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The Estimation of Macroeconomic Effects of Tax Cuts and Fee Reductions: An Analysis from the Perspective of Consumer Income and Expenditure

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Abstract: This paper analyses the macroeconomic effects of China's Tax Cuts and Fee Reduction policies (TC&FR) from the perspective of consumer income and expenditure. It combines factors such as local and central government, population structure and consumption, household savings and corporate investment. The paper then draws three conclusions: firstly, that China's TC&FR reforms have had significant effects; secondly, that the reforms have had a greater impact on the younger consumer group than on the older one; and thirdly, that the goal of multiplying fiscal effects can be achieved by expanding the proportion of middle-income groups. The continuous improvement of the legal taxation and fee collection mechanism has enhanced the governance level of local governments, enabling the policies to be implemented steadily and far-reaching. Secondly, the implementation of TC&FR should focus on the young consumer group and emphasize the protection of welfare for the elderly group. This will help to achieve the goal of multiplying fiscal effects by expanding the proportion of middle-income groups. Thirdly, the difference between China and Western countries lies in China's higher per capita willingness to save. Consequently, TC&FR can be expected to perform optimally when coupled with monetary policies designed to stabilize market investment expectations.

Keywords: Tax Cuts and Fee Reductions; Tax-sharing System; Marginal Propensity to Consume of Residents; Multiplier Effect.

1. Introduction

Since the term "*structural tax reduction*" was first proposed at the *central economic work conference* in 2008, China's tax cuts and fee reduction reform has gone through 15 years, roughly experiencing three stages—the structural tax reduction stage, the targeted tax reduction and universal fee reduction stage, and the combined tax and fee reduction stage [1]. The *2022 report on the work of the government* stated: "Over the past year, in view of the difficulties faced by businesses in their production and operations, the central government stepped up efforts to provide relief and support. The value-added tax credits refunded throughout the year exceeded CNY 2.4 trillion, newly introduced tax and fee cuts exceeded CNY 1 trillion, and over CNY 750 billion in taxes and fees were deferred. Over the past five years, tax and fee reductions have been fair, inclusive and highly efficient, with accumulated tax cuts totaling CNY 5.4 trillion and fee reductions amounting to CNY 2.8 trillion." The unprecedented scale of tax and fee reductions amounting to trillions of yuan not only highlights the central government's resolve in carrying out tax and fee reduction reforms, but also has profound impacts on China's macroeconomy.

Tax cuts and fee reductions are an important theoretical basis of *the supply-side economics*. The significance of the implementation of the policy of "tax cuts and fee reductions" lies in reducing the burden on enterprises, stabilizing the main players in the market, guarding the bottom line of the "Six Guarantees", and further incentivizing enterprises to achieve transformation and upgrading in the long term, enhancing their innovative capacity and realizing the high-quality development of the economy. Tax cuts and fee reductions are considered to be the main means of stimulating the economy, and according to *the supply-side economics*, "tax cuts and fee reductions" have an economic output effect and a fiscal balance effect. The economic output effect describes the impact of taxes on factors such as capital and labor, mainly from the supply-side perspective. In particular, a reduction in the marginal tax rate stimulates investment by firms, which increases the capital-labor ratio of firms' production. This, in turn, enhances firms' productivity and raises the potential output of firms. Concurrently, the reduction in marginal tax rates has the effect of reducing the production and operating costs of enterprises. By contrast, *tax cuts and fee reductions* has the effect of increasing the real income of workers, thereby stimulating an increase in the supply of labor, which in turn leads to an increase in the level of output. However, existing scholars have found that the impact of *tax cuts and fee reductions* on business investment is two-sided. The implementation of this policy of *tax cuts and fee reductions* in raising the level of social investment, helping to release production capacity at the same time also aggravated the debt burden of local governments, which in turn will adversely affect enterprises, mainly in two aspects: Firstly, the implementation of tax cuts and fee reductions to expand the social base of investment, including the government's investment, and the increase in government debt will increase the bank benchmark lending rate, thereby raising the cost of enterprise financing and crowding out part of the investment. Furthermore, there is a significant correlation between the impact of the tax cuts and fee reductions on enterprises and their financing constraints. Enterprises with more pronounced financing constraints tend to receive larger reductions in taxes and fees, while enterprises that face less severe constraints, particularly state-owned enterprises and centralized enterprises, receive comparatively smaller tax cuts and fee

reductions due to the existence of "implicit guarantees" and other factors [2]. In addition, the burden of public debt translates into a burden on enterprises and inhibits the increase of total factor productivity of enterprises, which is not conducive to economic and social development [3]. The fiscal balance effect of tax cuts and fee reductions is closely related to the *Laffer Curve*. The *Laffer Curve* illustrates that both high and low tax rates result in the same level of tax revenue, yet their respective effects vary over time. A high tax rate can result in an increase in fiscal revenue in the short term. However, it can also inhibit the supply of factors of production and harm economic growth. Conversely, a low tax rate will reduce the government's fiscal revenue in the short term. However, in the long term, it can cultivate the tax base, thereby achieving a long-term balance between the government's fiscal revenue and expenditure [4].

