

Research Series on the Chinese Dream
and China's Development Path

Jiahua Pan

Political Economy of China's Climate Policy



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Series Preface

Since China's reform and opening began in 1978, the country has come a long way on the path of Socialism with Chinese characteristics, under the leadership of the Communist Party of China. Over 30 years of reform, efforts and sustained spectacular economic growth have turned China into the world's second-largest economy and wrought many profound changes in Chinese society. These historically significant developments have been garnering increasing attention from scholars, governments, and the general public alike around the world since the 1990s, when the newest wave of China studies began to gather steam. Some of the hottest topics have included the so-called China miracle, Chinese phenomenon, Chinese experience, Chinese path, and the Chinese model. Homegrown researchers have soon followed suit. Already hugely productive, this vibrant field is putting out a large number of books each year, with Social Sciences Academic Press alone having published hundreds of titles on a wide range of subjects.

Because most of these books have been written and published in Chinese, however, readership has been limited outside China—even among many who study China—for whom English is still the lingua franca. This language barrier has been an impediment to efforts by academia, business communities, and policy-makers in other countries to form a thorough understanding of contemporary China, of what is distinct about China's past and present may mean not only for her future but also for the future of the world. The need to remove such an impediment is both real and urgent, and the *Research Series on the Chinese Dream and China's Development Path* is my answer to the call.

This series features some of the most notable achievements from the last 20 years by scholars in China in a variety of research topics related to reform and opening. They include both theoretical explorations and empirical studies and cover economy, society, politics, law, culture, and ecology, the six areas in which reform and opening policies have had the deepest impact and farthest-reaching consequences for the country. Authors for the series have also tried to articulate their visions of the "Chinese Dream" and how the country can realize it in these fields and beyond.

All of the editors and authors for the *Research Series on the Chinese Dream and China's Development Path* are both longtime students of reform and opening and

recognized authorities in their respective academic fields. Their credentials and expertise lend credibility to these books, each of which having been subject to a rigorous peer-review process for inclusion in the series. As part of the Reform and Development Program under the State Administration of Press, Publication, Radio, Film, and Television of the People's Republic of China, the series is published by Springer, a Germany-based academic publisher of international repute, and distributed overseas. I am confident that it will help fill a lacuna in studies of China in the era of reform and opening.

Shouguang Xie

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Part I
Carbon Emissions and Human Rights

Chapter 1

Welfare Dimensions of Climate Change Mitigation



Jiahua Pan

1.1 Introduction

Economic assessment of climate change mitigation indicates that there exists substantial potential for greenhouse gas (GHG) emission reductions at reasonably low cost. However, the experiences with GHG emission reductions under the Kyoto Protocol provide only limited substantiation to such a conclusion. There is perhaps a need to further examine the welfare implications of mitigation actions for a better understanding of the gap between the assessed potential and the actual GHG reductions.

1.2 Cost Effectiveness and Distributional Equity

Two authoritative and influential assessments of climate change actions support earlier and stronger mitigation actions to avoid abrupt climate disruptions. One is the Stern Review on the Economics of Climate Change launched in October 2006 (Stern, 2007), and the other is the Fourth Assessment Report (AR4) on climate change mitigation by the IPCC (Intergovernmental Panel on Climate Change) Working Group III, approved in May 2007 (IPCC, 2007). Both reports, however, have triggered debates about the existence of large potentials of GHG reductions at low cost in aggregate at the global level.

Under assumptions over climate change risks, sciences and ethics, the Stern Review estimates that the overall costs and risks of unmitigated climate change will be equivalent to losing between 5 and 20% of global gross domestic product (GDP) each year. In contrast, the costs of reducing GHG emissions can be limited to approximately 1% of global GDP each year. Meeting a stabilization target below 550 ppm CO₂ equivalent (CO₂e) would require emissions to be at least 25% below current levels by 2050 and ultimately more than 80% below.

