “[...] *we have brought about a historic resolution to the problem of absolute poverty in China, and we are now marching in confident strides toward the second centenary goal of building China into a great modern socialist country in all respects*” (Wenrui, 2021, p. 3-5).

In ten years of governance, Xi’s China boasted great achievements: the average disposable income per urban household grew by 66% from 2013, migrant workers’ average earnings have increased, infrastructures have both improved and increased, corruption clampdown led to the investigation of over 4 million cases, and in 2020 Xi Jinping pledged to aim for carbon neutrality in 2060, with peak emissions by maximum 2030 (Agence France-Presse, 2022). Furthermore, contributing to almost three-quarters of the global reduction in extreme poverty worldwide, the country’s number of people in extreme poverty fell to almost 800 million, while those in poor conditions fell close to 770 million (World Bank, 2022). The nineteenth National Congress and President Xi’s report has affirmed policy directions emphasizing market-based allocation, the significance of public ownership, and a strong commitment to industrial policy and science and technology to achieve China’s goals for the “first phase of the new era” (2020–35), which is focused on socialist modernization (Hofman, 2018).

Nonetheless, Xi Jinping’s government still has some crucial issues that remain to be addressed. His programs clearly show a focus on inspiring nationalist sentiments in the Chinese population. The achievement of a great socialist goal – eradicating poverty and improving the citizens’ conditions – and of a dream that represents the ultimate goal of a once glorious, thwarted nation, a populace that rises from its ashes through the pursuit of a new model of growth, this will inevitably raise the patriotism of its citizens. The reasons for this are quite clear: the “democracy with Chinese characteristics” is not enough to cope with the people’s rising democratic consciousness, which consequently causes a rise in protests among the population (Mohanty, 2013). Furthermore, the CCP has taken advantage of the rule of law to both maintain social stability and control rising dissent. As stated by Nesossi, Rosenzweig, Smith, and Trevaskes (2017) “*It has equally justified anti-corruption campaigns targeting party officials, and the repression of civil*

society and human rights activism. Although their activities remained well within the legal or constitutional rights of Chinese citizens, lawyers, labour activists, and people working for NGOs became key targets of repression” (p. 99). The State’s authoritarian face is clearly at odds with the main idea of common and shared prosperity at the basis of the Chinese Dream, excluding persecuted dissidents and minorities from this goal.

While Xi’s goals included reducing corruption, through massive campaigns targeting both “tigers and flies”, the project still lacks institutional reforms that promote transparency, resulting in rampant collusion between political officials and private entrepreneurs (Jain, 2017). Furthermore, there are multiple accusations claiming that the CCP uses the objective of decreasing corruption rates to silence political opponents (Yuan, 2022).

On the topic of international relations, there are mounting concerns over Xi’s new economic global order idea. In the 2019 policy white paper “China and World in the New Era”, the government clearly stated its objective to lead the global governance system in its development and reforms, an unequivocal change from Deng’s idea of China as a calm external observer. Furthermore, while the Party Constitution rejects any form of hegemony, the Chinese Dream ideology clearly implies some form of international hegemonism to be pursued to restore China’s image as a “great country” (Li, 2022). One example of the tools used to assert its international dominance is massive investment programs like the “One Belt, One Road” (一帶一路) that hide China’s economic and geopolitical agenda (Perlez & Bradsher, 2017).

Conclusions

To conduct an analysis that focuses on the relations between government intervention through policies and sustainable human development in Guangdong, in this chapter we first analysed and discussed some of the main debates that are still unresolved regarding government action: what should be the scope of its intervention, if its involvement is inevitably adverse to economic growth, and how one of its main tools of intervention – industrial policy – can be redefined to promote sustainable growth.

Afterwards, we have briefly analysed the history of Chinese economic growth in the last four decades, and how this staggering growth placed China as a possible political and economic model to be replicated in both developing and developed countries. In this context we further presented the debate between the Chinese and Western model of

development that had major ramifications in the global economic environment relationships, proving the existence of an alternative to neoliberal economics.

Lastly, due to the pivotal role played by the government in Chinese economics, we presented the main political thought of China's last two presidents, Hu Jintao and Xi Jinping, to demonstrate that the Chinese Communist Party, in the last two decades, has shifted its goals for the future development of the country to steer it towards a more sustainable and equitable path.

Retracing the history of government debates provides us proof that an alternative structure of political intervention is possible. While neoliberal forces have dominated the economic field in both academics and politics for the better part of this last century, there is now mounting evidence that the model it proposes is not the only one viable and, therefore, preferable; on the contrary, it fortifies the requirement of studying and proposing alternative models that do not overlook the importance of both human development and environmental protection. In this context, analysing China can offer multiple prompts of analysis, due to its economic and political model that, while it has certain mutual points with the Western models, reflects structures and tools that are unprecedented.

In the following chapter, through the application of the Sustainable Development Index, we will analyse the effects of industrial policies applied in the Guangdong region during the governments led by Hu Jintao and Xi Jinping in three different periods: 2000, 2010 and 2019. The obtained data will then be used to analyse the relationship between industrial policies and sustainable human development, to observe if there are any potential links between the two.

Chapter 3: Guangdong and the concept of Sustainable Development

3.1 Guangdong Province

Guangdong is a region based in the southern part of China, one of the most important provinces in the nation due to its history, demographic count, and economic role. A mainland province with one of the longest coastal extents, it was one of the first established trading ports in China, making it the starting point of the “maritime Silk Road”. Having had the greatest and swiftest GDP growth of all 31 regions, it is recognised as the “economic powerhouse” of the country. It houses the Pearl River Delta (PRD) economic zone, one of the most dynamic and economically vital regions, and the Special Economic Zones (SEZs) of Shenzhen, Shantou, Zhuhai, Guangzhou, and Zhejiang. Its economy is based on manufacturing, with a focus on next-generation electronic information, housing some of the top electronic manufacturing hubs, such as Foxconn, Tencent, Huawei and ZTE (Eye on Asia, 2023). More recently, it has become part of the Guangdong-Hong Kong-Macao Greater Bay Area (粵港搞大湾区, abbreviated in GBA), a government project whose aim is connecting eleven of the Guangdong communalities with the Special Regions of Hong Kong and Macao; the goal is to create an economic and business hub that, according to the goals of Made in China 2025 and China Standard 2035, should be able to become one of the top economic entities worldwide (Ballesteros, 2022). Its growth in terms of data is without precedents: in 1978 its per capita GDP was 313 yuan; in 2010 it amounted to 43,600 yuan, and in 2022 it peaked at 101,905 yuan (Chen, 2018; Statista, 2023). According to the data collected by the Institute for Management Resource (2023), Guangdong’s HDI grew from 0.539 in 1990 to 0.799 in 2021, making it one of the regions with the highest human development index in the country.

3.1.1 The first of its kind: the Special Economic Zones

Guangdong played a crucial role in the Chinese economic transition that began in 1978. It is a region that experienced an economic miracle of its own: while its annual economic growth rate from 1952 to 1978 was 3.1% – 0.8% points below the national average – during the period between 1980 and 2013 it reached the record rate of 18.5%, becoming the fastest and highest growing province (Cheng, 2018). The reason for this record speed growth – besides from its comparative advantage of natural resources, landmass, and favourable position – lies in its special administration, based on its inclusion of multiple Special Economic Zones.

Special Economic Zones, according to the World Bank (2017), are defined as “designated geographical spaces where special policies and measures support specific economic functions [...] includ[ing] free-trade areas, industry parks, technical innovation parks and bonded zones that facilitate experimentation and innovation over a wide range of industries” (p. 1). They were first implemented in 1980, after Deng Xiaoping and the rest of the central government decided to put into practice flexible measures and special policies, starting from the provinces of Guangdong and Fujian; for example, contrary to the rest of the country, these zones were open to FDI and free trade with other countries (Fang, 1994). This decision brought some perplexity to global academics and politicians, who regarded this move as a first step in China’s path to becoming a capitalist country. However, the SEZs are organically integrated in the path towards a socialist society: they lie in the scope of the CCP approach to consider development as a process, established in extended planning and gradual experimental implementation. The process of gradual experimentation allowed the government to avoid political resistance and use a pragmatic approach, this allowed it to gather data on the outcomes, develop the administrative procedure required for an effective implementation, and test accompanying policies necessary to support the reforms (Biggeri, 2003; Hofman, 2018). As stated by Yang (2021), the approach to reaching these missions, as written on the principles drafted in the Constitution of the PRC, is based on Mao Zedong’s concepts of *principle* and *flexibility*. The former implies the implementation through democracy and socialism, while the latter implies that the overarching objective of reaching a socialist society would be accomplished gradually, through struggle, study, and tenacious work.

We can see that this reform strategy worked: as already stated Guangdong showed incredible results, and the model of the Special Economic Zones was extended to several other areas and cities, to stimulate and secure regional development, contributing significantly to the country’s growth. Recently, SEZs contributed to 22% of the total GDP, 60% of exports, and 45% of total national FDI (World Bank, 2017a).

According to the World Bank (2017b), SEZs are a crucial part of the Chinese economy; for example, they contributed 55.2% to the overall technological development of agriculture. Nonetheless, to be successful, the World Bank recognises that they should be based on different features: most interestingly, they underline the importance of a “strong vision and commitment from political and managerial positions”, “experimental approach, building on success”, “technology learning, innovation and upgrading”, “pragmatism, flexibility, autonomy and efficiency of local government/zone

management.” In a separate report, they stress these elements, claiming that the success of Chinese Special Economic Zones (SEZs) can be attributed to a bottom-up problem-solving strategy complemented by government backing. These zones foster local innovation by facilitating learning, integrating innovation and production, and facilitating collaboration among industry, government, and research institutions, thereby offering resources and expertise to advance value chains. SEZs can enhance their effectiveness by aligning with changing conditions, to motivate innovation, and for this purpose, they need comprehensive strategic planning based on transparent and targeted policies, industry and market strategies that can facilitate industrial upgrading and market expansion, along with investments in infrastructures (World Bank, 2017a).

3.1.2 From Pearl River Delta to Greater Bay Area

Guangdong is recognised as the “world factory”, being one of the most industrially developed Chinese regions, located in the PRD zone where resources, capital, technology, and information are concentrated (Cheng, 2018). With the opening of the SEZ, it based its capital attraction and development on resource-intensive, low-value-added and export-led manufacturing. In this context, different types of ownerships gradually evolved, e.g., SOEs, collective enterprises, private enterprises, and foreign-invested enterprises; all of them were export-oriented and depended on the international market, while the domestic one only developed at a later stage and on a supplementary basis (Cheng, 2018). However, over the years, its growth was hampered by rising prices in land and labour, in addition to stringent policies and regulations safeguarding the environment. This led to a multitude of important challenges: resource depletion, economic disparities, environmental degradation, overproduction and inefficient connections with both Macao and Hong Kong (Li, Ng, Tang, & Fung, 2021).

Being one of the economic powerhouses of the country, while China has taken steps toward sustainable development – e.g., investing in green industries and launching initiatives like "Made in China 2025," – it requires a new spatial strategy to address the Fourth Industrial Revolution, reduce resource consumption, combat poverty, and foster emerging sectors like artificial intelligence and smart manufacturing. In this context, the Greater Bay Area (GBA) takes on a crucial role: announced in 2018 by the Xi Jinping administration, according to the goals of sustainable development outlined in the Chinese constitution and in the latest Five-Year Plan – the 14th – the area will be developed and governed with a mission to promote environmentally friendly, technologically advanced,

energy-efficient, and low-carbon production methods. The focus is on reshaping the GBA in order to create a competitor for Silicon Valley and the Tokyo Bay Area, focusing on innovation, high-tech and high-quality production to create “science and technology innovation centres”. The goals indicated in the project are multiple, including enhancing infrastructure connectivity and quality of life, building a commercial and industrial system that is globally competitive, ensuring environmental protection and energy security, and supporting the “Belt and Road Initiative”; in addition, each city would play a role in specific sectors of trade and production, with “*long-term development directions for each [...] help[ing] their division of labour and help them to complement each other*” (Ho, 2020; Cheung & Huifeng, 2019, p. 7).

Nonetheless, the Pearl River Delta (PRD) region is facing significant development challenges, including environmental degradation, resource depletion, economic disparities, overproduction, market limitations, and inefficient connections with Hong Kong and Macao. While China has taken steps toward sustainable development, such as investing in green industries and launching initiatives like "Made in China 2025," it requires a new spatial strategy to address the Fourth Industrial Revolution, reduce resource consumption, combat poverty, and foster emerging sectors like artificial intelligence and smart manufacturing. In this context, the Greater Bay Area (GBA) takes on a crucial role, with a mission to promote environmentally friendly, technologically advanced, energy-efficient, and low-carbon production methods.

These elements all underline the distinctive economic nature of Guangdong, compared to the other equally developed Chinese provinces. An innovation hub that is facing the challenge of the Fourth Industrial Revolution, the Guangdong province will be the focus of this thesis. The Sustainable Development Index data will be analysed and confronted with the policies that have been applied in this region during the periods governed by the CCP leaders Hu Jintao and Xi Jinping.

3.1.3 Government and province

As we have seen from the implementation and governance of Special Economic Zones, the government plays a pivotal role in setting long-term goals and implementing policies that can help achieve them. China is based on a “party-state system”, meaning that the relationship between government and administration is deeply intertwined: the government is the administrative arm of the CCP, regulating a partnership based on a top-down hierarchy; the top leaders of the CCP, therefore, have the task of providing guidance

and directives to the government at various levels. It's a relationship that has the goal of ensuring stability, centralised control, and alignment with the Party's long-term goals. To realise these aims, policies are strategically employed as the means to facilitate the realisation of the Party's vision, and to solidify its commitment to sustained governance and stability.

The government, both central and local, is at the centre of SEZs' development by supplying policies – e.g., tax incentives, regulatory procedures, trade liberalisation measures, and infrastructure development plans – that administer these zones. As explained by Ramay and Babur (2020), while the CCP primarily focuses on setting policy priorities and maintaining cadre management based on a value system, the state ensures the internal legitimacy of its organs by implementing state policies. The governance system, between 1978 and 2020, was further decentralised, to not accumulate power in the hands of a few and to protect the rights and interests of the Chinese community; a governance style that, according to Deng Xiaoping, was more appropriate for obtaining the goals of social and economic development. The CCP's organisational structure is replicated on a smaller scale in the municipal and county levels, while in the township level, it is present as a party branch that has core decision-making functions. Throughout the years, decentralisation has become a potent tool for progress within China's framework. Local governments gained increasing authority over fiscal resources and investment approvals, they were encouraged to experiment through reforms, with successful ones becoming national policy applied throughout the country. The decentralisation strategy turned China into a reform laboratory, with the fiscal system and the political structure within the CCP playing key roles in joining subnational government incentives with the central government (Hofman, 2018).

The Guangdong province is located in a context where the decentralisation of institutional arrangements encourages competition among local governments. They compete to attract investments, capital, labour, and other resources to support regional development. This competition is often centred around attracting FDI, seen as beneficial because it can lead to technology spillover and positively impact a host country's innovation efficiency (Deng, Zhang, Ahmad, & Draz, 2019); this is particularly pivotal in a region like Guangdong, mainly composed by SEZs, where FDI constitutes one of the main sources of capital. The relationship between central and local governments has continually shaped how environmental policies are implemented. In China, the responsibility for creating and enforcing environmental regulations has traditionally

rested with various levels of government, and non-governmental entities in China typically rely on government authority to make an impact on addressing environmental issues. Moreover, local governments play a crucial role in addressing environmental challenges at the local level by aligning their actions with the directives of national and provincial governments, and in using different tools – mainly macroeconomic measures and economy-wide rules; sector-specific rules, standards, and regulations; restrictions on FDI – to reinforce these actions (Yang, Xue, & Huang, 2020; Jain, 2017).