In addition, the implementation of tax cuts and fee reductions can also achieve the effect of easing the pressure of the macro price level rise, mainly through two aspects. Firstly, tax cuts and fee reductions can raise the real wage level of workers, thus increasing the supply of labor and thus the increase in social output. Secondly, the suppression of unproductive costs generated by the government's expansion of the group of commodities prices can ease the upward pressure on the price level. The *Phillips Curve* posits that inflation and unemployment exhibit an inverse relationship. This implies that both sets of mechanisms underlying inflation and unemployment assume that an increase in the supply of labor resulting from an increase in the level of real wages must increase social output. However, during an economic downturn, when effective demand is insufficient, an increase in the supply of labor will result in an imbalance in the structure of supply and demand, which in turn will give rise to the problem of unemployment. Despite studies indicating that *Okun's Law* has demonstrated "incompatibility" in China, with economic growth slowing while unemployment remains high, it is notable that since the onset of the Covid-19 pandemic, coupled with the "Russo-Ukrainian War" and other sudden changes in the international situation, the increase in the unemployment rate and the economic downturn align with the traditional *Okun's Law* inference [5]. The aforementioned circumstances can be attributed to the fact that the decline in consumer spending, particularly in the context of the overall economic downturn, has made it challenging for businesses to rapidly increase their investment, thereby creating a shortage of employment opportunities [6]. The tax cuts and fee reductions, as represented by the *individual income tax* cuts or free, have effectively increased the level of real disposable income of residents and the level of total social consumption, thereby achieving the goal of "economic growth through consumption-driven investment". The implementation of tax cuts and fee reductions, exemplified by the VAT reform, has contributed to the sustained growth of the economy by significantly reducing the industry's export entry and exit rates and effectively increasing the net export entry rate [8]. It is also important to note that tax cuts and fee reductions for exporting firms have the effect of increasing total factor productivity and output to some extent, but that they also have the effect of dampening *firm dynamics*. In contrast, fee reductions have the effect of enlivening *firm dynamics*, while significantly increasing firms' total factor productivity and output [7]. Consequently, the combination of tax cuts and fee reductions exerts a beneficial influence on export stability.

The academic literature on the macroeconomic effects of tax cuts and fee reductions is extensive, encompassing both theoretical and empirical analyses. These analyses examine the effects of tax cuts and fee reductions from both the demand side and the supply side. This paper seeks to provide a comprehensive analysis of the macroeconomic effects of tax cuts and fee reductions policies, with a particular focus on consumer income and expenditures. It aims to contribute to the existing body of research in this area by offering a novel perspective.

2. Macro Facts on Tax Cuts and Fee Reductions

2.1. China's Fiscal Revenues and the Level of the Macro Tax Burden

The policy of tax cuts and fee reductions was initially implemented in 2004 in select regions of China, including the northeast and central parts of the country. The results of this pilot program have been consistent with expectations. The global financial crisis that emerged in 2008 had a detrimental impact on the global economy, exerting a downward pressure on China's economy. In order to further expand domestic demand and stimulate the economy, the government introduced a series of measures, including fiscal policy, monetary policy, value-added tax (VAT) reform, and the expansion of infrastructural inputs, among others. On January 1, 2009, the government decided to push forward the reform of the value-added tax (VAT) transformation in full. Subsequently, the pilot *to replace the business tax with a value-added tax reform* in Shanghai was extended to the entire country. This marked the beginning of China's tax cuts and fee reductions reform, which has gradually evolved into a unified policy pattern of "double-pronged reduction of tax rates and tax base, and cross-matching of tax cuts and fee reductions."

In order to quantify the changes in China's macro tax revenue and the level of macro tax burden, this paper plots Figure 1 for analysis. The data presented in Figure 1 encompass the fluctuations in the country's fiscal revenues and their growth rates, as well as the evolution of the country's macro-tax burden in a small caliber. Figure 1 illustrates that the implementation of tax cuts and fee reductions, spearheaded by the VAT transition reform, has not reduced the level of China's macro tax burden in the short term. From 2011 to 2015, China's macro tax burden remained relatively stable, exhibiting minimal fluctuations. However, after 2015, there was a discernible downward trend in the macro tax burden level. In 2022, it was 5.27% lower than in 2015. Concurrently, it can be observed that as the economy expands, the overall fiscal revenue demonstrates an upward trajectory. However, the growth rate of fiscal revenue exhibits a downward trend, particularly since 2009, when the value-added tax (VAT) was transformed from a "production-oriented" to a "consumption-oriented" system, in addition to the implementation of a tax cuts and fee reductions policy, which significantly contributed to the acceleration of economic growth. In particular, the change from a "production-based" to a "consumption-based" value-added tax (VAT) in 2009 and the combination of tax cuts and fee reductions have stimulated economic growth to a significant degree, resulting in a notable increase in the level of fiscal revenues, which reached its peak in 2011. However, the impact of the global pandemic on China's fiscal revenue was