Similar conclusions are also found in the IPCC AR4 on climate change mitigation. If global mean temperature increases are to be limited to 2–2.4 °C above the preindustrial level, this would require CO₂ emissions to peak before 2015 and to be 50–85% lower than the 2000 level by 2050. The cost of stabilizing GHG concentrations in the range of 445–535 ppm is projected to have an impact on global GDP of less than 3% between now and 2030, and the reduction of average annual growth rates would be less than 0.12%. For concentrations in the range of 535–590 ppm, the reduction in GDP is 0.2–2.5%.

Why is the world not ready for an agreement on immediate and strong reductions? Olmstead and Stavins (2007) suggest that there is a conflict between environmental effectiveness and distributional equity. Nordhaus (2007) is highly critical of the choice of near-zero rate of discount applied in the Stern Review. The negotiators of the IPCC lowered the confidence level¹ with regard to the estimate of mitigation costs for GHG concentration levels below 550 ppm. As the numbers given in the two reports are in aggregates, welfare impacts on different countries or social groups are not detailed for comparison. This may in part explain why there is a huge gap between the assessed economic potential and the market outcome. For the rich part of the world, per capita emissions are high, and the cost for substantial emission reduction can be high. For the poor part, per capita emissions are low, and market costs for emissions reduction can be low as well. However, there is an expectation among the poor that to deliver future welfare improvements, emissions will have to grow (Hannesson, 2007). Through rising emissions, therefore, this may have a negative impact on immediate welfare for the rich and future welfare for the poor. This would suggest a strong case for looking at the welfare aspects of climate change mitigation.

1.3 Welfare Analysis of Climate Change Mitigation

Both the Stern Review and the IPCC assessment indicate that a cost is associated with GHG reductions. In other words, the growth of GHG emissions, if climate change impacts were not considered, would contribute to human welfare improvements along with industrialization and economic development, as shown in the past. GHG emissions in 2004 were 70% higher than those in 1970. Emissions by countries with economies in transition (former Soviet Union and eastern European states) are in general lower than their Kyoto targets, while many other Annex I countries appear to have difficulty in meeting their targets. Similar to most developing countries, the United States and Australia have shown a strong increase in GHG emissions (IEA—International Energy Agency, 2006).

¹ The “high evidence” statement over mitigation cost in SPM paragraph 6 was changed into “medium evidence”, with consent of the lead authors, at the IPCC 9th Session WG-III held in Bangkok, 30 April–4 May 2007.

If GHG emissions contribute to economic growth and thereby enhance social welfare, a further increase in emissions may be expected in many countries. According to the IPCC assessment, global GHG emissions would continue to grow over the next few decades by a range of 9.7–36.7 Gt CO_{2e} (25–90%)² between 2000 and 2030 under scenarios with current climate change mitigation policies and related sustainable development practices. CO₂ emissions between 2000 and 2030 from energy use are projected to grow 45–110% over that period. However, the distribution of these increases is uneven. Between two-thirds and three-quarters of this increase in energy-related CO₂ emissions is projected to come from non-Annex I regions (i.e., developing countries). This might be an indication that, at the margin, the welfare contribution from GHG emissions in the developing world would be larger than that in developed regions. As the welfare level in rich countries is already high, additional emissions would generate less welfare satisfaction than that in poor countries.

In a similar manner, there must be welfare implications associated with climate mitigation. The current analysis in the literature acknowledges the principle of “common but differentiated responsibilities” (Article 3 of the UN Framework Convention on Climate Change) between developed and developing nations. However, such analyses focus on the differences in national circumstances with respect to mitigative and adaptive capacities, such as financial, technological and institutional capabilities. As a result, the Stern Review advocates that developed countries must have deeper cuts in their emissions and that developing countries may be allowed to increase their emissions up to 25% compared to their current level.

However, the IPCC (2007) takes a different approach by looking at the potential of low-cost reductions. Roughly, the current ratio of emissions by developed and developing countries is 70:30.³ The IPCC assessment suggests that the ratio of low-cost emission reduction between developed and developing countries would be 30:70, the reverse of the emissions share (see Figure SPM-6 in Summary for Policy Makers; IPCC, 2007). The IPCC report further concludes that, under most of the considered regime designs for low and medium stabilization levels, developing country emissions need to deviate from what we believe today would be their baseline emissions as soon as possible, even if developed countries make substantial reductions.