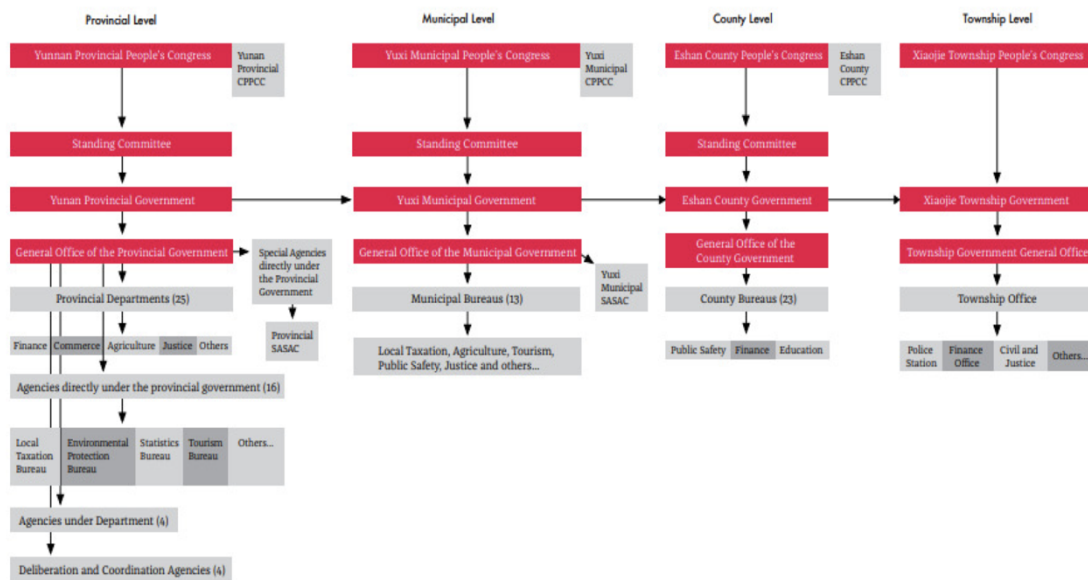


Figure 4 *Local government structure of Peoples Republic of China (PRC)* (Source: Ramay, Babur, 2020, p.5).

The government infrastructure plays an especially crucial role in Guangdong, because of its extensive planning and its role during the 2008-2009 financial crisis: due to a more substantial impact compared to other provinces, the provincial authorities deemed it critical to engage in economic transformation and reforms. The dynamic interplay between the different levels of administration made it possible, for the local government, to assume a central role in the province development process, using the pioneering role granted by the central government to engage in innovations and new initiatives. Furthermore, the local government took charge of the development process, actively transforming the economic role of the government by combining government guidance and market functions, a combination that led to attracting external investments and innovative projects (Cheng, 2018). For instance, the Guangdong province retained most of its revenues, incentivizing local officials to pursue growth and promote a market

economy. Local government officials played instead an entrepreneurial role, compensating for the lack of formal market institutions, and aligning investors' interests with local officials' (Hofman, 2018). As for the environmental governance, it operates through a system comprising both horizontal and vertical elements, called *tiao-kuai* (条块). Vertically, the central government makes decisions and supervises environmental governance at a macro level, while local governments handle environmental quality and most governance responsibilities within their regions. Horizontally, local ecology and environment departments are primarily responsible for environmental protection, but local governments control budgets, personnel, and promotions. In this system, local governments have the responsibility of implementing policies and other instruments (Zheng, Yao, & Zou, 2022).

While this model was successful in the Guangdong province, it is important to remember that it led to increasing tensions – waste and overcapacity, corruption, support of state-owned enterprises (SOEs) over foreign and domestic private ones – that the CCP has recently begun to address with the government reorganisation announced during the 2018 National Congress. As per this reform, the government will employ rigorous controls over policies and limit the local governments' space of autonomous action, shifting their entrepreneurial role over to the market and, to regain balance, with a stronger CCP role in private enterprises (Hofman, 2018).

3.2 Industrial policies for Sustainable Development in China

In the second chapter, we have reviewed the literature regarding the long-standing debate around government intervention, industrial policies, and the role they had in fostering the Chinese path towards development. We have seen that China has reached staggering results in terms of human development, almost reaching the rate of developed countries, as a result of focusing on increasing the level of education in the whole nation, providing free national healthcare services, and its economic growth that allowed rising incomes. Despite that, there are still critical problems of inequality in access to resources and wealth distribution; while the problem of inequality has become globally critical in the last few years, especially after the Covid-19 pandemic, China's swift growth has exacerbated them. Moreover, the intensive economic developed that permitted its improvement in terms of human development was reached to the detriment of the

environmental quality of the country, and the resulting damages are magnifying the country's axis of inequality.

The problem of climate change is still largely analysed and discussed, and its severity is clear to both leaders and the society at large, leading to universal acknowledgement of the necessity for a solution. In order to help countries in tackling this pivotal issue, in 2015 the Member States of the United Nations (UN) developed an agenda for global sustainable development, based on seventeen Sustainable Development Goals (SDGs) to be reached within 2030. To reach these goals, the UN highlights the importance of a collaboration between the public and private sectors: small firms must be supported to make sustainable shifts, and governments need to combine regulations with the implementation of industrial strategies supporting innovation, development, and adoption of alternative business models (OECD, 2017).

Nonetheless, despite the enormous human costs of climate change, there is still a certain degree of opposition to the concept of sustainable development that safeguards natural resources. Environmental laws, projects for the safeguard of natural resources, and policies that promote a shift towards a model of green economy – an economic model based on efficient use of resources, low carbon footprint, and commitment to social inclusiveness through investments coming from both the public and private sectors – are seen as either useless or having a negative influence on economic development, sparking intense debates in national and even international forums on if and how should we move towards a more sustainable model of development.

Regardless, multiple sources are proving that a shift towards – and support of – sustainable human development is possible and even preferable, compared to the current economic system. Sikhunyana and Mishi's research (2023) shows that, while ecosystems face threats like climate change and pollution, they can still provide various benefits, including monetary gains and improved well-being, especially for women. Apostu et al. (2023) prove that Europe's circular economy practices – e.g., recycling, and reusing materials – help conserve natural resources, reduce energy consumption, and mitigate the environmental impact of human activities, and effective waste management also creates new business opportunities, engaging both citizens and companies in sustainable development efforts. Kousar et al. (2022) demonstrate that, while both traditional economic growth and green economic growth have a negative impact on poverty and inequality, the latter contributes more in the long term. Further sources underline the strengthening link between the two, with innovation and R&D playing pivotal roles in

promoting the progress of sustainable development when supported by environmental, health, safety, economic, and labour market regulation (Ashford & Hall, 2011).

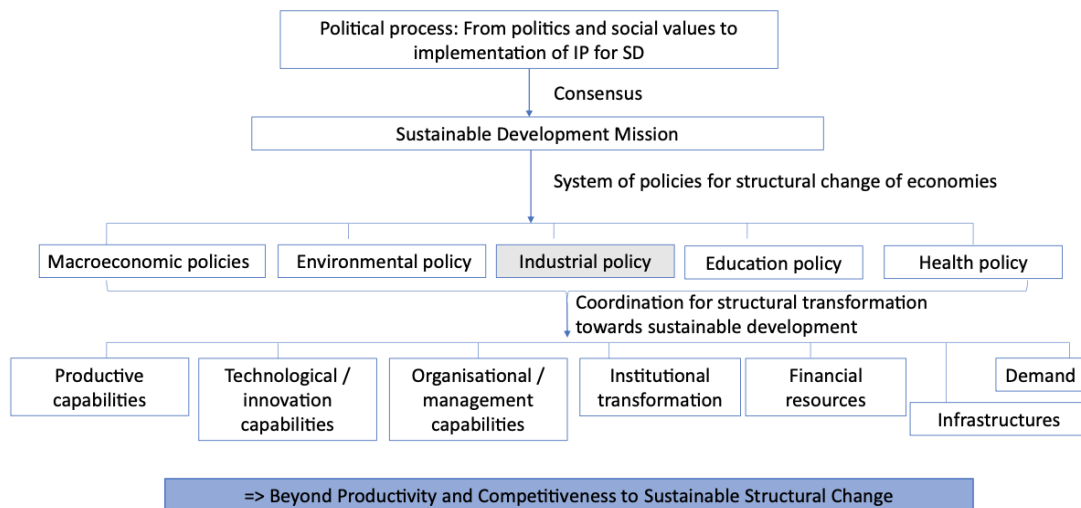


Figure 5 *Industrial policy as a process to sustainable industrial transformation* (Source: Kastelli, Mamica, and Lee, 2023, p.15).

The model of sustainable development, as underlined by the UN, must be based on a collaboration between private and public actors that use industrial policies as a tool to reach these common goals which, as already seen, can be the basis for an alternative economic structure. As observed in chapter two, industrial policies have been a topic of controversial debates for decades, but the Covid-19 pandemic has changed this idea by underlining the importance of supporting industries and relying on public spending for stimulating R&D. In their article, Kastelli, Mamica, and Lee (2023) state that to successfully tackle the multidimensional challenges posed by climate change, Covid 19, the energy crisis etc, there is a need for a new vision of industrial policy based on the key principles of inclusion, sustainability, and resilience, in order to promote a production shift that no longer focuses only on technology, but also on crucial issues like poverty, inequality, safety, health, and environmental degradation; a new model that promotes sustainable human development.

3.2.1 A harmonious and ecological society

As previously observed, in the last two decades the Chinese government has significantly changed its approach towards the environment. Beginning from the concept of “Harmonious Society” developed by Hu Jintao and ending in Xi Jinping’s “Chinese

Dream”, the CCP has recognised the mounting environmental challenges owing to its rapid industrialization and urbanisation.

China’s first environmental policy was formally promulgated in September 1979 in the form of legal provisions, taking the name “Environmental Protection Law of the People’s Republic of China”. Only decades later would the country realise a complete environmental policy system, comprised of more than 1000 laws and regulations (Wu & Wu, 2006).

The so-called “white papers”, official statements published by the CCP related to matters of public interest, offer valuable insight into the steps taken by the administration to both state their understanding of what development entails and the policies implemented to obtain it. Sustainable development goals have also been introduced through the five-year plans: these are plans delineating tasks for national economic and social development goals, proposed by the CCP and then adopted by the National’s People Congress, becoming legally binding and rigid provisions (Yang, 2021).

More recently, a crucial decision was taken in 2020 by President Xi Jinping: he publicly announced the goal of obtaining carbon neutrality by 2060. Just a decade ago, China was criticised for its resistance to climate change negotiations and its perception as a relentless polluter focused solely on economic growth. However, in recent years, China has shifted towards a more open and multilateral approach to reducing greenhouse gas emissions and has applied significant investments in renewable energy capacity – for example, it is the world's largest wind energy provider and has been the leading installer of solar photovoltaic. Through these actions, China earned recognition as a global leader in renewable energy (Kostka & Zhang, 2018).

Ultimately, it is undeniable that there has been a complete shift in the Chinese government – and in the general population due to a growing perception concerning environmental issues – regarding the problem of resource and environment degradation, emphasising the importance of reducing the country’s levels of emissions and pollution. More so considering Deng Xiaoping’s idea of obtaining growth and development no matter the side effects – an idea that led China to reach the fragile environment that we see today.

In the meantime, better environmental quality through enforcement of environmental governance may improve economic development and urbanization further. With the changes in developmental goals, local governments began to focus more on the construction of an ecological civilization, the coordination of the ecological environment

and economic development, rather than on the overriding goal of economic growth, which led to the evolution of the conception of environmental management. Thus, the impact of economic growth and urbanization on local environmental governance decreased.

In this context lies the importance of analysing how China – and in this particular case the Guangdong province – have determined their sustainable development goals and implemented industrial policies as a tool to reach them. Therefore, as claimed in the premises of this thesis, we will analyse some of the different policies concerning environment protection and development – through a review of international and Chinese literature – that were implemented in the Guangdong province in the period going from 2000 to 2019.

3.2.2 Guangdong's industrial policies during Hu Jintao's government (2000-2010)

The year 2000 marked the beginning of a new millennium and of a new era for China. Two years later, in 2002, Hu Jintao would be elected as president of the country, and he would introduce the nation to a new vision of development based on equity and sustainability. This trajectory change is reflected in Chinese academics. In his article, Chen (2004) underlines the faults of a development model based on “high investment, high consumption, high pollution and low output”, claiming that it not only has low economic efficiency but is also environmentally detrimental. He states the importance of industrial policies lies in serving not only as a means of regulation to achieve environmental protection goals but also as guarantees to promote sustainable economic and social development. To do so, however, the country still had to establish a sound environmental policy suited to China's national conditions.

Chen's appeal, however, would not be answered the way he expected. Hu Jintao placed great importance on China's environment and the goal of reducing its non-sustainable development path, but the government's effective actions were milder than his words. For example, only in 2009 Hu publicly stated that the government had set a target for reducing greenhouse emissions in 2020 by a “notable margin”, but he failed international requests in stating measures that could be implemented to do so (Carrington, 2009). The 10th and 11th Five-Year Plans had included ambitious plans of reducing emissions, increasing energy efficiency, and increasing environmental spending, but they both fell short and had mixed results (Chan, Lee, & Chan, 2008; World Bank, 2009). The number of national and local protection standards, of departments focusing on environmental protection administration, and of people involved in work, education, and

research in the environment had greatly increased, but once again its results were mixed and unclear (ibid., 2008).

According to the analysis conducted by Wu and Wu (2006), during this first decade, the policies implemented by the government were mainly based on the direct regulation of pollution discharge, where individuals and enterprises would be charged based on their overcoming the limit imposed. The responsibility would be shared between political and private actors. Due to the industries' resistance to these policies, the government implemented a policy based on ISO14001, where industries invested in environmental protection, effectively reducing the government's involvement. The government no longer considered itself as an active promoter of environmental policies, and industries went from being passive recipients to being active participants. Furthermore, while the former method of control was based on post-supervision and fines based on reported emissions, the government decided to implement an impact assessment system that would calculate in advance the environmental impact of new projects and productions. In the following years, this method was further developed by implementing a control model that measured the environmental impact pre-, during, and postproduction, shifting the focus to pollution prevention and ecological protection. A notable development was the increasing participation of the public in decision-making processes regarding environmental regulation, reaching a turning point where citizens' opinions were considered essential in establishing development goals and measures. Nonetheless, some crucial issues were still present, mainly represented by a lack of supervision, inadequate implementation, and still too limited public participation (Yang, Xue, & Huang, 2020).

In the Guangdong region, thanks to the government's decentralisation, the situation was slightly different. While in the period after the reform and opening-up of 1978 environmental policies were laxer due to the economic globalisation influencing the local environmental governance in Guangdong, with the deeper development of economic globalisation these policies were made stricter to attract higher-quality FDI. The local government's focus on the principles of equity and environmental protection that were introduced by Hu Jintao is underlined by the two five-year plans for "environmental protection and ecological construction" that were issued during this period. The 10th five-year plan, issued for the period 2001-2005, officially shifted the focus from quantitative economic growth targets towards structural change and social targets: the health of citizens was the central motivation of policies focusing on sustainable development

strategies, economic restructuring and industrial upgrading, prevention, and control of pollution, renovation of key rivers and reservoirs (GRZB, 2001). The 11th five-year plan, covering the period between 2006 and 2010, resulted in the approval of the PRD Environmental Protection Planning Outline and the Guangdong Environmental Protection Planning Outline, which would be implemented as local regulations and government governance, and led to the signing of environmental protection agreements with the regions included in the PRD area. It further emphasised the need to strengthen environmental protection policies and supervision, establishing six main tasks to be accomplished in 2020 – protection of water resources, prevention and control of air pollution, focus on safe treatment of hazardous waste, prevention and control of radiation pollution, protection of rural ecologic environment, improving the environmental quality of the PRD and control the transfer of pollution (GRZB, 2007).

The effects of these policies have been fairly positive. During this period Guangdong benefited from an advancement in technologies and upgraded industries, and from a wider network of cooperation and information that promoted environmental protection in both formal and informal ways (Yang, Xue, & Huang, 2020). In their article, Wan and Zhang (2012), by analysing the industrial policies and restrictions implemented in the Shenzhen River basin, proved the comparative advantages of the already existing policies of flexible pollution control and use of reclaimed water in sustaining economic growth, especially due to their role in incentivizing industrial restructuring and upgrades. Furthermore, Wang and Hao (2010) analysed the relationship between environmental policies, claiming that while looser regulation had resulted in high-environment-resource-costs FDI attraction in the short-term, stricter regulation had instead attracted FDI in both the long and short-term, contributing to the region's economic development.