significant, with a decline in revenue in 2020 and a negative growth rate. This does not imply that the government's fiscal revenue was significantly affected by tax cuts and fee reductions. After controlling for the impact of epidemic shocks, we observe that China's fiscal revenues not only did not decline as expected from 2008 to 2019, but also exhibited growth in resilience, indicating the development of a robust tax base. The decline in the growth rate of fiscal revenue is a tangible manifestation of the impact of the tax cuts and fee reductions policy. Following a brief period of acceleration, fiscal revenue growth has essentially stabilized in the negative range around zero. This suggests that the implementation of China's tax cuts and fee reductions policy has been characterized by a preference for "stabilizing the overall situation and not being aggressive". As the epidemiological situation improves and the economy recovers, it can be anticipated that the level of China's macro-fiscal revenues will continue to rise.

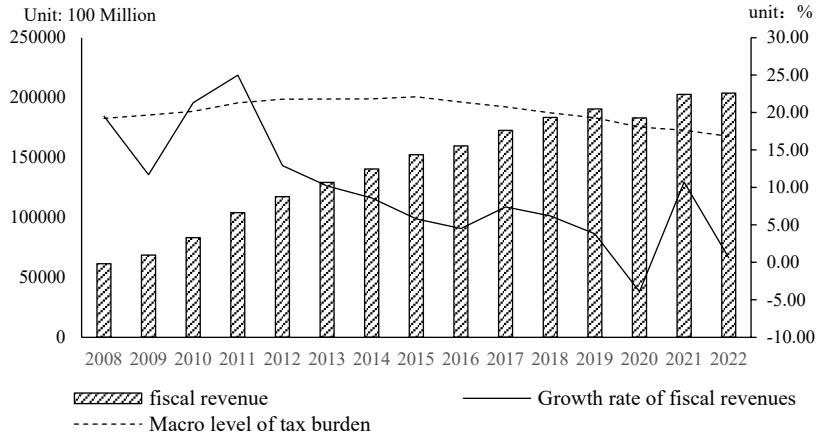

Fig 1. Fiscal revenues, growth and the level of the macro tax burden

2.2. Central and Local Fiscal Revenues and Growth Rates

The implementation of the *tax system reform* has greatly increased the financial independence of local governments from the central government. However, in the process of the tax cuts and fee reductions reform, the integration of the central government's finances and the exclusivity of the local finances may be accompanied by the implementation of the tax cuts and fee reductions, which may give rise to some unintended problems. The implementation of tax cuts and fee reductions has, on the one hand, expanded the *rent-seeking* space of local governments and raised the transaction costs of enterprises. On the other hand, it has increased local debt pressure and debt risk, which in turn has raised the cost of corporate financing and crowded out corporate investment. This is not conducive to the effective realization of the policy effect and thus undermines economic growth [2,4,9].

Figure 2 presents a summary of China's central and local fiscal revenues, along with their respective growth rates, from 2008 to the present. Figure 2 illustrates that central and local fiscal revenue have exhibited a relatively stable growth trajectory since 2011. In the sample interval, the growth rate of local fiscal revenue has consistently outpaced that of central fiscal revenue. The level of local fiscal revenue remained consistently higher than the rate of growth of central fiscal revenue, creating a "dispersion" trend in the image of central and local fiscal revenues. This indicates that the gap between central and local fiscal revenue may potentially widen. This phenomenon can be attributed to the impact of the *decentralization system* proposed by the central government, which has decentralized certain financial matters and administrative powers to local governments. This has resulted in an increase in the number of local government revenue items. The implementation of tax cuts and fee reductions has the effect of amplifying the effectiveness of enterprises and freeing up their capital, while simultaneously expanding the size of local governments. Furthermore, local government revenue is larger than central government revenue and exhibits a "diffusion" trend. This should also be noted in conjunction with the central government's tax cuts and fee reductions policy, which is intended to stimulate the economy and expand domestic demand. However, this will simultaneously result in an increasing pressure on the debt of local governments. Therefore, local governments, for whatever purpose, need to alleviate this pressure. This phenomenon is more prevalent in non-overcapacity, land-dependent firms and highly tax-elastic regions with low levels of fiscal self-sufficiency, rule of law, and government governance [3]. Accordingly, the intensification of local fiscal pressure will prompt the region (notably, due to its high tax elasticity) to further diminish tax and fee reductions, which is a far cry from the actual effect of tax cuts and fee reductions. In fact, this will result in a phenomenon known as the *Huangzongi Law*.