From the perspectives of environmental and cost effectiveness, earlier and larger GHG reductions serve the purpose of lowering the cost in global aggregates for stabilization. If the perspective is shifted to welfare considerations, the IPCC conclusions may need further examination. If a rich person earns 1 million \$US per year, a 1000 \$US increase in income would add a negligible welfare gain. On the other hand, 1000 \$US would mean a substantial welfare improvement if the person’s income is

² Gt = giga tons, 10⁹ t. This number includes five other greenhouse gases (CH₄, N₂O, HFCs, SF₆, PFCs, measured in global warming potential equivalent to CO₂) included in the Kyoto Protocol (Annex A), in addition to CO₂. These are results from SRES baselines (IPCC, 2000), but post SRES baseline scenarios are assessed in the IPCC (2007) as comparable.

³ This share is based on historical accumulation of emissions. Currently, the ratio is: 53:47 in 2004 for Annex I versus on-Annex I parties to the UNFCCC. See IEA (2006).

only 5000 \$US. Similarly, a reduction in absolute terms of the same amount (1000 US) would result in a considerable difference in welfare losses between these two persons. In the rich part of the world with average income at 30,000 \$/c, mitigation cost can be high, say 100 \$/t CO₂, while in the developing part with average income at 3000 \$US/c, the cost may be only half, say 50 \$US/t CO₂. The richer one spends 1/300 of his income to reduce 1 t CO₂, while the poor would spend 1/60 of his income for a similar amount of reduction. Evidently, at the margin, welfare cost in developing countries for each ton of CO₂ reduction could be much higher. If we look at the welfare contribution by emissions, the reverse might be true, i.e., higher marginal utility for each ton of carbon in the developing world than in the developed world. In Annex I (industrialized) countries, per capita emissions were 11.3 t CO₂ in 2004 compared to 2.3 in non-Annex I (developing) countries (IEA (International Energy Agency), 2006). One ton of CO₂ reduction would lead to much higher relative welfare losses in the non-Annex I countries than in the Annex I countries, although economic cost can be the opposite.

Such welfare understanding does not necessarily approve unlimited emissions. If an additional ton of emissions leads to climate disasters, welfare loss is incurred to both the poor and the rich, and the poor can suffer more than the rich. That is why there is a responsibility for everybody.

1.4 Nonclimate Policies for Climate Change Mitigation

While the Stern Review does not investigate the potential of nonclimate policies, the IPCC WG-III AR4 makes a positive linkage between nonclimate policies aimed at sustainable development and climate change mitigation (see IPCC, 2007, Chap. 12). In many cases, nonclimate policies can have effective impacts on emission reductions but with less welfare losses.

If we look at carbon emissions from a development perspective, we may find that carbon is not the ultimate cause of concern. The ultimate reason for the increase in emissions is due to action by humans. The number of people matters. The style of living matters, too. While population control may be controversial in light of ethical and cultural traditions, early peak of the population can be essential for the early stabilization and reduction of emissions. One reason for the US refusal to take the same targets as Europeans is demographic differences.⁴ If ODA (overseas development aid) is directed at family planning in the developing world rather than at low carbon and costly technologies, the impact on emission reductions might be more pronounced. While the level of carbon emissions has to be substantially reduced in the rich part of the world, consumers in poor countries must re-define their quality

⁴ At the European Climate Forum in March 2007 in Brussels, the US chief negotiator on climate change, Harlan Watson in his presentation emphasizes the difference between the US and the EU with respect to population growth. By 2050, population in the US would be 60% higher than the current level while that in the EU would be some 8% lower.

of life by rejecting luxury and wasteful ways of living along with their increase in income. One cannot imagine the Chinese and the Indians having the same rate of car ownership as their American or European counterparts. Harmony with nature can certainly keep and create green fields, which sequester carbon. Keeping the sky blue and water clear requires us to use clean fuels. Therefore, nonclimate policies can be even more effective than direct climate actions, particularly in poor countries. For example, social and energy policies in developing countries such as population control, energy security and re-forestation can be much more effective for reducing demand for carbon emissions than a narrow focus on low carbon technology and low carbon consumption. They also strengthen adaptive capacities. The most important feature of non-climate policies for mitigation lies in that they contribute welfare gains to society in addition to emission reductions.