3.2.3 Guangdong's industrial policies during Xi Jinping's government (2010-2019)

After 2010 and the election of Xi Jinping, state-level environmental regulations became more restrictive, the five-year plan's goals regarding the environment became more ambitious, and the policies delineated to obtain them more comprehensive. Under his governance, the environmental governance field was extended to judges, prosecutors, NGOs and citizens, and enforcement activities have been strengthened with the establishment of the Environmental Police. The Environmental Protection Tax Law of 2018 implemented a new tax system, with the expectation that local governments would refrain from safeguarding local polluting businesses contributing to local tax revenue and

employment (Kostka & Zhang, 2018). While under Hu's governance, there was a tendency to decentralise responsibility regarding industrial and environmental policies over local governments, with Xi Jinping there is a clear return to the mode of centralised government, usually justified by the need to enforce more controls and reduce inefficiencies and conflicts.

As claimed before, the five-year plans on environmental protection outlined by the Guangdong local government can give us more information on the goals and tools used in this period. In the 12th five-year plan, the areas of focus were expanded, with the formulation of more comprehensive goals: improve the industrial layout, reduce emissions, upgrade the industrial structure, focus on green economy in order to build an environmentally friendly industrial system, strengthen the treatment and improvement of environment quality (focusing on water, air, heavy metals, soil, and radiation), build ecological barriers in rural areas, strengthen management of environmental risks, improve environmental supervision and enforcement, supporting science and technology, raise public awareness, strengthen environmental protection cooperation and exchanges, and propose innovative policies and mechanisms for the comprehensive management of environmental protection (GRZB, 2011). The 13th plan expanded the focus of the previous one, with its main targets divided in four macro-objectives: strengthen leadership and institutional guarantees, integrate funds to innovate investment channels, widen publicization in order to encourage public participation, strengthen supervision and implement valuations and assessments (GRZB, 2017). The direction of the environmental policies in the province was thus shifted from establishing regulations and tackling pollution to strengthening inspections, investing in innovation, and emboldening the role of public agents – not only citizens but also NGOs – in establishing environmental goals and actions.

During this period, the Guangdong province was once again used as a test ground for experimenting with the efficacy and implementation of industrial policies, in this case with a focus on the environment. In the 2010s, seven pilot carbon markets in regions known for industries like cement, electricity, heat, and petroleum were established; these zones, including Beijing, Chongqing, Guangdong, Hubei, Shanghai, Shenzhen, and Tianjin, account for 25% of China's GDP and are significant greenhouse gas emitters. These pilot programs demonstrated the effectiveness of the cap-and-trade model, where industries are assigned emission caps and can trade, auction, or receive allowances to meet them. Caps vary based on production rates, and the ability to pass carbon costs along

the consumer chain, with emissions allowances ranging from new entry to governmental allowances. Each zone must adhere to monitoring, reporting, and verification requirements, with penalties for non-compliance, including reduced allowances, public disclosure of status, restricted access to energy research funds, and fines for excess emissions. Chinese President Xi Jinping announced the development of a national carbon emissions trading system in 2015 during a visit to the United States, and it was officially established by China's National Development and Reform Commission in December 2017 as part of the Thirteenth Five-Year Plan covering 2016-2020 (Parenteau & Cao, 2016).

The main caveat of the development of the region during these ten years was recognised in its still too high dependency on resource-based manufacturing, with local politicians recognising the necessity of focusing and transitioning towards high-quality manufacturing. Nonetheless, in this context, some targets were still achieved: according to Chen and Zheng (2022), in the previous decade China's level of green technology had seen significant improvements due to incentive-based environmental regulations; this in turn promoted high-quality development of regional economy through rousing energy conservation and emission reduction.

Conclusions

In conclusion, contrary to popular beliefs claiming that a shift towards a model of sustainable development would hinder economic growth, we can see that the environmental policies implemented in Guangdong during the last twenty years had a fairly positive effect in terms of economic growth. On the side of environmental protection, the policies have had positive results in terms of reducing its material footprint and carbon emissions. As proved by Fan and Zhang (2023) in their research, command-controlled environmental policies notably enhance carbon productivity, primarily through technological innovation. Market-based environmental policies also significantly influence carbon productivity, their main impact instead being on the energy mix. As for economic indicators, in 2019 Guangdong reported a GDP growth of 6.2% more compared to the previous year, for a total exceeding 1 trillion yuan; 8% of this growth was realised by new industries investing in cutting-edge technology (Xinhua, 2020). This is consistent with what was detailed by Liu and Xiong (2020), whose research proved that environmental regulation has a positive impact on economic development in regions where the HDI is above the national average – 0.799 compared to the national average of

0.768 (Globaldatalab, 2023) – since they stimulate enterprises in carrying out technological innovation that overcompensates the increased costs created by environmental adjustment. Furthermore, as proved by Deng et al. (2019) local governments' active competition for foreign direct investment (FDI) positively affects regional innovation through technology spillovers. Higher environmental regulation intensity also enhances innovation performance through an innovation compensation effect. This contrasts with local governments' tendency to lower environmental regulation intensity to attract more FDI, which negatively impacts regional innovation.

Consistently to observed data, in the last decade, Guangdong's and the PRD area's competitive advantage has been decreasing and their growth has been slowing down, at some point even falling behind other provinces like Jiangsu and Shandong (Cheng, 2018). However, while in economic terms this data is not encouraging, according to what we know regarding China's history and the concept of sustainable human development, it is a positive sign: keeping up with record high levels of growth necessarily implies a strain on human and environmental resources, a model that is not sustainable in the long term, while moderate constant growth is achievable in coordination with policies aiming at safeguarding the environment and limiting the impact of energy consumption and industrial practises.

3.3 The Sustainable Development Index

In the first chapter, we have discussed what is considered human development, and how its definition came to be used and debated across both development and economic academics. We discussed the emergence of the HDI as the first internationally recognised index that posed the question of what human development is if economic growth could be considered the only measure of a nation's success. While the HDI has a crucial role in global political and economic discussions, nowadays its scope is considered too limited. To effectively gauge the quality of life of a nation's citizens, we can no longer rely only on education, health, and income; these indicators should be inserted in a more comprehensive index considering other elements that can potentially affect a person's quality of life. Consequently, multiple alternatives have been proposed over the years.

As stated by Biggeri, Bortolotti, and Mauro (2020), any attempt to measure deprivation cannot exclusively be focused on the income metric: the Capability Approach emphasises that, while income is relevant for well-being, it cannot be considered as an inherently essential end. Given this discussion, for this analysis, we decided to embrace

the SDI, as it stands as a direct well-established advancement over the traditional HDI. First introduced by Hickel in 2020 in his journal article titled “*The Sustainable Development Index: Measuring the Ecological Efficiency of Human Development in the Anthropocene*”, it is rooted in the pressing need to align development objectives with the formidable challenges posed by climate change and ecological degradation. The SDI goes beyond mere economic and social metrics, posing itself as a measure of the efficiency of human progress. Given that ecological sustainability has become increasingly imperative during the last decades, and more so with the previously mentioned support and goals that the Chinese government has exhibited towards environmental protection and emission reduction goals.

It is here that we confront a striking paradox: nations achieving the highest human development scores, even though they are currently achieving high levels of decoupling, are historically associated with alarmingly elevated levels of ecological impact. This glaring disparity can be neatly illustrated by comparing the HDI rankings with per-capita CO2 emissions.

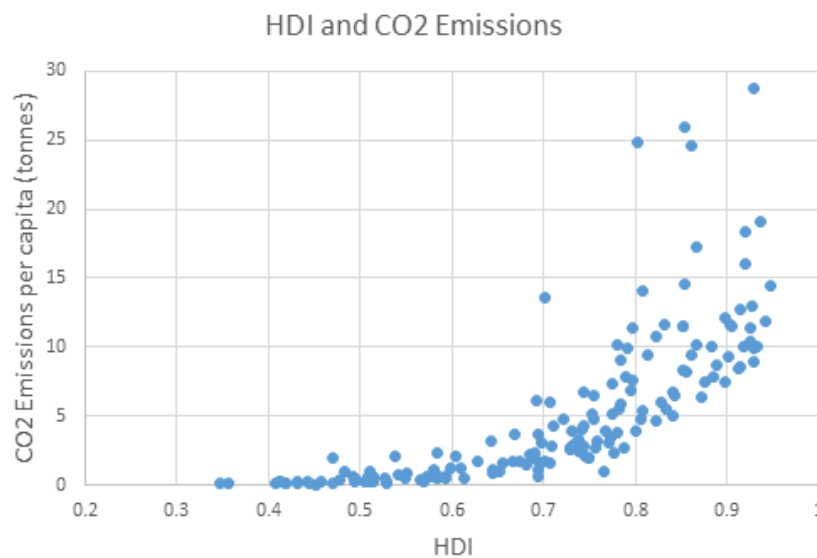


Figure 6 Graph detailing the correlation between HDI and CO2 emissions (Source: <https://www.sustainabledevelopmentindex.org/about>, 2021).

Seeing as HDI's top performers often exhibit disproportionately high ecological footprints, the usage of the SDI becomes a compelling choice. So – while giving a rough estimate of human development within a country – it's not feasible to promote, through HDI, a model of development that is fundamentally ecologically unsustainable. In simpler terms, while resources must be directed towards the enhancement of human well-being, it's imperative to do so without crossing the critical boundaries of ecological sustainability.

Before delving further into the concept of SDI we should first understand two key concepts: "Ecological overshoot" and "planetary boundary." The first is a phenomenon that arises when the demands placed on a natural ecosystem surpass its capacity to renew and regenerate (Wackernagel et al., 2002); the latter, introduced in 2009, aims to establish the boundaries of the environment within which humanity can safely conduct its activities. This identifies thresholds for human-induced disruptions to natural systems, to delineate a secure operating zone for global development, where the potential for harm to the environment remains minimal (Steffen et al., 2015).

Recognizing the constraints of our planet's finite resources and ecological systems is essential; in this framework, the SDI serves as a compass towards development, that elevates human lives without jeopardising the health of our planet. For this exact reason, the SDI places a crucial emphasis on the ecological efficiency of nations in fostering human development. It derives from the components of the HDI, but it introduces a division by ecological overshoot. In essence, achieving a high SDI necessitates not only a robust HDI but also the minimization of ecological impact.

3.3.1 Methodology

The SDI is calculated as follows:

$$SDI = \frac{Development\ Index}{Ecological\ Impact\ Index}$$

The HDI is calculated as the geometric mean of the life expectancy index, the education index and a modified income index.

$$Development\ index = \sqrt[3]{Life\ Expectancy\ Index \times Education\ Index \times Income\ Index}$$

$$Life\ Expectancy\ Index = \frac{LE - 20}{85 - 20}$$

$$Education\ Index = \frac{MYSI - EYSI}{2}$$

$$Income\ Index = \frac{\ln(GNIpc) - \ln(100)}{\ln(20,000) - \ln(100)}$$

The life expectancy index is straightforward, representing the average lifespan. The education index, MYSI, is calculated as the Mean Years of Schooling Index (MYS/15), with 15 years as the projected maximum for 2025. Meanwhile, the Expected years of schooling index (EYSI) is determined as EYS/18, with 18 years being the equivalent of earning a master's degree in many nations. These well-established indices offer a concise, yet comprehensive snapshot of a country's educational and life expectancy achievements. The income index employed in the SDI deviates from the one utilised in the HDI, by introducing a sufficiency threshold that exists below the maximum income value of \$75,000. This adjustment acknowledges a crucial empirical reality: having an income exceeding \$60,000 is fundamentally incongruent with the boundaries of our planet's sustainability. Nations with incomes surpassing this threshold exhibit an average material footprint exceeding the planetary boundary by more than five times and CO₂ emissions nearing eleven times the planetary limit.

Recognizing the link between income and ecological impact, it becomes evident that high-income nations often place or have placed tremendous strain on the ecosystem. Rather than penalising countries with moderate incomes that achieve substantial human development, as the HDI might do, the SDI offers a more balanced perspective. It highlights nations with high human development levels attained with moderate income as role models for sustainable development.

Certainly, income remains a pivotal factor in human development, providing individuals with choices, economic agency, empowerment, and security. Instead of discarding the income index entirely, as some alternative metrics may have done, the SDI retains it while incorporating a threshold. This nuanced approach not only recognizes the importance of income but also encourages nations to pursue a more sustainable and balanced trajectory of development, where human well-being and ecological responsibility coexist complementarily. Nonetheless, the SDI highlights that high income is not necessary for achieving high levels of human development. Nations with high income generally perform better on key social indicators than those with lower income, however, this relationship is not determinate after reaching a certain point. This is proven by the existence of several countries with moderate income that nonetheless achieve high levels of life expectancy and education, as well as happiness, employment, sanitation, gender equality, democracy and so on. For instance, according to 2019 data, Costa Rica has a life expectancy that exceeds that of the US with 71% less income per capita

(\$18,500). Georgia has education levels that match Austria with 74% less income per capita (\$14,400) (SDI Project, n.d.).

Having defined the HDI section, it is now time to talk about the Ecological Impact Index (EII). This can be described with the following formula:

$$Ecological\ Impact\ Index = 1 + \frac{e^{AO} - e^1}{e^4 - e^1}$$

if $AO > 4$, then $EII = AO - 2$

$$AO = \sqrt[2]{\left(\frac{MF}{boundary} \geq 1\right) \times \left(\frac{Co2}{boundary} \geq 1\right)}$$

The Average Overshoot (AO) serves as a critical metric in quantifying the extent to which a region surpasses (or falls short) of planetary boundaries, while also providing a standardised unit of measurement. To calculate AO, both Material Footprint and CO2 Emissions values are divided by their respective per capita planetary boundaries (Bringezu, 2015).

CO2 Emissions, a self-explanatory measure, gauges a region's carbon dioxide output. On the other hand, Material Footprint encompasses the total weight of materials extracted and consumed within a given region – including fossil fuels, minerals, biomass, and construction materials. While Material Footprint may not directly indicate ecological impact, it stands as a widely accepted proxy in policy literature that has garnered robust empirical support (Krausmann et al., 2009). In essence, AO allows the SDI to gauge and standardise environmental performance.

3.4 Data results and analysis

Having defined the SDI as a combination of HDI and EII, the HDI results were not directly calculated but instead downloaded from Globaldatalab, an online database that provides subnational HDI. The data for the calculation of the EII was obtained via multiple sources: the population data was obtained from the Guangdong Statistical Yearbook. China's material footprint was inferred based on Jiang et al. (2019); starting from the paper's supplementary information, Guangdong's annual percentage of material footprint was calculated – corresponding to about 5% of all China material footprint – then China's material footprint was obtained from the UN's Global Material Flows

Database, and the value for Guangdong calculated. Regarding the last missing piece of data, Guangdong’s CO2 emission, it was obtained through two different sources: 2000 and 2010 data was easily found through Shan et al. (2018), while for 2019 data was inferred from Carbon Monitor China – a near-real-time daily dataset of global CO2. The planetary boundaries were adjusted for the global population regarding each year of interest, starting from the 2019 data cited in the Sustainable Development Index Project.

The range of analysis was chosen to represent with the year 2000 the level of human and sustainable development in Guangdong before the beginning of Hu Jintao’s governance, in 2010 to represent the developments after his governance and before Xi Jinping’s, and in 2019 to represent the situation after seven years of his administration. We decided to not take as a metric the years after 2019 due to the Covid-19 events that have disrupted global production, which would therefore have shown a skewed EII. The data plot was generated by the author.

Guangdong Indexes			
	HDI	EII	SDI
2000	0.626	1.00479	0.62301
2010	0.727	1.09807	0.66206
2019	0.793	1.12367	0.70571

Table 2 Table illustrating the HDI, EII, and SDI indexes for Guangdong from 2000, 2010, and 2019 (Source: Author).

China Indexes			
	HDI	EII	SDI
2000	0.584	0.922	0.633
2010	0.691	1.072	0.644
2019	0.762	1.652	0.461

Table 3 Table illustrating the HDI, EII, and SDI indexes for China from 2000, 2010, and 2019 (Source: Author).