Furthermore, this paper presents the central fiscal expenditure as a percentage of central fiscal revenue, local fiscal expenditure as a percentage of local fiscal revenue, and the growth rate of the central and local expenditure shares in Figure 3. It is obvious that the local fiscal expenditures are not entirely financed by the local revenues. In addition, they are also supported by subsidies from the central government and by land rentals. The proportion of central financial expenditure remains stable within the sample range, while the proportion of local financial expenditure shows a U-shaped characteristic, initially decreasing and then increasing. The probable explanation for this phenomenon is that, on the one hand, tax cuts and fee reductions have resulted in enhanced productivity among firms and increased output, which in turn has led to higher revenues for local governments. This, in turn, has prompted a certain degree of expansion in the size of the government. The expansion of the size of the government not only raises the cost of financing for enterprises and crowds out investment, thus harming regional economic growth; it also raises the price of commodity groups and raises the macro price level, which in turn lowers the level of real wages

for labor, causing labor supply to fall and further harming regional economic growth.

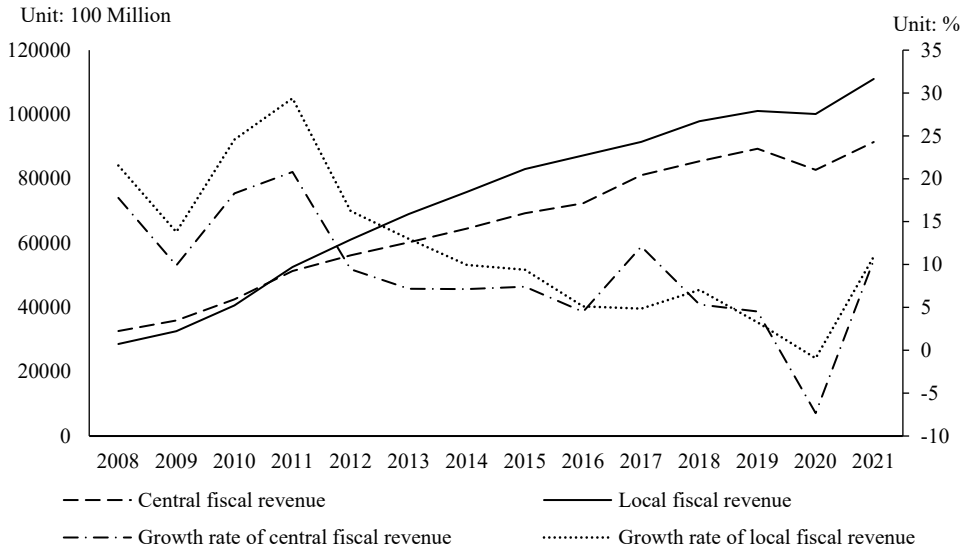

Fig 2. Central and local fiscal revenues and their growth rates

In addition, reductions exert pressure on government debt, prompting the government to reduce fiscal expenditure. As the economy develops and enterprises flourish, fiscal expenditure must be increased to achieve a "U"-shaped profile for local government expenditure. There was a notable discrepancy between the growth rates of local and central fiscal expenditures as a percentage of fiscal revenues in the period leading up to 2010. However, in recent years, there has been a convergence in the growth rates of these expenditures, with the gap narrowing. This indicates that the reform of China's tax law effectively constrains the abuse of local tax authority and improves the process of expenditure budget norms. Consequently, the central and local tax and expenditure management system is gradually unified, thus facilitating China's macroeconomic and tax reform to transcend the constraints of the *Huangzongi Law*, achieve the policy objectives, and realize the high-quality development of the economy.