Effective measures have to be examined from a welfare perspective for them to be sustainable. For the developed world, the population has been stabilized, and or even on the decline, carbon policies can encourage the development and deployment of low carbon technologies and shift from wasteful to necessity emissions. For the developing world, nonclimate policies can be less costly and more effective. The primary drivers of future increases in emissions in the developing world are population increases, economic growth and technological progress. Population growth is in absolute conflict with climate change mitigation, while both economic and technological development can be made compatible. We have to be clear that there is no room for everybody on earth to enjoy the same level of emissions as the rich in both the developed and developing world. Luxurious and wasteful emissions that do not add much to social welfare have to be discouraged wherever they occur.

Welfare analysis suggests that the use of nonclimate policies complements carbon policies well. A target on emissions can be highly effective as a result of, for example, the replacement of high carbon content fuels by low and zero carbon energy sources, carbon sequestration through land use change and forestry and carbon capture and storage. However, these measures do not seem to be adequate and functioning well. Additional efforts have to be included. While we may deepen our carbon policies in the developed world, nonclimate policies in both developed and developing countries can be introduced and strengthened to reinforce emission reductions.

1.5 The Need to Include Welfare Impacts for a Low Carbon Future

Economic analysis is important in that it provides an understanding of how and where the low-cost mitigation potential lies. However, such a potential is often evaluated from the production side. However, in the end, the consumer must be kept responsible for GHG emissions, as there would be no goods and services if there were no effective demand. Technological improvement will provide the key, and its demonstration

by the rich can accelerate their deployment in the developing world. However, technologies have their own limits. First, there is a lock-in effect that prevents technologies from immediate replacement. Additionally, there is uncertainty in technological development with respect to cost and deployment. The most important thing is the effect offset by consumer behavior. For instance, a 20% automobile fuel efficiency increase saves no energy if the car owner drives 20% more miles. Therefore, a cap can be more reasonable and effective if it is set on the consumption side based on welfare assessment. That is, a carbon budget is regulated for an individual who will assess the utility of carbon embedded in goods and services within his/her budget. This carbon budget would effectively avoid luxury and wasteful emissions, as the individual would evaluate welfare impacts from excessive emissions.

In summary, both increases and decreases in carbon emissions have welfare implications, and an equitable and sustainable climate regime requires an understanding of both sets of welfare impacts. For a low carbon future, welfare gain from additional emissions must equal the welfare losses of emission reductions at the margin.

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Chapter 2

A Conceptual Framework and Empirical Data for the Analysis of Human Development—With Global Demand for Carbon Emissions as an Example



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2.1 The Connotation of Human Development

In English, the words “developing” and “developed” share the same linguistic root but denote different states. The former means that there is a certain potential for or a certain distance from becoming mature or reaching the expected relatively high or high level during growth, while the latter mostly refers to the state of becoming mature or being at the relatively high or high level, coming to or being close to completion.¹ In Chinese, “development” is defined as a philosophical concept and entails “a process of movement and change in which things grow from small to large, from simple to complicated, from low level to high level, from old ones to new ones”,² and “developed” means that things “have fully developed”.³ In English, “development” contains growth and refers to a process in which the structure and functions of an individual and/or a group change from simple ones to complicated ones in the life history of a biological organism, while maturity or full growth is marked by the level at which there is the capability for continuing to multiply. Undoubtedly, such a growth process is one basic aspect of human development. There is no foundation for the development of human society without growth, maturity or multiplication of human individuals. Moreover, such a growth connotation of development is restricted to not only the process of growth and evolution of a life organism but also to various economic and social aspects of human society, such as a mature community, a developed industry and agriculture, a well-developed legal system. Furthermore, an area to be developed where economic development or growth is at a relatively low level or its development is encouraged is called an underdeveloped area or a developmental

¹ Oxford Dictionary of English. Oxford: Oxford University Press, 1992.