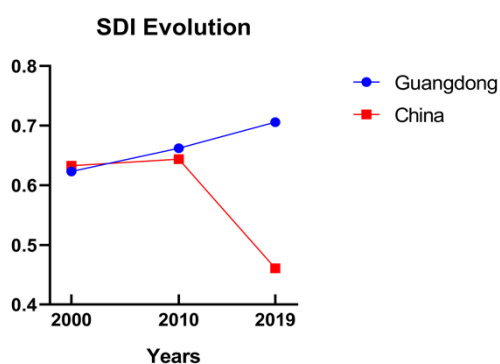


Figure 7 Graph showing the SDI evolution between 2000 and 2019 for Guangdong and China (source: Author).

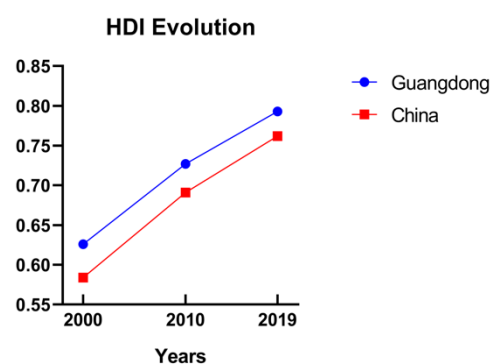


Figure 8 Graph showing the HDI evolution between 2000 and 2019 for Guangdong and China (source: Author).

By looking at the data from Table 3 and Figure 8, we can see Guangdong’s HDI has greatly improved in between the two decades analysed, permanently overcoming the

national average. China also has gradually increased its total HDI rate, reaching in 2019 the 0.700 threshold that demonstrates “high human development”, meaning that it is still a developing country. On the other hand, Guangdong is near the 0.800 threshold, meaning that, according to international standards, it is bordering the status of a “developed” region. Both regions’ growth is remarkable, going in just twenty years from medium to high human development; it is safe to presume that this rate will steadily increase in the following years, with China finally graduating and reaching the status of a developed country.

The SDI rates, however, show a completely different situation. While Guangdong has seen a slight, steady improvement between 2000 and 2019, going from 0.62 to 0.79, China on the other hand has reverted its (meagrely) positive trend, dropping from its 0.63 SDI index of 2000 to 0.46 in 2019. To understand what lies behind these drastic changes, it is useful to look at the aggregated data used to calculate the SDI index for both regions.

Years	MF		CO2	
	China	Guangdong	China	Guangdong
2000	8.458	6.418	2.581	2.342
2010	17.604	11.744	6.289	4.520
2019	22.298	12.975	7.432	3.885

Table 4 Table illustrating the MF and CO2 per capita tons data for Guangdong and China in 2000, 2010, and 2019 (Source: Author).

In Table 4 we reported the overall MF and CO2 rates for Guangdong and China for the years that we have selected for our analysis. As we have seen from Tables 2 and 3, the main difference between the two countries’ results is not based on differences in the HDI, but mainly in the EII. This difference lies in the contrast between the MF and CO2 emissions: as we can see from the results, China’s overall material footprint per capita has tripled in the period between 2000 and 2019, while Guangdong’s only doubled. As for the CO2 emissions, we can see that while for China they steadily increased, for Guangdong they increased until 2010, then slightly decreased in 2019.

Per capita percentage evolution				
	MF		CO2	
	China	Guangdong	China	Guangdong
2000 – 2010	108.13	82.98	143.61	93.01
2010 – 2019	26.66	10.48	15.39	-14.06

Table 5 Table illustrating the MF and CO2 per capita percentage evolution in China and Guangdong in the two periods 2000 – 2010 and 2010 – 2019 (Source: Author).

Per capita evolution (tons)				
	MF		CO2	
	China	Guangdong	China	Guangdong
2000 – 2010	9.146	5.326	3.707	2.178
2010 – 2019	4.694	1.231	1.144	-0.635

Table 6 Table illustrating the MF and CO2 per capita evolution (in tons) in China and Guangdong in the two periods 2000 – 2010 and 2010 – 2019 (Source: Author).

These results are made even more clear when translated into percentages. In table 5 we can see the per capita evolutions between the two periods for both regions, and in table 6 the CO2 and MF generated in tons. The outcomes regarding CO2 emissions between 2010 and 2010 are staggering, with a 93% increase in China and a 93% one in Guangdong. Nonetheless, the outlook for the period between 2010 and 2019 was more positive, with China reducing its CO2 emissions gains to 15%, while Guangdong was even able to reach the negatives, with a rate of -14%.

Far more relevant is the data concerning the MF. While in the period from 2000 to 2010, there was a 5.32t increase – of 82% – in Guangdong, China’s situation was more dire, with an increase a 9.14t increase – meaning a 108% increment. In the period 2010 – 2019, this growth slowed down and, much like CO2 emissions, showed improvements, with 1.23t for Guangdong, denoting a 10% increase, and 4.69t for China, denoting instead a 26% growth.

These results prove that Guangdong, unlike China, was far more successful in pursuing the country’s goals of environmental protection and pollution reduction, recording a positive SDI rate improvement, while China has almost fallen to the level of countries with the worst rates – e.g., the United States with 0.163, Germany with 0.351 and the United Kingdom with 0.420, countries that in the last century have mainly pursued objectives of economic and social development, showing high GDP and HDI growth rates (SDI project, n.d.).

3.5 Discussion

From this data, combined with the analysis of both central and local governments’ environmental policies, we can come to different conclusions.

The Guangdong province has implemented numerous extensive and ambitious policies and targets to improve its development status and reduce its economy’s impact on the environment. As previously stated, historically there has been a high correlation between consistent GDP growth and environmental depletion, but Guangdong has seen a

positive and steady trend of improvement: to better understand how this has been possible, it is useful to understand the concept of decoupling.

Decoupling has been defined as a process occurring “*when the returns of an asset class that have been correlated with other assets in the past no longer move in step according to expectations*” (Hayes, 2022, par. 3) and, in the context of environmental economics, it describes the process of decoupling environmental pressures from economic growth, happening when the growth of environmental pressures is lower than that of its GDP in a given period. Decoupling as a phenomenon can be divided into two statuses, i.e., absolute decoupling – where the economic variable keeps growing while the environmental one is stable or decreasing – and relative decoupling – where the environmental variable increases while still below the level of growth of the economic variable (OECD, n.d.). Some countries have been able to achieve absolute decoupling (e.g., Sweden), and the main cause behind this change has been the increased replacement of fossil fuels with low-carbon energy (Ritchie, 2021).

From the resulting data, we can see that Guangdong too is tentatively but steadily moving along the decoupling path. This trajectory change is particularly significant considering Guangdong’s historic role as the “world factory”, a high-energy consumer manufacturing hub that focused on low-quality production and export. Therefore, we will analyse some of the factors that have determined Guangdong’s decoupling path, and how it differs compared to other Chinese provinces that have determined a lower SDI score for the country.

3.5.1 Guangdong’s advantaged position

First of all, Guangdong has historically been favoured in multiple factors, due to a combination of proactive policies and strategic advantages. The province was and still is endowed with a high availability of natural resources, a large labour force, and a strategic position, which were exploited to establish a large manufacturing industry and a skilled labour force that during the decades have attracted numerous foreign companies. As previously explained, Guangdong was one of the first provinces to take part in the SEZs project defined by Deng Xiaoping’s government at the end of the 70s. Guangdong’s participation led it to become a pioneer in open market relationships, in addition to attracting FDI and global collaborations, giving it a crucial economic head start compared to other under-developed provinces. With an increasing amount of capital and technological resources, multiple industries and even cities – e.g., Shenzhen (see Johnson

& Scott Davis, 2019) – undertook leapfrog development, which was made possible due to the province’s increasing focus on innovation and ICT. Leapfrog development, as defined by Wang (2018), occurs when, amidst the collision and integration of human civilization, the entity undergoing development surpasses conventional development norms and the scale of development within its external environment in both speed and quality. In this process ICT plays a crucial role, empowering developing and middle-income economies to leapfrog to higher developmental stages and drive economic and social transformations (Dutta & Mia, 2008). Guangdong has incentivised innovation and R&D through multiple subsidies and laws that would favour the attraction of FDI, especially in the GBA, which, in the last few years, has been transformed into a scientific and innovation hub focusing on ICT and green economy. Concentrating on innovation has allowed the region to maintain its status as one of the highest-grossing provinces in the country, thanks to its transition to high-quality manufacturing and cooperative relationships with the other regions of the GBA.

Guangdong’s perspective on innovation and R&D is coherent with the central government’s, focused on reducing its dependence on foreign technology and products through purchases and investments, subsidies and funding, and technology extraction (Black & Morrison, 2021). This development is the most crucial in the prospect of Guangdong’s possibly reaching the decoupling phase, due to research showing that the tertiary industry has the potential to significantly help reduce emissions (ibid., 2017).

3.5.2 Industrial policies

As we have seen in the subchapters pertaining to Guangdong’s policies, there has been an increasing focus on industrial policies as a tool to bring structural changes to both industries and institutions, and to improve the province’s pioneering status in the country, both in terms of economic and social growth. A turning point was established with the 11th Five-Year Plan, through which the country was able for the first time to achieve a higher level of energy efficiency and decline its energy intensity. The Chinese government boosted its investment in scientific research for energy utilization, restructured the economy, and gradually phased out energy-intensive industries (Xingrong et al., 2017).

This development was reflected in the Guangdong region as well. The local government focused on improving the primary sector’s efficiency and the secondary sector, historically the main culprit of rapid growth of CO₂ emissions, has been the target

of multiple projects of innovation and restructuring to reduce and prevent its impact on the environment. The topic of sustainable development and ecological modernisation has also been bolstered by the increasing number of civil actors – mainly citizens and enterprise executives – participating in institutional discussions and environmental projects, especially at the province level, although there is still room for improvement (Yee, Lo, & Tang, 2013). These all are elements that have created a prosperous milieu in which the Guangdong local governance and economic actors were able to continue their path towards GDP growth, and at the same time – through research, regulations enforcement, and innovation – create a path approaching sustainable human development.

Guangdong has thus assumed a pioneering role, being one of the first provinces where the carbon trade project was introduced to reduce emissions and promote energy conservation; the plan has been successful, and this success is reflected in the CO₂ data and MF reduction that we obtained for the last decade. In addition, for example, the deteriorated rate of forest areas was reduced from 7.67 million hectares in 1949 to 1.19 million by 2003, which in turn led to higher results in protecting watersheds, controlling soil erosion, and protecting coastal areas from typhoons and sandstorms (Zaizhi & Chokkalingam, 2006). Further, Xinhua reported that, according to the annual report from the Guangdong Provincial Bureau of Ecology and Environment, the province saw significant improvements in terms of air pollution, drinking and surface water had good quality, and improved industrial pollution control and environmental inspections (2019).

On the contrary, while the central government has placed great importance on the topic of environmental sustainability, its overall achievements in the country are negative compared to the first period. As proved by Du et al. (2022), in the period between 2000 and 2017 it was able to reach only a weak decoupling state between emissions and GDP growth, and only some sectors were able to initiate the decoupling process, with agriculture and construction still showing high levels of coupling (Yang, Yang, Zhang, & Tang, 2018). In this context, Mi et al. (2021) research can give us further insight in the grounds that created this gap between Guangdong and the rest of the country. In the period between 2008 and 2018, China's CO₂ emissions experienced significant growth and then stabilization, with differences between production and consumption emissions gradually narrowing over time, and with a decrease in the gap between consumption and production emissions narrowing from 22% in 2002 to around 10% between 2012 and 2018. China had made progress in decoupling economic growth from emissions through technology improvements and policy measures, and it had seen a positive trend toward lower

emissions intensity and imported emissions in China's economy and trade, especially in the “new normal” period (see also: Mi et al., 2017; Zhang & Wang, 2022). This was caused by a shift from energy-intensive industrial production to a more consumption-based economy, improvements in production carbon intensity globally, changes in import sources along the value chain, and adjustments in source sectors driven by policies to advance the country's industrial and consumption patterns.

The crucial point, however, lies in the reduced rate of imported emissions and the different import sources. These alterations underlie a procedure that has influenced Guangdong's ability to reduce its extraction of natural resources and emissions – thus reducing its SDI rate – and is affecting other regions' ability to do the same: outsourcing.

3.5.3 Resource outsourcing

In economics, outsourcing is usually defined as a “*work arrangement made by an employer who hires an outside contractor to perform work that could be done by company personnel*” (Britannica, n.d., ph. 1). In this context, however, it defines the process of outsourcing the sources of processes with high environmental impact – e.g., resource extraction, production, manufacturing – to other regions or countries. Multiple countries and regions are guilty of reduced pollution rates due to outsourcing (Plumer, 2018), and Guangdong is one of them.

China has adopted a network of international and interregional trade agreements aiming at reducing pollution and improving trade growth (Li, Dong, Dong, & Shahbaz, 2022); the most recent is the National Emission Trading System (ETS), launched in 2021 but established and tested in pilot provinces since 2013, which covers the sector of power generation, and aims at promoting decarbonisation and clean energy transaction (Roldao, 2022). These policies have created an interprovincial trade that is greatly affecting the meaning of Guangdong's results. Multiple sources in Chinese literature have underlined the disparities present in the trade between regions. Zhang et al. (2018) claim that interprovincial trade plays a crucial role in the redistribution of resources in the country, where less-developed but resource-rich provinces, mainly situated in the north-eastern part of China, support the development of resource-poor but highly developed provinces, situated instead in the south-east of the country and the coastal region (see also: An, An, Wang, & Huang, 2014). Others highlight the unequal distribution of energy, water, and land resources, affecting respectively 73.4%, 33.9%, and 38.1% of their national input. Here the south-eastern developed area has higher resource occupancy levels compared to

the others, accounting for a consistent segment of total domestic resource use (Zhang et al. 2020; Qian & Liang, 2021). Gao et al. (2018) presented in their study that Guangdong, Beijing, Shanghai, and Tianjin have higher energy consumption compared to production, being the most important importers of energy resources in the country. By reviewing this data, it is simple to understand the stark difference between Guangdong and China's SDI results: while developed provinces like Guangdong are investing in the green economy and green energy production, their efforts are still supported by underdeveloped provinces like Inner Mongolia, Shanxi, and Ningxia, which still exhibit high energy consumption and pollution due to their dependency on natural resources, outdated industries and infrastructures, and focus on primary and secondary industries.

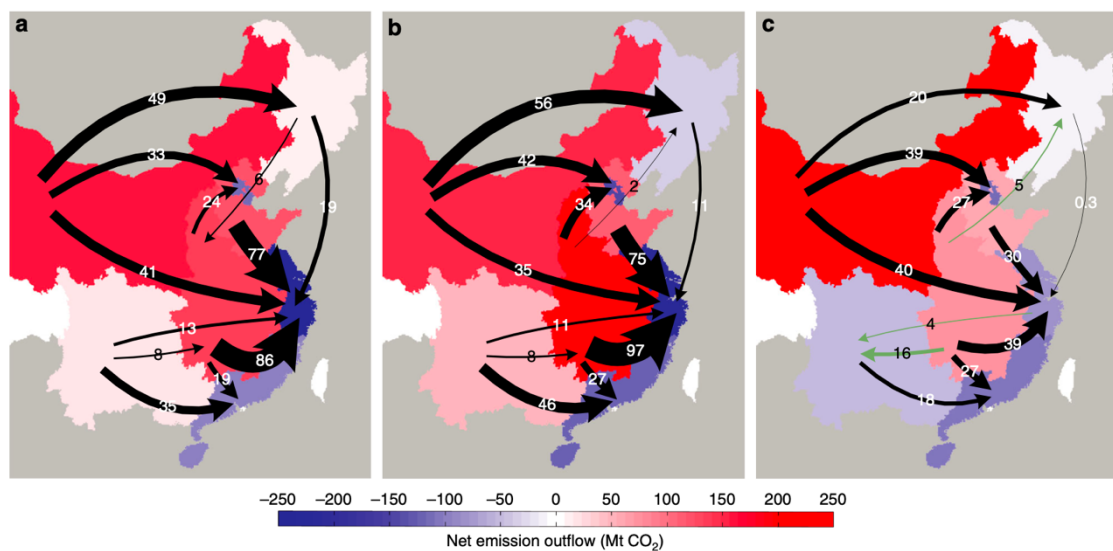


Figure 7 Change in CO₂ emission flows between 2007, 2010 and 2012 (Source: Mi et al., 2017, p. 5)

It is a trend that can be traced for different types of resources and that always displays the same pattern, where under-developed regions take the brunt of the other provinces' development, and that, while it has triggered some improvements in terms of overall emission reductions and economic benefits, underlies the need for the national government to address the sources of its national inequalities (see: Feng et al., 2013; Li et al., 2014; Mi et al., 2017; Wang et al., 2021; Miao et al., 2019; Li, Dong, Dong, & Shahbaz, 2022). According to the existing literature, resource transfers can be attributed to differences in resource availability, economic development, household income, population dimension, and industrial structure among the regions (Zhang et al., 2020), all elements that can give insight into implementation of policies aiming at mitigating them and facilitate effective environmental protection and green development.