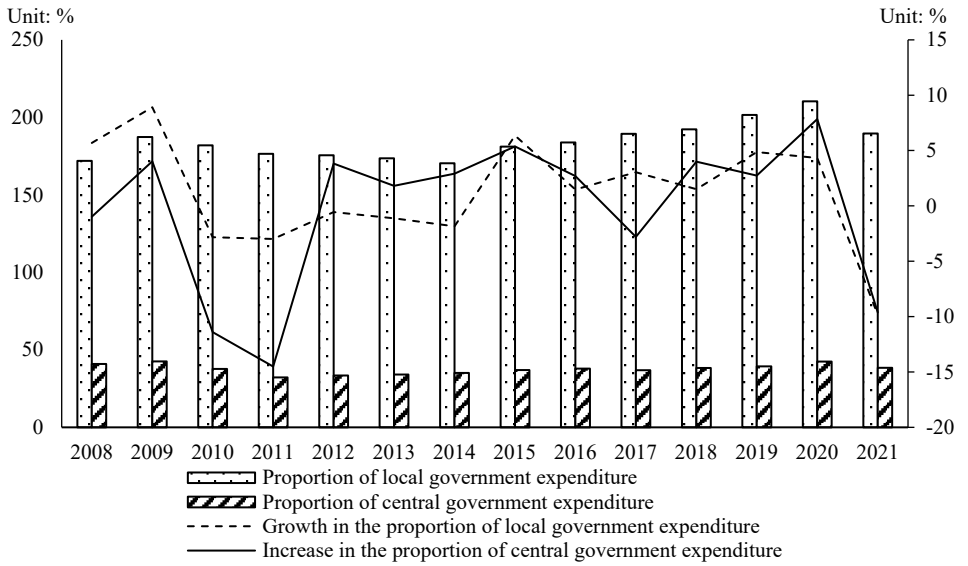

Fig 3. Percentage and growth rate of central and local fiscal expenditures

3. Demographics, Human Behavior and the Effects

3.1. The Impact of an Aging Population on Tax Cuts and Fee Reductions

Among the two sectors of the economy, the implementation of tax cuts and fee reductions, represented by the lowering of benchmarks for contributions to the Enterprise Social Security Fund and the raising of the starting point for individual income tax, has been highly effective in stimulating the short-term policy effects on consumption, investment, and thus economic growth. Firstly, the pressure on the flow of capital in enterprises has been effectively alleviated, with a concomitant reduction in production costs and an increase in the demand for labor by enterprises. Furthermore, a further increase in the capital-labor ratio has led to an enhancement in enterprise productivity, resulting in an increase in enterprise output and an expansion of the aggregate social supply. Secondly, the tax cuts and fee reductions resulting from the increase in personal disposable income, particularly in the household sector, are driven by *the*

income effect, which biases intertemporal consumption and investment choices towards current consumption. Furthermore, the *consumption multiplier effect* drives the economy towards achieving a multiplier growth. Concurrently, the implementation of prudent monetary policy should be predicated upon the expansion of the genuine supply of money within the market, thereby ensuring the prevention of interest rate increases and the consequent displacement of investment. However, in reality, product, factor, and money markets cannot exist independently of the external environment. Furthermore, changes in external macroeconomic conditions often make the implementation of policies less effective than anticipated. The impact of population aging on the implementation effect of tax cuts and fee reductions is a particularly illustrative example.

According to data released by the National Bureau of Statistics, China's natural population growth rate officially entered the negative growth phase in 2022. The issues of "population aging" and "decline of demographic dividend" have received widespread attention from scholars at home and abroad more than a decade ago or even earlier [10, 11, 12, 13, 20]. Social security fee reductions can reduce business costs and increase the level of labor mobility at the regional level. However, the demographic shift towards an older population is driving a similar shift in the composition of the corporate workforce. This is leading to a greater preference for the use of robots, automated equipment, and other forms of technology that can reduce the need for manual labor [14]. In addition, the policy effect of tax cuts and fee reductions is also age-heterogeneous among the population. Labor and capital tax cuts and fee reductions in the tax cuts and fee reductions policy raise the real disposable income of young people, which raises the level of young people's consumption and thus triggers inflation. This results in the consumption of older groups, whose main source of income is government pensions and benefits, being crowded out. The long-term effects of tax cuts and fee reductions are likely to be diminished by the process of deepening aging, which will have a negative impact on economic growth and result in a loss of social welfare [12]. The extension of the retirement age has significantly increased the average working life of employees in enterprises. However, in the event of an economic downturn, the creation of new jobs will be constrained to some extent, which may further exacerbate the unemployment problem. It is unlikely that tax cuts and fee reductions will be effective in stimulating economic growth in the context of long-term aging. This is because the level of actual GDP growth will be lower than the level of potential GDP growth. Furthermore, according to the conclusion of Okun's Law, the unemployment rate will rise. Should the statutory retirement age be further postponed on the grounds presented, it is inevitable that the demand for labor by enterprises will decline, and that the rotation cycle of jobs in China will be lengthened. This will further exacerbate the problem of unemployment. Fortunately, however, the problem of *Okun's Law* in China seems to be more prominent. Some scholars posit that the transfer of rural labor force in regulating the relationship between supply and demand in the labor market to stabilize the unemployment rate of urban labor force as a "reservoir" role [5, 15]. In order to analyze the time-varying characteristics of China's rural surplus labor force, this paper first examines the level of China's rural migrant labor force from the first quarter of 2013 to the first quarter of 2023. This data is plotted in Figure 4. It can be observed that, with the exception of the first quarter of 2020, which was significantly impacted by the global pandemic and resulted in a notable decline in labor mobility, the size of China's rural outworker labor force has exhibited a consistent upward and downward trend, fluctuating between approximately 170 million and 175 million. The number of outworkers has fluctuated between 175 million and 170 million, demonstrating a cyclical nature. Specifically, the number of outworkers counted in the second and third quarters has risen, while the number of outworkers counted in the fourth quarter and the first quarter of the following year has declined.