² Ci Hai (Chinese Encyclopedic Dictionary, compact edition), Shanghai Lexicographical Publishing House, 1980, p. 490.

³ Modern Chinese Dictionary, The Commercial Press, 1994, p. 292.

area. As shown, development is an abstract concept from a philosophical perspective and a practical term that depicts orderly biological, social and developmental growth.

Human development⁴ involves the life, social, political, economic and cultural aspects of individuals, communities, countries and all of humanity, which are called human dimensions in some studies.⁵ These human dimensions also touch upon a developmental issue in a broad sense, involving the most basic life development and quality of life from the biological perspective, community culture and economic capability, and the political and economic rights and interests of countries. The case where a community and country are developing or underdeveloped mostly means that the quality of life and the economic and political rights and interests are at relatively low levels, while a mature or a developed economy suggests that the quality of life and the economic rights and interests are at relatively high levels.⁶

In terms of a developmental concept and human needs, the connotation of human development can be understood from the perspectives of “rights” and “limits”. Developmental rights or developmental rights and interests are mainly embodied in the direction of human development and the realizability of the potential for human development. Human development is unidirectional—it proceeds from a low level to a high level, from simple to complicated, from less ideal to almost perfect. This is a gradual process of structural changes and encompasses different developmental stages. Fluctuations or disturbances may occur in this process of development; however, the general trend of human development is clear. Historically, many countries or territories, even the whole world, were plagued by wars, pandemics, floods and other disasters, when human development temporarily stagnated and even receded; however, this did not prevent overall human development. At present, some traditional agricultural societies⁷ in the state of simple subsistence maintenance are still at relatively low levels and are backward, but this does not indicate that they have no rights or potential to reach a relatively high level and become developed. Individuals, communities or countries may realize a relatively high level of human development, while such realization is a basic right and interest involving human development.

The “limits” for human development mainly have the following several meanings. First, they are biological “limits”, including the upper limit and the lower limit. On the one hand, subject to a certain technical and economic level, there is an upper limit

⁴ Human development is described in many documents, such as the UNDP Human Development Report, see UNDP, 2001 Human Development Report, China Financial and Economic Publishing House, 2001, p. 260.

⁵ Since the mid-1980s, the international academic community has been carrying out the International Human Dimensions Programme (IHDP), involving the social, economic, cultural and political aspects of human development.

⁶ Some agencies of the United Nations and the World Bank mostly adopt per capita income to rank the development of countries. However, with respect to the classification of countries, some people mostly list oil-exporting countries with a relatively high per capita income and the former-Soviet-Union Eastern European countries among the developing countries. See World Bank, World Development Report, Oxford: Oxford University Press, 2001.

⁷ The most primary society as defined in Rostow’s Stages of Economic Growth. See Rostow, *The Stages of Economic Growth: A Non-Communist Manifesto*, trans. by Guo Xibao, Wang Songmao, China Social Sciences Publishing House, 2001, p. 283.

with an absolute amount—it cannot be infinitely expanded—in nutritional requirement, physiological maturity and biological life. On the other hand, the biological subsistence of a person certainly needs to be guaranteed by a certain quantity of nutrition, medical treatment, and housing and clothing; thus, there is a lower limit value with an absolute amount, such as the poverty line established by some countries or territories. Below this limit, it is difficult for a human to subsist. Such biological “limits” are inherent limits for human development. Second, there is physical upper limit or constraint. Human development needs a material base, while the earth on which the subsistence of human life is based is limited.