Nonetheless, Guangdong's path towards sustainable development does not end here. Recently, Guangdong's local officials have reiterated their objective of cultivating a highly skilled workforce, innovation, and collaboration with their partners in the GBA. They have also unveiled the ambitious plan of reducing energy production, expanding electrification, and promoting energy usage to decrease the province's energy consumption levels by 14% compared to 2020, and to establish a comprehensive cleaner energy production system by 2025, aligning itself with the nation's dual carbon goals (Global Times, 2023). Another goal defined for the following years is that of continuing towards the path of sustainable human development by expanding its green economy, investing in R&D, and focusing on high-quality development. However, it is important to remember that, while Guangdong's achievements have been worth praise, its emission rates are still too high compared to the goals set by the UN, and the discrepancy in energy efficiency between its municipalities and cities is still too considerable (Xingrong et al., 2017). The policies of both Hu and Xi showed that the country is serious in its goal of reducing its level of pollution and environmental degradation, but the situation regarding carbon emissions has become increasingly complicated: while Xi Jinping states that China will follow its carbon reduction path "at its own pace", Guangdong's local government underlies the importance of accelerating its path towards green development, improve its ecological compensation mechanism, develop water economy, clean energy etc. according to their local conditions, in order to "build a new benchmark for the economic and ecological development" (Gan, 2023; GRZB, 2021; Beibao Jingji, 2022).

3.6 Policy recommendations

The policy implications of these results are multiple.

Considering the role that outsourcing has on restructuring the country's environmental impact, undoing the efforts made by those provinces like Guangdong that focused on renewable energy sources and limiting environmental impact, it is pivotal to focus on the still developing regions. Their high environmental impact is due to their dependence on the primary and manufacturing sectors for economic growth, dated industrial structure, small-scale investments in innovation, and lack of infrastructures able to sustain the reduction of energy consumption and pollution prevention. The gap between the two models has not been reduced in the last twenty years, instead showing a "polarisation" effect that has solidified this rift (Feng, 2019). Therefore, the central and local governments should focus on investing in less-developed regions to improve their

industrial structures and energy infrastructures, which are still not developed enough to have a significant impact on emission reductions. Additionally, the possibility of leapfrogging – a “*rapid transition or advancement of a particular socio-economic system, technological component, industrial facet, and social productivity segment, catalysed by innovations occurring within the system's evolution*” (Wang, 2015, p. 7) – could improve these provinces capabilities. Energy technology leapfrogging has shown that, compared to other developed countries’ progressions, it could reduce growth emissions by 28% - 30% (Liddle & Huntington, 2020; Fetter, 2020). Thus, directing these provinces towards more sustainable industrial and energy practices should be a priority, due to their latecomers’ advantage that enables them to leapfrog over dated and resource-intensive modes of production and catch up to the higher-quality and less intensive methods employed in other regions, in turn allowing a more equitable distribution of resources. However, as highlighted by Liddle and Huntington (2020), its practicability is affected by local conditions, cost considerations, and international technology transfers. This process could therefore be stimulated by leveraging the developed provinces’ technological knowledge, establishing an interprovincial network of collaboration for knowledge sharing and even economic aid. In addition, to further reduce the gap, developed regions should focus on environmental impact mitigation.

Further, as claimed by Zheng (2008), the possible reasons for Chinese policy’s failure to reach the same improvement rates as those of Guangdong lie in the central government’s failure to recognise the need for enforcement through collaboration with civil actors, incompatibility, and lack of coordination between policies, lax environmental enforcement, and ignoring the power of economic incentives in regulating the industries approach towards the environment. Therefore, it is crucial to improve the collaboration between central and local governments, to improve the level of coherence between the policies implemented by both, and the methods of incentivisation and regulation. More comprehensive regulations, policies and investment should be directed to the agricultural and construction sectors, which still show high levels of emission and pollution; the local government should invest in promoting restructuring and development of high-efficiency models able to reduce energy consumption and export the resulting technology to other regions where the energy infrastructure is not as efficient. Based on Du, Liu, Hossain, and Chen’s (2022) research, improvement of the industrial structure, transformation and upgrading are critical, since in 2020, while the secondary and tertiary industries had reached 40%, the secondary sector still produced 80% of polluting emissions.

In addition, as exhibited by Bhattacharya, Palacio-Torralla, and Li (2018) in their research, while we have seen improvements in sustainability, there is still the pressing matter of inequality afflicting Guangdong: in 2020, its Gini Coefficient reached 0.99, a concerning statistic. This data underlines the necessity of focusing the local government effort on the inequality inside its region and proposing industrial policies promoting the redistribution of wealth. Moreover, since the competition system between regions is based on GDP growth (Qu, Xu, Yu, & Zhu, 2023), to promote a national shift towards sustainable development the elements measured should be changed from GDP to environmental rates and environmental innovation.

Lastly, we believe that the development model pursued by the Guangdong province can give Western countries crucial insights into implementing industrial policies to safeguard the environment, especially through investments in innovation, R&D, and enhancement of the green economy, and how government intervention can be beneficial when associated with collaborations alongside private actors.

3.7 Alternative indexes

As stated in the first chapter, the indexes that have been formulated to gauge the level of human development of a country are multiple. Therefore, we will discuss the indexes that were taken into consideration as possible alternatives to the SDI for this thesis's analysis.

The Income-Adjusted Multidimensional Synthesis of Indicators was proposed by Biggeri, Bortolotti, and Mauro (2020). Their work is based on the paper submitted by Mauro et al. (2018), where the authors introduced a novel approach for analysing multidimensional poverty and well-being, inspired by the Capability Approach – formulated by Amartya Sen – and the sustainable human development paradigm. It emphasises assessing what individuals gain from development, offering features like sensitivity and flexibility while ensuring transparency. The significant contribution is linking the substitutability between dimensions directly to overall well-being, addressing the 'inescapable arbitrariness' issue; an approach that has diverse applications, including development program evaluation and comparisons across territories and groups (Mauro, Biggeri, & Maggino, 2018). Biggeri et al., based on this work, highlight the inadequacy of a single indicator – i.e., income – in acting as a satisfactory representation of all aspects of human development. Therefore, by focusing on the issues at the base of creating an appropriate index – i.e., selection of dimensions, choice of weight, and choice of aggregating method – they advance the I-MSI. This index, based on the MSI introduced

by Mauro et al. (2018), places the role of income side by side with the properties of the MSI – education, health, housing, nutrition, sanitation, assets, work, and leisure – obtaining an indicator that overcomes the possibility of the index falling to zero in cases where one or more indicators are near 0, taking into account outcomes heterogeneity, compensating across dimensions in order to best represent in the results each person’s individual characteristics. The I-MSI proposes an alternative to the HDI that contributes to a more comprehensive conception of a person’s wellbeing, while also considering the role played by income in having access to resources and possibilities. Due to problems in obtaining the data needed to calculate the I-MSI, we could not apply this index to our research; however, it could be interesting to analyse the relationship between I-MSI rates in China and the role that the Chinese government played in order to improve the index’s parameters, especially considering the firm relationship between health and environmental factors such as air and water pollution.

Another index we considered was the Sustainable Human Development Index formulated by Biggeri and Mauro (2018). This index addresses the critics directed towards the HDI regarding the issue of sustainability, and it does so by incorporating the environment and freedom – i.e., political rights and civil liberties – dimensions. Its method of aggregation avoids issues associated with the geometric mean and still maintains the aim of penalising outcome heterogeneity. The paper highlights that this approach offers a more flexible means of managing relationships between dimensions, while still acknowledging the enduring subjectivity that affects the selection of functional forms and parameters. It further emphasises the importance of Sustainable Human Development (SHD) as a policy objective in the context of the 2030 Agenda for Sustainable Development, and the role that the SHDI represents in the opportunity to align with the UNDP’s SHD program. The use of this index was discarded due to the focus on the freedom dimensions, which is not functional to the analysis at the centre of this thesis. Nonetheless, further research could compare performance within China’s regions in terms of both environmental sustainability and freedom, especially considering the aforementioned different levels of civil and political freedom present in the different provinces owing to the government decentralisation.

Conclusions

This thesis aimed to identify the possible correlation between sustainable human development and the role that a government can play through industrial policies to achieve it. The central questions of this research were if it is possible to pursue a different model of development that can incentivise both economic growth and human development without comprising the environment, and if so through which tools it can be achieved.

To answer these questions, we defined how development has been defined in the last decade, shifting from a focus on economic growth to a more comprehensive concept that includes quality of life and human development targets. Nonetheless, considering some of the last decade's crucial incidents, we have underlined the pivotal role played by the environment and climate change in defining the quality of life of a person. Environmental changes have highlighted the importance of finding a new model of development that comprises equity and sustainability. Considering the concept of sustainable human development, we introduced the SDI developed by Hickel in 2020, an index able to dissect a country or region's human development, alongside both natural resource consumption and pollution. Furthermore, by reviewing the existing literature, we retraced the debate on government intervention and defined one of its main tools, industrial policies; we further reflected on their definition, what they entail and how they can be used to stimulate development. Then we presented how the Chinese model of development has spurred debates on how economic growth can be achieved in developing countries, and how in the last two decades the government focus shifted from the ultimate goal of economic growth to one that compensates for inequality and environmental sustainability. Lastly, using the aforementioned SDI, we calculated the data for the years 2000, 2010 and 2019 – used as a reference for the period covered by China's last two presidents, Hu Jintao and Xi Jinping – for both the Guangdong province and the nation of China, and analysed the main industrial policies related to the environment that were pursued in the region. The resulting data showed an improvement in Guangdong's SDI rate, due to a significant reduction in MF and CO₂ emissions, while China's rate showed a significant fall of 0.6 points. The data proves that it is feasible to state that there is a positive relationship between the central government's overarching environmental goals and the local government's industrial policies, which have had an effect in modifying the development path of the province, increasing its rate of sustainability while still maintaining positive GDP growth. It shows us that overarching elements of equity and

sustainability can not only coexist with economic gains but even encourage them; however, to reach these results, our concept of development must change. As stated by Kastelli, Mamica, and Lee (2023) “*the success of industrial policy for sustainable development requires a shift from viewing profits as individual gains realized by economic actors to a perspective of social and environmental gains.*” (p. 19) The market, guided by the perspective of individual gains, has failed in considering the crucial role that the environment plays in our lives and how its degradation could affect our future. Promoting a model of development for development’s sake, resulted only in widening gaps of income, resources, and possibilities. The government, as proved by the case of Guangdong, can play a role in fixing this *market failure*, providing boundaries and targets to the private sector, in a relationship that should not be defined opposition and competitiveness, but should instead be based on cooperating to achieve common goals. However, for these interventions to be effective, it is crucial to focus on a comprehensive model of development, which does not only focus on the highly developed regions, but also on the under-developed ones. The Chinese government should expand the scope of its goals and efforts to the regions at the margins of its development path because the country’s regional inequity in terms of development, income, investments, infrastructures, and resources is hindering the country’s path towards a successful model of sustainable human development.

There were some limitations to this study. The data used for the SDI calculation could only be obtained from national statistical sources for certain years, and it had to be extracted from multiple sources, in some cases even third-party ones. Further, it was difficult to obtain Chinese sources that would portray extensively the specific policies applied in the country and regions, and the existing literature was, in some parts, biased. Moreover, the scope of the analysis was limited to the period between 2000 and 2019 and to the Guangdong region. Considering national development, the last two decades have determined just the start of the sustainable development process, hence, while this proves good proof of concept, to have a more exhaustive interpretation it is imperative to expand both time points and regions of the country. Therefore, expanding the scope to include the period before 2000 or other regions – especially those less developed – could give more insightful results.

To better understand the implications of this enquiry, future research could consider the possibility of analysing the relationship between industrial policies and SDI in those provinces that have lower rates of economic growth, for example, Shandong or

Yunnan, or even at the municipality level with those cities that have been designated as Eco-Cities. Another possibility is that of using the I-MSI index to gauge the relationship between a country or region's industrial policies that aim at reducing inequality and general well-being and the results that they obtained. Furthermore, a deeper analysis could be undertaken by analysing the other polluting elements, besides CO₂, that are included in the region's environmental protection regulations – water, lead, radiation, etc. – to understand which policies have been more successful than others in reducing and preventing pollution.

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Bibliography

- Aghion, P., Boulanger, J., & Cohen, E. (2022). Rethinking industrial policy. In *Bruegel | The Brussels-based economic think tank*. Retrieved from <https://www.bruegel.org/policy-brief/rethinking-industrial-policy>
- Aiginger, K., & Rodrik, D. (2020). Rebirth of Industrial Policy and an Agenda for the Twenty-First Century. *Journal of Industry, Competition and Trade*, 20. <https://doi.org/10.1007/s10842-019-00322-3>
- An, Q., An, H., Wang, L., & Huang, X. (2014). Structural and regional variations of natural resource production in China based on exergy. *Energy*, 74, 67–77. <https://doi.org/10.1016/j.energy.2014.03.030>
- Apostu, S. A., Gigauri, I., Panait, M., & Martín-Cervantes, P. A. (2023). Is Europe on the Way to Sustainable Development? Compatibility of Green Environment, Economic Growth, and Circular Economy Issues. *International Journal of Environmental Research and Public Health*, 20(2), 1078. <https://doi.org/10.3390/ijerph20021078>
- Arndt, H. W. (1983). The “Trickle-down” Myth. *Economic Development and Cultural Change*, 32(1), 1–10. <https://doi.org/10.1086/451369>
- Ashford, N. A., & Hall, R. P. (2011). The Importance of Regulation-Induced Innovation for Sustainable Development. *Sustainability*, 3(1), 270–292. <https://doi.org/10.3390/su3010270>
- Baliño, S., Bernasconi-Osterwalder, N., & Cosbey, A. (2019). Through the lens of inequality and sustainable development: Meeting report. In *International Institute for Human Development* (pp. 6–8). Retrieved from <https://www.iisd.org/publications/report/global-economic-governance-through-lens-inequality-and-sustainable-development>
- Barbieri, E., Di Tommaso, M. R., Pollio, C., & Rubini, L. (2020). Getting the specialization right. Industrialization in Southern China in a sustainable development perspective. *World Development*, 126, 104701. <https://doi.org/10.1016/j.worlddev.2019.104701>
- Bhattacharya, P., Palacio-Torralla, J., & Li, X. (2018). On Income Inequality within China’s Provinces. *Chinese Studies*, 07(02), 174–182. <https://doi.org/10.4236/chnstd.2018.72015>
- Biggeri, M. (2003). Key Factors of Recent Chinese Provincial Economic Growth. *Journal*

- of *Chinese Economic and Business Studies*, 1(2), 159–183.
<https://doi.org/10.1080/1476528032000066703a>
- Biggeri, M., Bortolotti, L., & Mauro, V. (2020). The Analysis of Well-Being Using the Income-Adjusted Multidimensional Synthesis of Indicators: The Case of China. *Review of Income and Wealth*, 67(3), 684–704.
<https://doi.org/10.1111/roiw.12488>
- Biggeri, M., & Ferrannini, A. (2014). Opportunity Gap Analysis: Procedures and Methods for Applying the Capability Approach in Development Initiatives. *Journal of Human Development and Capabilities*, 15(1), 60–78.
<https://doi.org/10.1080/19452829.2013.837036>
- Biggeri, M., & Mauro, V. (2018). Towards a more “Sustainable” Human Development Index: Integrating the environment and freedom. *Ecological Indicators*, 91, 220–231. <https://doi.org/10.1016/j.ecolind.2018.03.045>
- Bilbao-Ubillos, J. (2012). Another Approach to Measuring Human Development: The Composite Dynamic Human Development Index. *Social Indicators Research*, 111(2), 473–484. <https://doi.org/10.1007/s11205-012-0015-y>
- Bringezu, S. (2015). Possible Target Corridor for Sustainable Use of Global Material Resources. *Resources*, 4(1), 25–54. <https://doi.org/10.3390/resources4010025>
- Brunnermeier, M. K., Sockin, M., & Xiong, W. (2017). China’s Gradualistic Economic Approach and Financial Markets. *American Economic Review*, 107(5), 608–613.
<https://doi.org/10.1257/aer.p20171035>
- Chan, G., Lee, P. K., & Chan, L.-H. (2008). China’s Environmental Governance: The Domestic: International Nexus. *Third World Quarterly*, 29(2), 291–314.
- Chan, K.-M. (2010). Harmonious Society. In *International Encyclopedia of Civil Society* (pp. 821–825). New York, NY: Springer.
- Chang, H.-J., & Grabel, I. (2004). Reclaiming Development from the Washington Consensus. *Journal of Post Keynesian Economics*, 27(2), 273–291.
- Cheng, J. Y.-S. (2018). Guangdong’s Development Since 1978: An Overview. In *The Development of Guangdong* (pp. 1–24). World Scientific.
https://doi.org/10.1142/9789813237377_0001
- Chen Yingzi 陈英姿. (2004). 实施可持续发展战略对我国环境政策体系的影响分析 (The influence analysis of implementing sustainable development strategy to our country's environmental policy system), *Shishi ke chixu fazhan zhanlue dui woguo*

huanjing zhengce tixi de yingxiang fenxi. 人口学刊, 6(148), 55 – 60.