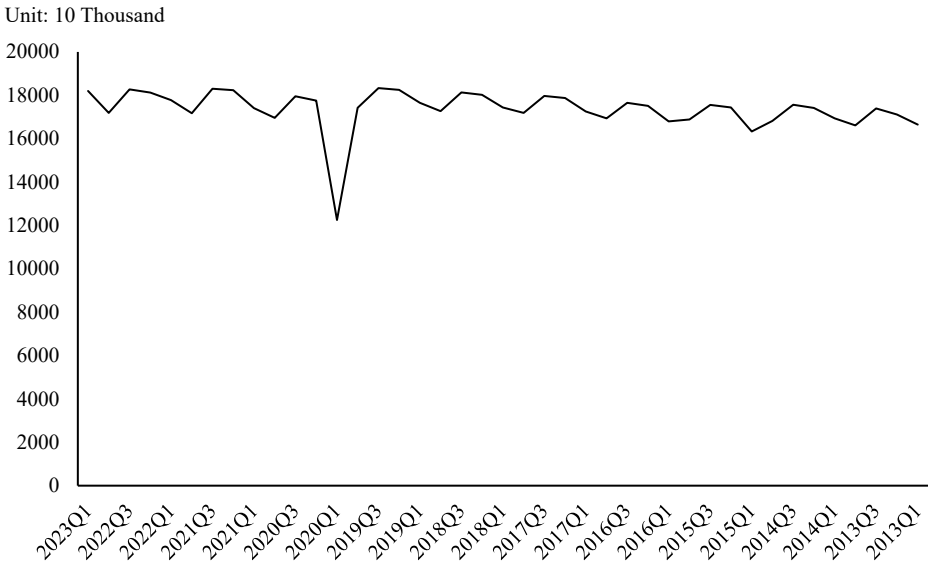

Fig 4. Rural outworker labor force

This phenomenon may be attributed to the fact that the statistical data of farmers working outside the home are standardized at six months. Moreover, the second and third quarters coincide with the rural spring plowing and summer harvest seasons, which may result in a decline in the number of laborers working outside the home in the fourth and first quarter of the following year in the statistical data. However, with regard to the sample interval, the proportion of China's

rural outworker labor force has exhibited a consistent upward trend, despite fluctuations, reflecting the sustained expansion of employment opportunities in China's urban and rural areas. The gradual reforms of tax cuts and fee reductions have led to an increase in the real wage level of the labor force. This, in turn, has resulted in a gradual increase in the supply of labor, which has contributed to a steady increase in both aggregate social supply and aggregate demand. Furthermore, equilibrium aggregate social output has risen, reaching a level closer to the point of social equilibrium at the present time.

3.2. The Impact of Consumption on the Effectiveness of Tax Cuts and Fee Reductions

Consumption is one of the three key drivers of the economy, along with investment and government spending. According to *Keynesian national income theory*, the equilibrium national income in a two-sector economy is determined by the sum of consumption and investment. Among these, consumption can be further divided into spontaneous and induced consumption. The latter is determined by residents' disposable income and *marginal propensity to consume*. The implementation of tax cuts and fee reductions has resulted in an increase in the disposable income of residents through a number of channels. Furthermore, the ongoing reforms to tax cuts and fee reductions have contributed to an improvement in people's confidence levels and raised their expectations for the future. Consequently, the likelihood of a negative impact of fiscal policy on residents' *marginal propensity to consume* has been significantly reduced [16].

This paper employs *Keynes's absolute income hypothesis* to analyze the provincial panel data on per capita disposable income and per capita consumption expenditure of China's 31 provinces, municipalities, or autonomous regions, as published by the National Bureau of Statistics (NBS) from 2008 to 2021. The *marginal propensity to consume* of China's residents is estimated by constructing a fixed effects model, and the econometric model is set as follows.

$$c_{pt} = \alpha_{pt} + \beta y_{pt} + \delta_p + \gamma_t + \varepsilon_{pt} \quad (1)$$

Where c_{pt} indicates the per capita consumption level of residents in year t of province p. The actual regression uses the per capita consumption expenditure of all residents ($AC, All\ Consumption$), the per capita consumption level of urban residents ($TC, Town\ Consumption$) and the per capita consumption level of rural residents ($RC, Rural\ Consumption$). y_{pt} indicates the level of disposable income of the population of province p in year t, including disposable income per capita for the whole population ($AY, All\ Yield$), disposable income per capita for urban residents ($TY, Town\ Yield$), and disposable income per capita for rural residents ($RY, Rural\ Yield$). δ_p denotes province-level fixed effects, γ_t denotes time-level fixed effects, α_{pt} is spontaneous consumption (intercept term), and ε_{pt} is the residual term. Descriptive statistics of the variables are shown in Table 1.