In fact, the “rights” in human development are not separated from the “limits” for human development. The “rights and interests” of human development and its “potential” cannot be limitless. On the one hand, different individuals, communities, countries or a group of countries are governed by a “right and interest check and balance” relationship so that the basic rights and interests of human development can be guaranteed. On the other hand, once the potential for human development is basically realized, biological physical expansion is impossible and meaningless. “Limits” also have explicit rights and interest connotations. In fact, the limit of physical quantity, which reflects the basic needs of an individual human’s development and a mature community, is also one basic right and interest of human development. The external physical constraint signifies the scarcity of resources; however, such scarcity should not constitute the cause for ignoring the basic developmental rights and interests of socially disadvantaged individuals or groups or depriving these individuals or groups of basic developmental rights and interests.

2.2 The Developmental Philosophy of Neoclassical Economics

According to neoclassical economics, economic development is realized by maximizing individual utility and increasing total social utility. The Pareto efficiency in microeconomic analysis is conditional upon maximizing the improvement in the welfare of individuals without making the welfare of other members of society worse off. As illustrated by the Compensation Principle⁸ in neoclassical welfare economics, even if the welfare of some members of society suffers a loss, there will be a kind of social progress or development as long as the increment in the welfare improvement for a certain member or some members remains in surplus after compensating for the welfare loss inflicted on the members who are adversely affected. As total social welfare increases, even if such compensation is not made, this choice is still feasible from the perspective of welfare or development. Neither the Pareto efficiency nor the compensation principle takes into account the welfare distribution or income gap

⁸ Compensation Principle, also called Kaldó—Hicks compensation test. See N. Kaldó, *Welfare Propositions of Economics and Interpersonal Comparisons of Utility*. *Economic Journal*, 1939, 39:549–552; J. Hicks, *The Foundation of Welfare Economics*. *Economic Journal*, 1939, 49:696–712.

and considers welfare improvement for socially disadvantaged groups. The Maximin Principle⁹ proposed by American scholar Rawls in the early 1970s calls for taking welfare improvement for the most disadvantaged individuals or groups in society as the norm for promoting social development.

The developmental philosophy advocated in neoclassical economics is based on reference to the current level of welfare and seeks to increase the current level to some extent. Therefore, it accepts and recognizes the differences in human development among individuals or in society and allows further expansion of these differences. On the one hand, the positive aspect of such development is that all individuals or groups at various levels in society enjoy the right to develop; the high utility return or welfare benefit for socially advantaged individuals or groups produces a spillover effect and a demonstration effect on socially disadvantaged individuals or groups.¹⁰ However, as there is an inequity in reality and socially advantaged individuals or groups monopolize and occupy resources, the developmental rights and interests of socially disadvantaged individuals or groups may be ignored, even though socially disadvantaged individuals or groups are deprived of developmental rights and interests. Dynamically, the developmental outlook in neoclassical economics stresses the maximization of utility rather than basic or full realization of the potential for human development. Whether the basic subsistence rights and interests of the most disadvantaged individuals or groups in society are guaranteed and how great their potential for development is are not analyzed. Future development and the conditions for basically or fully realizing the potential for development are also not revealed accordingly. Even under Rawls' principle, which places emphasis on socially disadvantaged individuals or groups, the guarantee for the interests of socially disadvantaged individuals or groups is taken as a social choice about an ethical preference, but the realization of disadvantaged groups' potential for development is not deemed a right.

The concept of "limits" for human development is almost nonexistent in the developmental philosophy of neoclassical economics. For an individual, if his/her income increases, he/she will develop to some extent; for a community or a country, if the GDP within the community or the country grows compared with the previous accounting period, progress is made in development. The monetarily measured income or total output value can be infinitely increased; thus, the utility or welfare level can also be infinitely improved. Therefore, human development can be limitless. The neoclassical economic analysis also takes into account resource constraints, but it allows resource substitution and a tradeoff among different goals. Under market competition conditions, factor substitution will certainly occur among capital, labor and natural resources, resulting in maximization of individual utility or total social

⁹ The principle proposed by Rawls is demonstrated under the assumed condition: veil of ignorance. If no one knows his future position, a rational choice made by him shows care for the most disadvantaged individuals or groups so that their interests are guaranteed accordingly. See John Rawls, *A Theory of Justice*, Oxford: Clarendon Press.