- Chen Zhe 陈喆, & Zheng Jianghuai 郑江淮. (2022). 绿色技术创新能够促进地区经济高质量发展吗? — 兼论环境政策的选择效应 (Can green technology innovation promote high-quality regional economic development? - On the choice effect of environmental policy), *Lusejishu chuangxin nenggou cujin diqu jingji gaozhiliang fazhan ma? Jianlun huanjing zhengce de xuanze xiaoying*. 当代经济科学, 44(4), 43–58.
- Davis, H. E., McCorkell, L., Vogel, J. M., & Topol, E. J. (2023). Long COVID: major findings, mechanisms and recommendations. *Nature Reviews Microbiology*, 21(3), 1–14. <https://doi.org/10.1038/s41579-022-00846-2>
- Deng, J., Zhang, N., Ahmad, F., & Draz, M. U. (2019). Local Government Competition, Environmental Regulation Intensity and Regional Innovation Performance: An Empirical Investigation of Chinese Provinces. *International Journal of Environmental Research and Public Health*, 16(12), 2130. <https://doi.org/10.3390/ijerph16122130>
- Dervis, K., & Klugman, J. (2011). Measuring human progress: the contribution of the Human Development Index and related indices. *Revue d'Économie Politique*, 121(1), 73. <https://doi.org/10.3917/redp.211.0073>
- Du, Y., Liu, Y., Hossain, Md. A., & Chen, S. (2022). The decoupling relationship between China's economic growth and carbon emissions from the perspective of industrial structure. *Chinese Journal of Population, Resources and Environment*, 20(1), 49–58. <https://doi.org/10.1016/j.cjpre.2022.03.006>
- Dutta, S., & Mia, I. (2008). The Global Information Technology Report. In *The Global Information Technology Report 2008–2009* (pp. v–xi). Geneva: SRO-Kundig. Retrieved from Joinup – European Commission website: <https://joinup.ec.europa.eu/sites/default/files/document/2014-12/Global%20Information%20Technology%20Report%202008-2009%20-%20Mobility%20in%20a%20Networked%20World.pdf>
- Eisinger, P. (1990). Do the American States Do Industrial Policy? *British Journal of Political Science*, 20(4), 511–513. <https://doi.org/10.1017/s0007123400005962>
- Fang, S. (1994). Special economic zones in China. *Journal of East and West Studies*,

23(2), 83–92. <https://doi.org/10.1080/12265089408422840>

- Fan Qiuzhang 范秋芳, & Zhang Yuanyuan 张园园. (2023). 不同环境政策工具对我国碳生产率的影响 (Effects of different environmental policy tools on carbon productivity in China), *Butong huanjing zhengce gongju dui woguo tanshengchanlu de yingxiang*. *统计观察*, 628, 59–63. <https://doi.org/10.13546/j.cnki.tjyj.2023.16.011>
- Feng, K., Davis, S. J., Sun, L., Li, X., Guan, D., Liu, W., ... Hubacek, K. (2013). Outsourcing CO2 within China. *Proceedings of the National Academy of Sciences*, 110(28), 11654–11659. <https://doi.org/10.1073/pnas.1219918110>
- Ping Zhifeng 冯志峰. (2019). 高质量跨越式发展何以可能 (Why high-quality leapfrog development is possible), *Gaozhiliang kuaiyeshi fazhan heyi keneng*. *Journal of China Executive Leadership Academy*, 12(4), 122–130.
- Ferrannini, A., Barbieri, E., Biggeri, M., & Di Tommaso, M. R. (2020). Industrial Policy for Sustainable Human Development in the post-Covid19 era. *World Development*, 105215. <https://doi.org/10.1016/j.worlddev.2020.105215>
- Fetter, T. R. (2022). Energy Transitions and Technology Change: “Leapfrogging” Reconsidered. *Resource and Energy Economics*, 70, 101327. <https://doi.org/10.1016/j.reseneeco.2022.101327>
- Friedman, M. (1962). *Capitalism and Freedom*. Chicago: University of Chicago Press.
- Fu Hongchun 傅红春. (2011). 以HDI替代GDP—实现经济与幸福的同步提升 (Replacing GDP with HDI - achieving simultaneous economic and happiness improvements), *Yi HDI tidai GDP – shixian jingji yu xingfu de tongbu tisheng*. *领导之友*, (04), 20–29. doi:10.16321/j.cnki.ldzy.2011.04.008.
- Yang Fuzhong 杨福忠. (2021). 实现和谐社会价值目标: 百年大党的不懈追求 (Realizing the value goal of harmonious society: the unremitting pursuit of the centennial Party), *Shixian Hexieshehui jiazhi mubiao: bainian dadang de buxie zhuiqiu*. *新视野*, (04), 5–10. cnki:SUN:XISY.0.2021-04-001
- Gao, C., Su, B., Sun, M., Zhang, X., & Zhang, Z. (2018). Interprovincial transfer of

- embodied primary energy in China: A complex network approach. *Applied Energy*, 215, 792–807. <https://doi.org/10.1016/j.apenergy.2018.02.075>
- Gasimli, O., Haq, I. ul, Gamage, S. K. N., Prasanna, R., Khattak, Z. Z., & Abbas, A. (2022). Energy, environmental degradation, and health status: evidence from South Asia. *Environmental Science and Pollution Research*, 30(13639–13647). <https://doi.org/10.1007/s11356-022-22979-w>
- Geis, J. P., & Holt, B. (2009). “Harmonious Society”: Rise of the New China. *Strategic Studies Quarterly*, 3(4), 75–94.
- Goldfajn, I., Martínez, L., & Valdés, R. O. (2021). Washington Consensus in Latin America: From Raw Model to Straw Man. *Journal of Economic Perspectives*, 35(3), 109–132. <https://doi.org/10.1257/jep.35.3.109>
- Grant, J. P. (1973). Development: The End of Trickle down? *Foreign Policy*, 12(12), 43. <https://doi.org/10.2307/1148096>
- Guangdongsheng Renminzhengfu Bangongting 广东省人民政府办公厅(General Office of Guangdong Provincial People's Government). (2017, June 16). 广东省环境保护厅关于农村环境保护“十三五”的规划 (Environmental Protection Department of Guangdong Province on rural environmental protection "13th Five-Year" planning), *Guangdongsheng huanjing baohuting guangyu nongcun huanjing baohu “Shisanwu” de guihua*. Retrieved from 广东省人民政府办公厅 website: http://gdee.gd.gov.cn/ghjh3128/content/post_2333882.html
- Guangdongsheng Renminzhengfu Bangongting 广东省人民政府办公厅 (General Office of Guangdong Provincial People's Government). (2021). 广东省生态环境保护“十四五”规划 (Guangdong Province ecological environment protection "14th Five-Year Plan"), *Guangdongsheng shengtai huanjing baohu “Shisiwu” guihua*. Retrieved from 广东省人民政府办公厅 website: <http://gdee.gd.gov.cn/attachment/0/475/475892/3701714.pdf>
- Guangdongsheng Tongji Ju 广东省统计局 (Bureau of Statistics of Guangdong Province). (2022). 广东统计年鉴 (Guangdong Statistical Yearbook), *Guangdong tongji*

- nianjian*. Retrieved from Gd.gov.cn website: <http://stats.gd.gov.cn/gdtjnj/>
- Ha-Joon, C. (2006). Industrial policy in East Asia: Lessons for Europe. *EIB Papers*, 11(2), 106–132.
- Hellwig, M. (2021). Twelve Years after the Financial Crisis — Too-big-to-fail is still with us. *Journal of Financial Regulation*, 7, 175–187. <https://doi.org/10.1093/jfr/fjaa012>
- Hickel, J. (2020). The sustainable development index: Measuring the ecological efficiency of human development in the anthropocene. *Ecological Economics*, 167, 106331. <https://doi.org/10.1016/j.ecolecon.2019.05.011>
- Hofman, B. (2018). Reflections on 40 years of China’s reforms. In R. Garnaut, L. Song, & C. Fang (Eds.), *China’s 40 Years of Reform and Development: 1978–2018* (pp. 53–66). ANU Press.
- Holbig, H., Mittelstaedt, J. C., Sautin, Y., & Stanzel, A. (2017, December 15). China’s “New Era” with Xi Jinping characteristics. Retrieved September 4, 2023, from ECFR website: https://ecfr.eu/publication/chinas_new_era_with_xi_jinping_characteristics7243/
- Hou, X. (2014). Dissecting China’s Rise: Controversies over the China Model. *China Perspectives*, 2(98), 61–67.
- Hu, L., & Brueckner, M. (2023). Inequality and growth in China. *Empirical Economics*. <https://doi.org/10.1007/s00181-023-02472-0>
- Huang, Y. (2010). Debating China’s Economic Growth: The Beijing Consensus or The Washington Consensus. *Academy of Management Perspectives*, 24(2), 31–47.
- Hui, E. S., & Chan, C. K. (2011). The “Harmonious Society” as a Hegemonic Project: Labour conflicts and changing labour policies in China. *Labour, Capital and Society / Travail, Capital et Société*, 44(2), 154–183.
- Ishikawa, S. (1983). China’s Economic Growth since 1949 - An Assessment. *The China Quarterly*, (94), 242–281.
- Ivanova, I., Arcelus, F. J., & Srinivasan, G. (1999). An Assessment of the Measurement Properties of the Human Development Index. *Social Indicators Research*, 46(2), 157–179.
- Jain, R. (2017). China’s Economic Development Policies, Challenges and Strategies, 1978-present: An Overview. *Indian Journal of Asian Affairs*, 30(1/2), 65–84.
- Jiang, M., Behrens, P., Wang, T., Tang, Z., Yu, Y., Chen, D., ... Zhu, B. (2019). Provincial and sector-level material footprints in China. *Proceedings of the*

- National Academy of Sciences*, 116(52), 26484–26490.
<https://doi.org/10.1073/pnas.1903028116>
- Johnson, C., & Scott Davis, L. (Eds.). (2019). *The Story of Shenzhen: Its Economic, Social and Environmental Transformation* (pp. 17–18). Nairobi: UN-Habitat. Retrieved from
https://unhabitat.org/sites/default/files/2019/05/story_of_shenzhen_combined-pages-deleted-merged_1_1.pdf
- Kassouri, Y., & Altıntaş, H. (2020). Human well-being versus ecological footprint in MENA countries: A trade-off? *Journal of Environmental Management*, (263), 1–16. <https://doi.org/10.1016/j.jenvman.2020.110405>
- Kastelli, I., Mamica, Ł., & Lee, K. (2023). New perspectives and issues in industrial policy for sustainable development: from developmental and entrepreneurial to environmental state. *Review of Evolutionary Political Economy*, 4(1), 1–25. <https://doi.org/10.1007/s43253-023-00100-2>
- Kostka, G., & Zhang, C. (2018). Tightening the grip: environmental governance under Xi Jinping. *Environmental Politics*, 27(5), 769–781. <https://doi.org/10.1080/09644016.2018.1491116>
- Kousar, S., Bhutta, A. I., Ullah, M. R., & Shabbir, A. (2022). Impact of economic and green growth on poverty, income inequalities, and environmental degradation: a case of South Asian economies. *Environmental Science and Pollution Research*. <https://doi.org/10.1007/s11356-022-24191-2>
- Krausmann, F., Gingrich, S., Eisenmenger, N., Erb, K.-H., Haberl, H., & Fischer-Kowalski, M. (2009). Growth in global materials use, GDP and population during the 20th century. *Ecological Economics*, 68(10), 2696–2705.
- Li, C., Ng, M. K., Tang, Y., & Fung, T. (2021). From a “World Factory” to China’s Bay Area: A Review of the Outline of the Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area. *Planning Theory & Practice*, 1–5. <https://doi.org/10.1080/14649357.2021.1958539>
- Li, H., Wu, T., Zhao, X., Wang, X., & Qi, Y. (2014). Regional disparities and carbon “outsourcing”: The political economy of China’s energy policy. *Energy*, 66, 950–958. <https://doi.org/10.1016/j.energy.2014.01.013>
- Li, J. (2022). CHINA UNDER XI JINPING. *Journal of International Affairs*, 75(1), 261–272.
- Li, J., Dong, K., Dong, X., & Shahbaz, M. (2022). How green trade influences pollution

- emissions in China: A provincial perspective. *Energy Economics*, 115(106330), 1–15. <https://doi.org/10.1016/j.eneco.2022.106330>
- Liddle, B., & Huntington, H. (2020). There's Technology Improvement, but is there Economy-wide Energy Leapfrogging? A Country Panel Analysis. *World Development*, 140, 105259. <https://doi.org/10.1016/j.worlddev.2020.105259>
- Li Jing 李晶, & Zhuang Lianping 庄连平. (2008). HDI是测度人类发展程度的可靠指数吗? (Is the HDI a reliable measure of human development?), *HDI shi ceduo renleifazhan chengdu de kekao zhishu ma?* 统计研究, 25(10), 63–67.
- Lincicome, S., & Zhu, H. (2021). *Questioning industrial policy: Why government manufacturing plans are ineffective and unnecessary* (p. 6). Cato Institute.
- Liu, H. (2017). [Review of *The Beijing Consensus? How China Has Changed Western Ideas of Law and Economic Development.*, by W. Chen]. 375–378.
- Liu Yaobin 刘耀彬, & Xiong Yao 熊瑶. (2020). 环境规制对区域经济发展质量的差异影响 — 基于HDI分区的比较 (The differential impact of environmental regulations on the quality of regional economic development: a comparison based on HDI zones), *Huanjing guizhi dui quyue jingji fazhan zhiliang de chayi yingxiang - jiyu HDI fenqu de bijiao.* 经济经纬, 37(3), 1–10. <https://doi.org/10.15931/j.cnki.1006-1096.20200420.006>
- Loh, C. (2011). Hong Kong-Mainland Innovations in Environmental Protection since 1980. *Asian Survey*, 51(4), 610–632. <https://doi.org/10.1525/as.2011.51.4.610>
- Lu, W., & Aiken, M. (2003). Accounting history: Chinese contributions and challenges. *Accounting, Business & Financial History*, 13(1), 1–3. <https://doi.org/10.1080/09585200210164566a>
- Martins, N. O. (2022). Sustainability and development through the humanistic lens of Schumacher and Sen. *Ecological Economics*, 200, 107532. <https://doi.org/10.1016/j.ecolecon.2022.107532>
- Mason, E. S. (1960). The Role of Government in Economic Development. *The American Economic Review*, 50(2), 636–641.
- Mauro, V., Biggeri, M., & Maggino, F. (2018). Measuring and Monitoring Poverty and Well-Being: A New Approach for the Synthesis of Multidimensionality. *Social*