Table 1. Variables Descriptive Statistics

variable	mean	St d.	min	max	observation
AC	15340.160	7768.837	3927	48879	434
TC	19970.320	7731.919	8383	51295	434
RC	9349.274	4543.027	2374	27205	434
AY	21467.340	12067.85	5249	78027	434
TY	29190.150	12573.900	11413	82429	434
RY	11619.700	6125.584	2938	38521	434

The results of the benchmark regression are shown in Table 2. Column (1) presents the results of a regression analysis in which consumption expenditure per capita and disposable income per capita are employed as the explanatory and explanatory variables, respectively. Column (2) represents the result of a regression analysis in which urban per capita consumption expenditure is regressed on urban per capita disposable income. Column (3) presents the estimation results derived from the regression of consumption expenditure per rural resident on disposable income per rural resident. The estimation results indicate that *the marginal propensity to consume* of residents is 0.442 after controlling for time and province fixed effects. When *the marginal propensity to consume* of urban residents is considered separately, the estimated value drops slightly to 0.435. If the marginal propensity to consume of rural residents is considered separately, the estimated value rises to 0.535. The results of this heterogeneity estimation indicate that *the marginal propensity to consume* of residents in rural areas of China is greater than *the marginal propensity to consume* in urban areas. The proportionate increase in output driven by tax cuts and fee reductions, which stimulate consumption, can be roughly measured by a *consumption multiplier* calculated using the estimated *marginal propensity to consume*. From the *consumption multiplier* $k_c = 1/(1-\beta)$, it follows that if consumption increases by one unit, output will increase by a corresponding 1.792 units. In particular, the increase in consumption by urban residents led to an increase in output by a factor of 1.770, while the increase in consumption by rural residents led to an increase in output by a factor of 2.151. The level of output incentive effects of tax cuts and fee reductions can also be roughly measured by the *tax multiplier* of itself. From the *tax multiplier* $k_t = -\beta/(1-\beta)$, it follows that if taxes fall by 1 unit, there is a corresponding increase in output of 0.792 units, an increase of 0.770 units in towns and 1.151 units in rural areas. It can be observed that the policy impact of tax cuts and fee reductions implemented for rural residents is more favorable than that implemented for urban residents.

Table 2. Results of estimation of MPCT

	(1)	(2)	(3)
Explanatory Variable	AC	TC	RC
AY	0.442***		
	(0.021)		
TY		0.435***	
		(0.023)	
RY			0.535***
			(0.025)
province-level fixed effects	Yes	Yes	Yes
time-level fixed effects	Yes	Yes	Yes
Observations	434	434	434
R^2	0.994	0.992	0.987

Note: Robust standard errors in parentheses. *, **, *** indicate that the estimates are significant at the 10%, 5%, and 1% levels, respectively.

The data are further categorized by region into Western, Central, Eastern, and Northeastern regions, and the regression results are presented in Table 3. Where columns (1), (2), (3), and (4) show the regression results for Western, Central, Eastern, and Northeastern regions, respectively, controlling for both region and year fixed effects. As can be seen from Table 3, the most economically developed eastern region and the more backward western region have the smallest *marginal propensity to consume*, while the central region with a medium level of income has the highest *marginal propensity to consume*, which is consistent with the findings of existing literature [17]. Consequently, the primary objective of the implementation of the tax cuts and fee reductions policy should be the middle-income and below middle-income groups. The program is designed to expand the proportion of middle-income groups while simultaneously narrowing the income gap between different classes through government transfers. This not only enhances social equity but also increases socio-economic efficiency, thereby further enhancing the capacity for economic growth.

Tax cuts and fee reductions may not necessarily give rise to the "paradox of thrift" when stimulating consumption to achieve the policy objective of economic growth. The microeconomic structure of consumption is characterized by a fixed proportion of subsistence consumption, as macroeconomic regulation policies have limited impact on this aspect. The intertemporal choice of residents' consumption, whether to consume in the current period or to save in the current period and consume in the future, is contingent upon their individual preferences and expectations for the future. The implementation of tax cuts and fee reductions can be more effectively realized if they are fixed in the form of legislation, rather than being contingent on the transfer of human will. By basing tax and fee reductions on the law, residents can have greater expectations met, and the effects of the policy can be realized more consistently and comprehensively.

Table 3. MPCT of the population in the subregion

	(1)	(2)	(3)	(4)
Explanatory Variable	AC	AC	AC	AC
AY	0.468***	0.969***	0.391***	0.489***
	(0.133)	(0.102)	(0.025)	(0.016)
province-level fixed effects	Yes	Yes	Yes	Yes
time-level fixed effects	Yes	Yes	Yes	Yes
Observations	168	84	140	42
R^2	0.988	0.994	0.989	0.994

Note: Robust standard errors in parentheses. *, **, *** indicate that the estimates are significant at the 10%, 5%, and 1% levels, respectively.