¹⁰ The spill-over effect is also called the spread effect. See G. Myrdal, *Development and Under-Development: A Note on the Mechanism of National and International Economic Inequality*, National Bank of Egypt, 1956, p. 36.

utility. When a number of goals cannot be concurrently achieved, a tradeoff may be obtained by comparing the loss of utility with that of welfare. For example, people can increase their income and bring about economic growth at the expense of health or the environment. Hence, in practice, the constraints of natural resources matter less and may even disappear.

Within the analytical framework, the developmental outlook in neoclassical economics focusing on income growth and economic growth dispenses with the connotations of the “rights” and “limits” for development. The income or total output value measured merely in a monetary way not only fails to objectively give full expression to the level of development but also causes a misleading evaluation of social value with the aim of pursuing the maximization of monetary income and high consumption. Therefore, the outlook for human development that embodies the “rights” and “limits” has a great theoretical connotation and is of great practical significance.

2.3 The Developmental Outlook of Post-welfarism

In the mid-1950s, the developmental thinking of “Structuralism”,¹¹ which emphasized the adjustment of the socioeconomic structure in response to the actual economic and social situation in developing countries, emerged, serving as a supplement to the economic developmental thoughts of neoclassical economics¹² but giving no considerations to the “rights” and “limits” for development. Discussions about “the Limits to Growth”¹³ in the early 1970s and afterwards featured the incorporation of the issue concerning the constraint of a limit into discussions involving human development, but they did not cover the issue of the rights and interests of human development.

¹¹ Structural Approaches to Economic Development, including dual economic structure (W. A. Lewis, *Economic Development with Unlimited Supply of Labor*. In A. N. Agarwala & S. P. Singh (eds.), *The Economics of Underdevelopment*, Oxford University Press, 1958), the “big push” of structural transformation (P. N. Rosenstein-Rodan, *Notes on the Theory of the Big Push*. In H. S. Ellis (ed.), *Economic Development for Latin America*. St. Martin Press, 1966), the “holistic theory” of the social, political and institutional factors (G. Myrdal, *Economic Theory and Under-Developed Regions*, Methuen & Co. Ltd., 1963; G. Myrdal, *Political Economy and Institutional versus Conventional Economics*, In G. R. Feiwel (eds.), *Samuelson and Neoclassical Economics*, Boston: Kluwer Nijhoff Publishing, 1982).

¹² Ma Ying, *On the Institutional Thinking of Developmental Economics*, *The Journal of World Economy*, 2002 (4).

¹³ *The Club of Rome*, as the representative, stressed the physical limits to growth (D. H. Meadows, D. L. Meadows, J. Randers and W. W. Behrens III, *The Limits to Growth: a Report for the Club of Rome’s Project on the Predicament of Humanity*. London: Earth Island Ltd., 1972); Simon, as the representative, denied the restrictions of limits for economic development (Julian L. Simon and Herman Kahn (eds.), *The Resourceful Earth*. New York: Basil Blackwell Publishers, 1981).

In the mid-1980s, Sen considered the realization of social individuals' potential¹⁴ as the main content of welfare evaluation, and he believed that the situation of resource occupation would certainly affect the realization of individual potential. In 1987, the World Commission on the Environment and Development further defined the satisfaction of the current and future basic needs as sustainable development.¹⁵ In 1993, Dasgupta associated basic needs with moral power in human development.¹⁶ Human development is currently characterized by differences among individuals, groups or regions, but development aims at narrowing these differences so that the developmental potential of individuals or groups can be basically or fully realized. This developmental theory of post-welfarism,¹⁷ which underscores the quality of life and developmental rights and interests, does not merely focus on a single indicator—monetary income or economic growth; instead, it adopts multiple indicators to comprehensively measure human development. Dore and Mount believed that the welfare economics theory proposed by Sen was a “theory of justice”,¹⁸ and it centered on the concepts of right and potential.