- Indicators Research*, 135(1), 75–89. <https://doi.org/10.1007/s11205-016-1484-1>
- Mazzucato, M. (2019). *The Value of Everything: Making and Taking in the Global Economy*. London: Penguin Books.
- Mei Liu 梅刘, Yu Chen 与陈, & Mei Guangshi 美光施. (2019). 中国人类发展指数的国际比较分析 (International comparative analysis of China's Human Development Index), *Zhongguo renlei fazhan zhishu de guoji bijiao fenxi*. 现代营销(下旬刊), 6–7. <https://doi.org/10.19932/j.cnki.22-1256/F.2021.03.006>
- Mi, Z., Meng, J., Guan, D., Shan, Y., Song, M., Wei, Y.-M., ... Hubacek, K. (2017). Chinese CO2 emission flows have reversed since the global financial crisis. *Nature Communications*, 8(1), 1–10. <https://doi.org/10.1038/s41467-017-01820-w>
- Mi, Z., Zheng, J., Green, F., Guan, D., Meng, J., Feng, K., ... Wang, S. (2021). Decoupling without outsourcing? How China's consumption-based CO2 emissions have plateaued. *IScience*, 24(10), 103130. <https://doi.org/10.1016/j.isci.2021.103130>
- Miao, L., Gu, H., Zhang, X., Zhen, W., & Wang, M. (2019). Factors causing regional differences in China's residential CO2 emissions—evidence from provincial data. *Journal of Cleaner Production*, 224, 852–863. <https://doi.org/10.1016/j.jclepro.2019.03.271>
- Mohanty, M. (2012). “Harmonious Society”: Hu Jintao's Vision and the Chinese Party Congress. *Economic and Political Weekly*, 47(50), 12–16.
- National Bureau of Statistics of China. (2021). China Statistical Yearbook 2021. Retrieved from www.stats.gov.cn website: <http://www.stats.gov.cn/tjsj/ndsj/2021/indexeh.htm>
- Naughton, B., & Boland, B. (2023). From Growth to Greatness: Xi Jinping's Changing Goals for China. In *JSTOR* (pp. 7–8). Center for Strategic and International Studies (CSIS). Retrieved from Center for Strategic and International Studies (CSIS) website: <https://www.jstor.org/stable/resrep47350.5>
- Nesossi, E., Rosenzweig, J., Smith, E., & Trevaskes, S. (2017). FORUM: Interpreting the Rule of Law in Xi Jinping's China. In I. Franceschini, K. Lin, & N. Loubere (Eds.), *Disturbances in Heaven* (pp. 98–105). ANU Press.

- Organization for Economic Cooperation and Development. (n.d.). Indicators to Measure Decoupling of Environmental Pressure from Economic Growth. In *OECD* (pp. 1-3). OECD. Retrieved from OECD website: <https://www.oecd.org/environment/indicators-modelling-outlooks/1933638.pdf>
- Organization for Economic Cooperation and Development (OECD). (2021). *STI Policy Note Industrial policy for the Sustainable Development Goals* (pp. 1–8). Retrieved from <https://www.oecd.org/sti/ind/industrial-policy-for-sdg.pdf>
- Oslington, P., & Mahmood, M. A. (1993). History of Development Economics [with Comments]. *The Pakistan Development Review*, 32(4), 631–638.
- Parenteau, P., & Cao, M. (2016). Carbon Trading in China: Progress and Challenges. In *Environmental Law Reporter* (pp. 1–6). Washington, DC: Environmental Law Institute.
- Qian, X.-Y., & Liang, Q.-M. (2021). Sustainability evaluation of the provincial water-energy-food nexus in China: Evolutions, obstacles, and response strategies. *Sustainable Cities and Society*, 75, 1–13. <https://doi.org/10.1016/j.scs.2021.103332>
- Qu, X., Xu, Z., Yu, J., & Zhu, J. (2023). Understanding local government debt in China: A regional competition perspective. *Regional Science and Urban Economics*, 98, 1–17. <https://doi.org/10.1016/j.regsciurbeco.2022.103859>
- Ramay, S. A., & Babur, A. (2020). Characteristics of Chinese governance model. Retrieved from JSTOR website: <https://www.jstor.org/stable/resrep29104.4>
- Ramay, S., & Babur, A. (2020). *Sustainable Development Policy Institute Report Part Title: Characteristics of Chinese governance model Report Title: Governance and development model of China* (pp. 2–9). Sustainable Development Policy Institute.
- Ramo, J. C. (2004). *The Beijing consensus*. London Foreign Policy Centre.
- Rosser, J. B., & Rosser, M. V. (2001). Another Failure of the Washington Consensus on Transition Countries: Inequality and Underground Economies. *Challenge*, 44(2), 39–50.
- Schell, L. M., Gallo, M. V., & Ravenscroft, J. (2009). Environmental influences on human growth and development: historical review and case study of contemporary influences. *Annals of Human Biology*, 36(5), 459–477. <https://doi.org/10.1080/03014460903067159>
- Sen, A. (2000). A Decade of Human Development. *Journal of Human Development*, 1(1), 17–23. <https://doi.org/10.1080/14649880050008746>

- Shan, Y., Guan, D., Zheng, H., Ou, J., Li, Y., Meng, J., ... Zhang, Q. (2018). China CO2 emission accounts 1997–2015. *Scientific Data*, 5, 170201. <https://doi.org/10.1038/sdata.2017.201>
- Sikhunyana, Z., & Mishi, S. (2023). Access, participation and socio-economic benefits of blue versus green economy: a systematic literature review. *Local Environment*, 1–21. <https://doi.org/10.1080/13549839.2023.2238748>
- Smith, C. A. (2019). Datong and Xiaokang. In *Afterlives of Chinese Communism: Political Concepts from Mao to Xi* (pp. 63–66). ANU Press. <https://doi.org/10.22459/acc.2019.09>
- Steffen, W., Richardson, K., Rockstrom, J., Cornell, S. E., Fetzer, I., Bennett, E. M., ... Sorlin, S. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*, 347(6223). <https://doi.org/10.1126/science.1259855>
- Stiglitz, J. E., Esteban, J., & Justin Lin Yifu. (2013). *The industrial policy revolution I: The role of government beyond ideology* (pp. 19–38). Basingstoke, Palgrave Macmillan.
- Todaro, M. P., & Smith, S. C. (2009). *Economic development*. Hoboken: Pearson.
- UNDP. (1990). *Human development report, 1990*. Oxford, England: Published for The United Nations Development Programme; Oxford University Press.
- UNDP. (2010). *Human development report 2010. The real wealth of nations: pathways to human development*. Oxford, England: Published for The United Nations Development Programme; Oxford University Press.
- van Heijster, J., & DeRock, D. (2020). How GDP spread to China: the experimental diffusion of macroeconomic measurement. *Review of International Political Economy*, 29(1), 1–23. <https://doi.org/10.1080/09692290.2020.1835690>
- Wackernagel, M., Schulz, N. B., Deumling, D., Linares, A. C., Jenkins, M., Kapos, V., ... Randers, J. (2002). Tracking the ecological overshoot of the human economy. *Proceedings of the National Academy of Sciences*, 99(14), 9266–9271. <https://doi.org/10.1073/pnas.142033699>
- Wang, Z., Lian, L., Li, J., He, J., Ma, H., Chen, L., ... Huang, T. (2021). The atmospheric lead emission, deposition, and environmental inequality driven by interprovincial trade in China. *Science of the Total Environment*, 797, 1–10. <https://doi.org/10.1016/j.scitotenv.2021.149113>
- Wang Deqiang 王德强. (2015). 论中国特色跨越式发展理论的科学内涵与价值 (On

- the scientific connotation and value of the leap-forward development theory with Chinese characteristics), *Lun Zhongguo tese kuayeshi fazhan lilun de kexue neihan yu jiazhi*. 云南民族大学学报 (哲学社会科学版), 32(6), 5–17. <https://doi.org/10.13727/j.cnki.53-1191/c.2015.06.002>
- Wang Fangfang 王芳芳, & Hao Qianjin 郝前进. (2010). 地方政府吸引 FDI 的环境政策分析 (Environmental policy analysis of local governments in attracting FDI), *Difang zhengfu xiyin FDI de huanjing zhengce fenxi*. 中国人口·资源与环境, 20(6), 58–63. <https://doi.org/0.3969/j.issn.102-2104.2010.06.010>
- Wang Guangrong 汪广荣. (2018). 以网络强国战略实现跨越式发展 — 学习习近平关于网络强国战略的重要论述 (Achieving Leapfrog Development with Network Power Strategy – Learning Xi Jinping's Important Discourse on Network Power Strategy), *Yi wangluo qiangguo zhanlue shixian kuayueshi fazhan – xuexi Xi Jinping guanyu wangluo qiangguo zhanlue de zhongyao lunshu*. 南华大学学报 (社会科学版), 19(2), 44–49. <https://doi.org/10.13967/j.cnki.nhxb.2018.0040>
- Wan Wei 万薇, & Zhang Shiqiu 张世秋. (2012). 利用环境政策促进产业优化升级 — 基于深圳 PCB 行业的排污权交易制度设计研究 (Using environmental policies to promote industrial optimization and upgrading - Research on the design of emission rights trading system based on Shenzhen PCB industry), *Liyong huanjing zhengce cujin chanye youhua shengji – jiyu Shenzhen PCB hangye de paiwuquan jiaoyi zhidu sheji yanjiu*. 北京大学学报(自然科学版), 48(3), 491–499. <https://doi.org/10.13209/j.0479-8023.2012.066>
- Wing-Hung Lo, C., & Tang, S.-Y. (2006). Institutional Reform, Economic Changes, and Local Environmental Management in China: The Case of Guangdong Province. *Environmental Politics*, 15(2), 190–210.
- World Bank. (1994). *The East Asian miracle: Economic growth and public policy*. Oxford: Oxford Univ. Press.
- World Bank. (2017a). China's Special Economic Zones - Experience Gained. In *World*

- Bank* (pp. 1–2). Retrieved from <https://www.worldbank.org/content/dam/Worldbank/Event/Africa/Investing%20in%20Africa%20Forum/2015/investing-in-africa-forum-chinas-special-economic-zone.pdf>
- World Bank. (2017b). Special Economic Zones - China's Experience and Lessons Learned. In *www.worldbank.org* (pp. 1–2). World Bank. Retrieved from World Bank website: <https://www.worldbank.org/content/dam/Worldbank/Event/Africa/Investing%20in%20Africa%20Forum/2015/investing-in-africa-forum-special-economic-zones.pdf>
- Wu, P.-C., Fan, C.-W., & Pan, S.-C. (2014). Does Human Development Index Provide Rational Development Rankings? Evidence from Efficiency Rankings in Super Efficiency Model. *Social Indicators Research*, *116*(2), 647–658.
- Wu Di 吴荻, & Wu Chunyou 武春友. (2006). 建国以来中国环境政策的演进分析 (Analysis on the evolution of China's environmental policy since the founding of the People's Republic of China), *Jianguo yilai Zhongguo huanjing zhengce de yanjin fenxi*. 大连理工大学学报 (社会科学版), *27*(4), 48 – 52.
- Xingrong, Z., Xi, Z., Ning, L., Shuai, S., & Yong, G. (2017). Decoupling economic growth from carbon dioxide emissions in China: A sectoral factor decomposition analysis. *Journal of Cleaner Production*, *142*(4), 3500–3516. <https://doi.org/10.1016/j.jclepro.2016.10.117>
- Yang, J., Xue, D., & Huang, G. (2020). The Changing Factors Affecting Local Environmental Governance in China: Evidence from a Study of Prefecture-Level Cities in Guangdong Province. *International Journal of Environmental Research and Public Health*, *17*(10), 3573. <https://doi.org/10.3390/ijerph17103573>
- Yang, L., Yang, Y., Zhang, X., & Tang, K. (2018). Whether China's industrial sectors make efforts to reduce CO2 emissions from production? - A decomposed decoupling analysis. *Energy*, *160*, 796–809. <https://doi.org/10.1016/j.energy.2018.06.186>
- Yang, Y., & Hu, A. (2007). Investigating Regional Disparities of China's Human Development with Cluster Analysis: A Historical Perspective. *Social Indicators Research*, *86*(3), 417–432. <https://doi.org/10.1007/s11205-007-9177-4>

- Yang, Y., Jia, J., Devlin, A. T., Zhou, Y., Xie, D., & Ju, M. (2020). Decoupling and Decomposition Analysis of Residential Energy Consumption from Economic Growth during 2000–2017: A Comparative Study of Urban and Rural Guangdong, China. *Energies*, *13*(17), 4461. <https://doi.org/10.3390/en13174461>
- Yee, W.-H., Lo, C. W.-H., & Tang, S.-Y. (2013). Assessing Ecological Modernization in China: Stakeholder Demands and Corporate Environmental Management Practices in Guangdong Province. *The China Quarterly*, *213*, 101–129. <https://doi.org/10.1017/s0305741012001543>
- Zaizhi, Z., & Chokkalingam, U. (2006). *Success and sustainability: Lessons from Guangdong Province* (pp. 69–134). Center for International Forestry Research.
- Zhang, B., Wang, Q., Liu, Y., Zhang, Y., Wu, X., Sun, X., & Qiao, H. (2020). Uneven development within China: Implications for interprovincial energy, water and arable land requirements. *Journal of Environmental Management*, *261*, 110231–110231. <https://doi.org/10.1016/j.jenvman.2020.110231>
- Zhang, P., & Wang, H. (2022). Do provincial energy policies and energy intensity targets help reduce CO2 emissions? Evidence from China. *Energy*, *245*, 1–9. <https://doi.org/10.1016/j.energy.2022.123275>
- Zhang, Y., Shao, L., Sun, X., Han, M., Zhao, X., Meng, J., ... Qiao, H. (2018). Outsourcing natural resource requirements within China. *Journal of Environmental Management*, *228*, 292–302. <https://doi.org/10.1016/j.jenvman.2018.08.107>
- Zhao, N., Xu, L., Malik, A., Song, X., & Wang, Y. (2018). Inter-provincial trade driving energy consumption in China. *Resources, Conservation and Recycling*, *134*, 329–335. <https://doi.org/10.1016/j.resconrec.2017.09.009>
- Zheng, S., Yao, R., & Zou, K. (2022). Provincial environmental inequality in China: Measurement, influence, and policy instrument choice. *Ecological Economics*, *200*, 107537. <https://doi.org/10.1016/j.ecolecon.2022.107537>
- Zheng Guangliang 郑光梁. (2008). 我国环保政策失灵的成因 - 分析及矫治原则 (The causes of China's environmental protection policy failure - analysis and correction principles), *Woguo huanbao zhengce shiling de chengyin – fenxi ji jiaozhi yuanze*. 哲学社会科学版, 70–73. <https://doi.org/10.13831/j.cnki.issn.1672-8254.2008.01.001>

Sitography

- Agence France-Presse. (2022, October 14). Poverty, climate, space: Xi's 10-year achievements in China. Retrieved September 4, 2023, from Daily Sabah website: <https://www.dailysabah.com/world/asia-pacific/poverty-climate-space-xis-10-year-achievements-in-china>
- Aid, C. (2022, December 27). Counting The Cost 2022: A year of climate breakdown. Retrieved from reliefweb.int website: <https://reliefweb.int/report/world/counting-cost-2022-year-climate-breakdown-december-2022>
- AJLabs. (2023, September 13). Mapping Libya's catastrophic flood damage in Derna after Storm Daniel. Retrieved September 13, 2023, from www.aljazeera.com website: <https://www.aljazeera.com/news/2023/9/13/mapping-libya-flood-damage>
- Ballesteros, A. (2022, July 28). The Greater Bay Area: China's "next big thing." Retrieved from Elcano Royal Institute website: <https://www.realinstitutoelcano.org/en/blog/the-greater-bay-area-chinas-next-big-thing/>
- Batha, E. (2022, January 17). FACTBOX-Super-rich thrive as COVID-19 pushes millions into poverty. *Reuters*. Retrieved from <https://www.reuters.com/article/health-coronavirus-inequality-idINL8N2TS54N>
- Beiguo Jingji 贝果财经 (Beiguo Finance). (2022, June 18). 坚持生态可持续发展:广东探索“绿色经济.” (Adhere to ecological sustainable development: Guangdong explores the "Green Economy"), *Jinchi shengtai ke chixu fazhan: Guangdong tansuo "lusejingji"*. Retrieved September 20, 2023, from finance.sina.com.cn website: https://finance.sina.com.cn/tech/2022-06-18/doc-imizmscu7407922.shtml?finpagefr=p_114
- Black, J. S., & Morrison, A. J. (2021, April 12). The Strategic Challenges of Decoupling. *Harvard Business Review*. Retrieved from <https://hbr.org/2021/05/the-strategic-challenges-of-decoupling>
- Britannica. (n.d.). Outsourcing. Retrieved September 30, 2023, from www.britannica.com website: <https://www.britannica.com/money/outsourcing>
- Carbon Monitor. (2022, October 22). Carbon Monitor China. Retrieved September 19, 2023, from cn.carbonmonitor.org website: <https://cn.carbonmonitor.org>