According to the developmental outlook of post-welfarism, each social individual enjoys developmental rights and interests, including social, economic and political rights and interests. Dasgupta divided these rights and interests into two types of needs¹⁹: basic needs and needs for enjoyment. The former refers to the biological needs necessary for maintaining basic subsistence, covering nutrition, housing, environmental hygiene, medical treatment and health care, basic education and basic labor skills. The latter mainly means political and civil rights, mostly involving nonmaterial services relating to politics, society, laws, culture and art, such as the right to elect and the right to be elected, freedom of association and speech, personal safety and property security. The developmental outlook of post-welfarism recognizes the differences in human development but places more emphasis on narrowing the practical differences. Therefore, ethically, more weight should be given to the improvement of the living standard of the poor than that of the living standard of the rich. In other words, according to the developmental outlook of post-welfarism, if the improvement in the living standard of the poor below the poverty line is quantitatively equivalent to the decrease in the living standard of the rich, this should be deemed a social improvement. As shown, the developmental outlook of post-welfarism gives prominence not only to various rights and interests that have been realized but also to various potential rights and interests that social individuals may realize.

¹⁴ Capabilities. See A. K. Sen, *Commodities and Capabilities*. North-Holland, Amsterdam, 1985; A. K. Sen, *Inequality Reexamined*. Oxford: Clarendon Press, 1992.

¹⁵ WCED (World Commission on Environment and Development), *Our Common Future*. Oxford: Oxford University Press, p. 43.

¹⁶ Partha Dasgupta, *An Inquiry into Well-Being and Destitution*. Oxford: Clarendon Press, 1993, p. 44.

¹⁷ M. H. I. Dore and T. D. Mount, *Global Environmental Economics: Equity and the Limits to Markets*. Oxford: Black-Well Publishers, 1999, p. 24.

¹⁸ M. H. I. Dore and T. D. Mount, *Global Environmental Economics: Equity and the Limits to Markets*. Oxford: Black-Well Publishers, 1999, p. 22.

¹⁹ Partha Dasgupta, 1993, p. 40.

Obviously, the basic needs for human development are not unlimited. Nutritional requirements should be at a certain level, while excessive nutrition is harmful to the human body. A larger house is not necessarily better. The basic hygienic conditions can also be well defined. Of course, luxury or wasteful consumption is not a basic material need. Likewise, the individuals in social groups are bound by obligations in terms of nonmaterial political and civil rights and interests. Only when the “upper limit” for these rights and interests exists can a relatively objective metric be available for a mature or developed society, and only then can a direction and goal for development be identified for a developing or underdeveloped society. As the factors of human developmental rights and interests are relatively independent, a substitutional relationship or tradeoff does not necessarily exist among these factors. Income can improve health, but economic growth should not be achieved at the expense of health or life. Civil rights can be dealt with by monetary compensation, but neither involves a tradeoff. Moreover, political rights cannot be exchanged. Simply, human development is a right and an interest, for which neither substitution nor tradeoff is allowed at the marginal level. However, subject to the constraints of resources, it may be difficult for each member of society to fully realize the upper limit for human developmental rights and interests. Under such circumstances, first priority should be given to guaranteeing the basic needs and the political and economic rights and interests of socially disadvantaged groups or individuals rather than maximizing income.

The developmental outlook of post-welfarism takes various aspects of human development as rights and interests and focuses on the realization of the potential for human development. Unlike the developmental theory in neoclassical economics, the developmental theory of post-welfarism connotes the concept of the “limits” for development. Such “limits” include a lower limit and an upper limit. The lower limit is essential for the basic subsistence of human beings, while the upper limit indicates that social individuals and groups can be mature or “developed” or have such a potential for development. Subject to the constraints set by limited natural resources, each member of a social group enjoys the right to use them to realize their basic potential for development.

2.4 Differences and Resource Needs for Human Development

Which factors should be adopted to measure human development rights and interests since monetary income or economic growth cannot fully embody the connotation of human development? As early as 1954, experts from the United Nations suggested that in addition to per capita income, some physical indicators, including health, education, employment and housing, should also be used to evaluate the level of welfare and human development. However, such thinking was not put into practice.