- Carrington, D. (2009, September 22). China makes its first commitment to climate change targets. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2009/sep/22/hu-jintao-new-york1>
- Cheung, T., & Huifeng, H. (2019, February 18). What is China's Greater Bay Area master plan all about? Retrieved September 18, 2023, from South China Morning Post website: <https://www.scmp.com/news/hong-kong/politics/article/2186569/chinas-state-council-reveals-details-greater-bay-area-plan>
- China Daily. (2017). China's economic development in 40 years. Retrieved September 4, 2023, from [chinadaily.com.cn](http://www.chinadaily.com.cn) website: <http://www.chinadaily.com.cn/business/chinaecoachievement40years/index.html>
- Elliott, L. (2023, July 17). Top economists call for action on runaway global inequality. *The Guardian*. Retrieved from <https://www.theguardian.com/inequality/2023/jul/17/top-economists-call-for-action-global-inequality-rich-poor-poverty-climate-breakdown-un-world-bank>
- Endara, E. (2022, January 22). Inequality Kills. Retrieved September 8, 2023, from www.oxfamamerica.org website: <https://www.oxfamamerica.org/explore/stories/inequality-kills/>
- Eye on Asia. (2023, September 4). Guangdong - a profile. Retrieved from www.eyeonasia.gov.sg website: <https://www.eyeonasia.gov.sg/china/know/china-municipalities-provinces/guangdong-profile/>
- FlorCruz, J. A. (2012, November 8). Checkered end-of-term report card for Hu Jintao. Retrieved August 28, 2023, from CNN website: <https://edition.cnn.com/2012/11/08/world/asia/china-hu-jintao-report-card-florcruz/index.html>
- Full text: Constitution of Communist Party of China (Adopted on Nov. 14, 2012). (2012, November 16). Retrieved August 18, 2023, from www.china.org.cn website: http://www.china.org.cn/china/18th_cpc_congress/2012-11/16/content_27138030.htm
- Gan, N. (2023, July 19). Xi says China will follow its own carbon reduction path as US climate envoy Kerry meets top officials in Beijing. Retrieved September 19, 2023, from CNN website: <https://edition.cnn.com/2023/07/19/china/china-xi-carbon-climate-kerry-intl-hnk/index.html>

- Gertner, J. (2010, May 13). The Rise and Fall of the G.D.P. *The New York Times*. Retrieved from <https://www.nytimes.com/2010/05/16/magazine/16GDP-t.html>
- Global Times. (2023, May 9). Guangdong outlines clean production targets; energy consumption to fall 14% from 2020 level - Global Times. Retrieved September 19, 2023, from www.globaltimes.cn website: <https://www.globaltimes.cn/page/202305/1290362.shtml>
- Globaldatalab. (2023, September 18). Subnational HDI - Subnational HDI - Table - Global Data Lab. Retrieved from globaldatalab.org website: <https://globaldatalab.org/shdi/table/shdi/CHN/?years=2021+2020>
- Guangdongsheng Renminzhengfu Bangongting 广东省人民政府办公厅 (General Office of Guangdong Provincial People's Government). (2001, June 14). 印发广东省环境保护“十五”计划的通知 (Issued notice on the "Tenth Five-Year Plan" for environmental Protection of Guangdong Province), *Yinfa Guangdongsheng huanjing baohu "Shiwu" jihua de tongzhi*. Retrieved September 25, 2023, from www.gd.gov.cn website: http://www.gd.gov.cn/gkmlpt/content/0/137/post_137099.html#7
- Guangdongsheng Renminzhengfu Bangongting 广东省人民政府办公厅 (General Office of Guangdong Provincial People's Government). (2007, May 16). 关于印发广东省环境保护与生态建设“十一五”规划的通知 (Notice on the issuance of the 11th Five-Year Plan for Environmental Protection and Ecological Construction of Guangdong Province), *Guanyu yinfa Guangdongsheng huanjing baohu yu shengtai jianshe "Shiyiwu" guihua de tongzhi*. Retrieved September 25, 2023, from www.gd.gov.cn website: http://www.gd.gov.cn/gkmlpt/content/0/136/post_136809.html#7
- Guangdongsheng Renminzhengfu Bangongting 广东省人民政府办公厅 (General Office of Guangdong Provincial People's Government). (2011, September 9). 印发广东省环境保护和生态建设“十二五”规划的通知 (Issued notice of the "Twelfth Five-Year Plan" for environmental Protection and ecological

- construction of Guangdong Province), *Yinfa Guangdongsheng huanjing baohu he shengtai jianshe "Shierwu" guihua de tongzhi*. Retrieved September 25, 2023, from gdee.gd.gov.cn website: http://gdee.gd.gov.cn/ghjh3128/content/post_2333832.html
- Hayes, A. (2022, May 11). Decoupling: Definition and Examples in Finance. Retrieved from [Investopedia](https://www.investopedia.com/terms/d/decoupling.asp#:~:text=Decoupling%20is%20when%20the%20returns) website: <https://www.investopedia.com/terms/d/decoupling.asp#:~:text=Decoupling%20is%20when%20the%20returns>
- Ho, M. (2020, December 5). What are the pillars of growth in the Greater Bay Area? Retrieved September 18, 2023, from South China Morning Post website: <https://www.scmp.com/news/china/politics/article/3112648/chinas-plan-boost-innovation-and-what-it-could-mean-research>
- Hurt, S. R. (n.d.). Washington Consensus. Retrieved September 8, 2023, from [www.britannica.com](https://www.britannica.com/money/Washington-consensus) website: <https://www.britannica.com/money/Washington-consensus>
- Institute for Management Resource. (2023, September 15). Sub-national HDI. Retrieved from [globaldatalab.org](https://globaldatalab.org/shdi/table/shdi/CHN/) website: <https://globaldatalab.org/shdi/table/shdi/CHN/>
- Jones, L., Palumbo, D., & Brown, D. (2021, January 24). Coronavirus: How the pandemic has changed the world economy. *BBC News*. Retrieved from <https://www.bbc.com/news/business-51706225>
- Jolly, D. (2009, September 14). G.D.P. Seen as Inadequate Measure of Economic Health. *The New York Times*. Retrieved from <https://www.nytimes.com/2009/09/15/business/global/15gdp.html?searchResultPosition=63>
- Kobayashi, S., Baobo, J., & Sano, J. (1999, September). The "Three Reforms" in China: Progress and Outlook. Retrieved September 4, 2023, from Japan Research Institute website: <https://www.jri.co.jp/english/periodical/rim/1999/RIMe199904threereforms/>
- Lavietes, M. (2021, February 23). Concern over rich-poor divide seen on the increase during pandemic. *Reuters*. Retrieved from <https://www.reuters.com/article/us-health-coronavirus-global-inequality-idUSKBN2AN0EI>
- Lewis, P. (1993, May 23). New U.N. Index Measures Nations' Quality of Life. *The New York Times*. Retrieved from <https://www.nytimes.com/1993/05/23/world/new-un-index-measures-nations-quality-of-life.html?searchResultPosition=4>

- Mazzocco, I. (2022). How Inequality Is Undermining China's Prosperity. *W*www.csis.org. Retrieved from <https://www.csis.org/analysis/how-inequality-undermining-chinas-prosperity>
- Mazzucato, M. (2023, September 4). Rethinking growth. Retrieved September 4, 2023, from Business Standard website: https://www.business-standard.com/opinion/columns/rethinking-growth-123090401286_1.html
- Orbach, B. (2013, May 15). What Is Government Failure? Retrieved April 8, 2021, from papers.ssrn.com website: <https://ssrn.com/abstract=2219709>
- Our World in Data. (n.d.). Historical Index of Human Development. Retrieved September 10, 2023, from Our World in Data website: <https://ourworldindata.org/grapher/human-development-index-escosura?country=~CHN>
- Perlez, J., & Bradsher, K. (2017, May 14). Xi Jinping Positions China at Center of New Economic Order. *The New York Times*. Retrieved from <https://www.nytimes.com/2017/05/14/world/asia/xi-jinping-one-belt-one-road-china.html>
- Plumer, B. (2018, September 4). You've Heard of Outsourced Jobs, but Outsourced Pollution? It's Real, and Tough to Tally Up. *The New York Times*. Retrieved from <https://www.nytimes.com/2018/09/04/climate/outsourcing-carbon-emissions.html>
- Reuters. (2022, April 4). U.S. poor died at much higher rate from COVID than rich, report says. *Reuters*. Retrieved from <https://www.reuters.com/world/us/us-poor-died-much-higher-rate-covid-than-rich-report-2022-04-04/>
- Ritchie, H. (2021, December 1). Many countries have decoupled economic growth from CO₂ emissions, even if we take offshored production into account. Retrieved from Our World in Data website: <https://ourworldindata.org/co2-gdp-decoupling>
- Robeyns, I., & Byskov, M. F. (2011). The Capability Approach. *Plato.stanford.edu*, (Summer 2023 Edition). Retrieved from <https://plato.stanford.edu/archives/sum2023/entries/capability-approach/>
- Roldao, R. (2022, January 5). Carbon trading the Chinese way. Retrieved October 1, 2023, from Energy Monitor website: <https://www.energymonitor.ai/carbon-markets/carbon-trading-the-chinese-way/?cf-view>
- SDI Project. (n.d.). About. Retrieved from Sustainable Development Index website: <https://www.sustainabledevelopmentindex.org/about>

- Liu Shaohua 刘少华. (2017, November 29). “中国梦”提出五周年伟大梦想迎来新时代 (The fifth anniversary of the Chinese Dream has ushered in a new era), “Zhongguomeng” tichu wu zhounian weida mengxiang yinglai xinshidai. 中国共产党新闻网 . Retrieved from cpc.people.com.cn website: <http://cpc.people.com.cn/n1/2017/1129/c64387-29673688.html>
- Shih, V. (2022, September 30). Jiang Zemin Helped China Become a Global Powerhouse. Retrieved from [Foreign Policy](https://foreignpolicy.com) website: <https://foreignpolicy.com/2022/11/30/jiang-zemin-dead-obituary-china-ccp/>
- Stanzel, A., Doyon, J., Holbig, H., Mittelstaedt, J. C., & Sautin, Y. (2017). China’s “New Era” with Xi Jinping Characteristics. Retrieved November 16, 2022, from [ECFR](https://ecfr.eu) website: https://ecfr.eu/publication/chinas_new_era_with_xi_jinping_characteristics7243/
- Statista. (2023, February). China: per capita GDP of Guangdong province 2022. Retrieved September 17, 2023, from [Statista](https://www.statista.com) website: <https://www.statista.com/statistics/1093860/china-per-capita-gross-domestic-product-gdp-of-guangdong-province/>
- Wallace, J. (2022, November 18). Is China losing GDP religion? Retrieved July 10, 2023, from [The China Project](https://thechinaproject.com) website: <https://thechinaproject.com/2022/11/18/is-china-losing-gdp-religion/>
- Weinberg, J. (2013, November 22). The Great Recession and its Aftermath | [Federal Reserve History](https://www.federalreservehistory.org). Retrieved September 3, 2023, from [Federal Reserve History](https://www.federalreservehistory.org) website: <https://www.federalreservehistory.org/essays/great-recession-and-its-aftermath>
- Wenrui, G. (2021, July 1). China accomplishes building of moderately prosperous society in all respects: Xi - [People’s Daily Online](http://en.people.cn). Retrieved September 14, 2023, from en.people.cn website: <http://en.people.cn/n3/2021/0701/c90000-9867216.html>
- Williamson, J. (1990). What Washington means by policy reform. In *Latin American Adjustment: How Much Has Happened?* Institute for International Economics. Retrieved from <https://www.piie.com>: <https://www.piie.com/commentary/speeches-papers/what-washington-means-policy-reform>
- Williamson, J. (2002, November). *Did the Washington Consensus Fail?* Center for

- Strategic & International Studies Washington, DC. Retrieved from <https://www.piie.com/commentary/speeches-papers/did-washington-consensus-fail>
- World Bank. (2009, February 12). China's 11th Five Year Plan so far - Progress in Several Areas, but Important Challenges Remain, Including on Overall Rebalancing, Says World Bank Report. Retrieved from World Bank website: <https://www.worldbank.org/en/news/press-release/2009/02/12/chinas-11th-five-year-plan-so-far-progress-several-areas-important-challenges-remain-including-overall-rebalancing-says-world-bank-report>
- World Bank. (2021). World Bank Climate Change Knowledge Portal. Retrieved from [climateknowledgeportal.worldbank.org](https://climateknowledgeportal.worldbank.org/overview) website: <https://climateknowledgeportal.worldbank.org/overview>
- World Bank. (2022, April 1). Lifting 800 Million People Out of Poverty – New Report Looks at Lessons from China's Experience. Retrieved from World Bank website: <https://www.worldbank.org/en/news/press-release/2022/04/01/lifting-800-million-people-out-of-poverty-new-report-looks-at-lessons-from-china-s-experience>
- World Health Organisation. (2023). WHO COVID-19 Dashboard. Retrieved September 5, 2023, from World Health Organisation website: <https://covid19.who.int>
- Xinhua. (2019, June 5). Environment improving in Guangdong: report. Retrieved September 29, 2023, from www.xinhuanet.com website: http://www.xinhuanet.com/english/2019-06/05/c_138116758.htm
- Xinhua. (2020, January 20). Guangdong sees stronger new economies in 2019. Retrieved September 12, 2023, from China Daily website: <https://www.chinadailyhk.com/article/119027>
- Yu, S., & Zhou, E. (2022, May 26). China turns a blind eye to labour violations to spur economy. *Financial Times*. Retrieved from <https://www.ft.com/content/95eef31a-eb04-40e2-8fad-5dc38a0d6cb7>
- Yuan, E. (2012, November 8). Xi Jinping: From “sent-down youth” to China's top. Retrieved September 14, 2023, from CNN website: <https://edition.cnn.com/2012/11/07/world/asia/china-xi-jinping-profile/index.html>
- Yuan, S. (2022, October 14). Xi “firmly in charge” as rivals fall in China anti-graft campaign. Retrieved September 4, 2023, from www.aljazeera.com website:

<https://www.aljazeera.com/news/2022/10/14/xis-anti-graft-campaign-intensifies-ahead-of-key-china-congress>

Zakaria, F. (2018, August 10). Looking Back at the Economic Crash of 2008. *The New York Times*. Retrieved from <https://www.nytimes.com/2018/08/10/books/review/adam-tooze-crashed.html>

Zhongguo Gongchangdang Zhongyang Weiyuanhui (ZGZW) 中国共产党中央委员会. (2012, September 8). Firmly March on the Path of Socialism with Chinese Characteristics and Strive to Complete the Building of a Moderately Prosperous Society in All Respects—Report to the Eighteenth National Congress of the Communist Party of China. Retrieved September 11, 2023, from Interpret: China website: <https://interpret.csis.org/translations/firmly-march-on-the-path-of-socialism-with-chinese-characteristics-and-strive-to-complete-the-building-of-a-moderately-prosperous-society-in-all-respects-report-to-the-eighteenth-national-cong/>

Zhongguo Zhengfu Wang (ZZW) 中国政府网. (2005, June 27). 胡锦涛关于构建社会主义和谐社会讲话全文 (Full text of Hu Jintao's speech on building a harmonious socialist society), *Hu Jintao guanyu goujian shehuizhuyi hexieshehui jianghua quanwen*. Retrieved September 3, 2023, from www.gov.cn website: https://www.gov.cn/ldhd/2005-06/27/content_9700.htm