4. Investment and the Effects of Tax Cuts and Fee Reductions

4.1. Household Sector Investment

Tax cuts and fee reductions have increased the level of real disposable income in the household sector through measures such as "VAT credits", "personal income tax refunds and reductions", and "reductions in the social security contribution base". The income disposition of the household sector can be divided into consumption and savings, which result from the transactional, speculative and precautionary motives of individuals. When the current level of interest rates is high, households choose to increase the proportion of savings based on trading motives and reduce their consumption and investment expenditures in the current

period, and to increase their investment in securities based on speculative motives and thus reduce the level of consumption. However, the precautionary income disposition of consumers does not change with the level of interest rates, but rather depends more on expectations about their health and the affordability of future surprises, or in other words, the level of social security is more critical in influencing the precautionary income disposition of consumers.

For most *normal goods*, consumers tend to increase what they buy due to the Income Effect. Therefore, increasing the disposable income of the population is an important aspect of increasing investment in the household sector. China's social security contributions are characterized by "regression," meaning that the lower the income of workers, the higher the actual share of contributions. The implementation of the "reduction of the social security contribution base" has alleviated the *liquidity constraints* of low-income households, increased the overall level of household consumption, and narrowed the income gap between low-income and middle- and high-income households [18]. While stimulating consumption to expand domestic demand, it also expands the proportion of middle-income groups, which are known to have a higher marginal propensity to consume, thus further expanding the effect of stimulating consumption and bringing the tax cuts and fee reductions policy into a virtuous circle.

4.2. Corporate Investment

Tax cuts and fee reductions affect corporate investment through two opposite mechanisms. On the one hand, tax cuts and fee reductions have released corporate liquidity, increased corporate productivity, and promoted corporate investment; on the other hand, tax cuts and fee reductions have raised the cost of corporate financing by increasing the debt burden of local governments, thereby crowding out corporate investment. Monetary policy can also have a big impact on investment. On the one hand, monetary policy affects the level of interest rates and thus investment through changes in the money supply; on the other hand, monetary policy affects the supply and demand for investment by influencing the real economy. Monetary policy also affects the price of fixed asset investment, and stabilizing the price index of fixed asset investment can provide a guarantee of continued fixed asset investment. The change in China's fixed asset investment price index from 2013 to 2019 is shown in Figure 5. As can be seen from Figure 5, China's fixed asset investment price index fluctuated more steadily between 2013 and 2016, and there was a significant jump in growth and increased volatility after 2016, which is not conducive to the stability and sustainability of long-term investment.

Tax cuts and fee reductions as a macro-fiscal policy, the effect of the role of the macroeconomic environment through the impact of the macroeconomic environment is quite deep, both to promote business investment, but also crowd out business investment. Monetary policy can link the demand side to the supply side by regulating the money supply. When there are supply-side phenomena, such as rising labor costs that inhibit labor supply and higher interest rates that increase liquidity constraints, an active monetary policy mix can make tax cuts and fee reductions more effective.

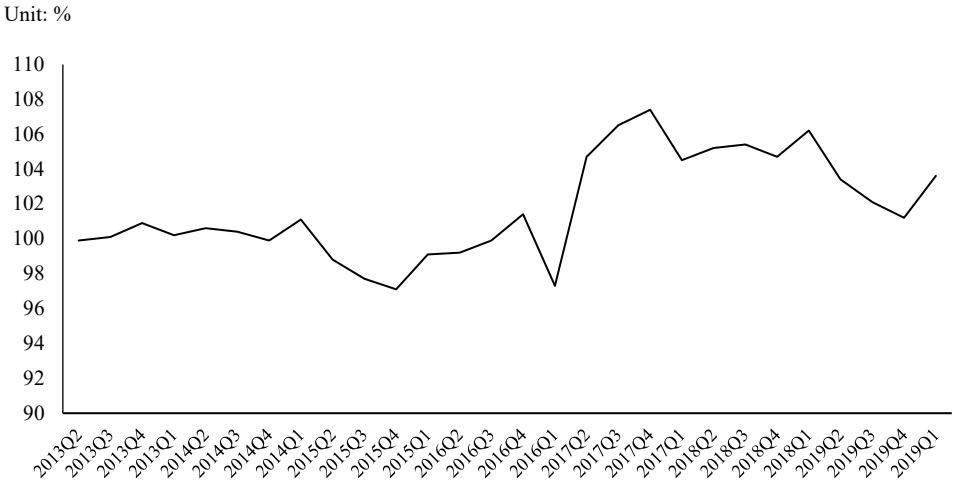

Fig 5. Trends in price indices for investment in fixed assets

5. Concluding Remarks

In order to expand domestic demand and stimulate the economy, the policy of tax cuts and fee reductions, as an expansionary fiscal policy, works in several ways and has significant effects. China, as a typical "saving" country, exhibits a flatter and longer *Keynesian zone* and *Intermediate zone* in its *LM curve*, as proposed by *New Keynesianism*, than those of typical Western countries. China's monetary policy is used more cautiously, unlike capitalist countries such as the United States, which has consistently raised interest rates in recent years, something that is virtually impossible in China. The softer *Intermediate zone* implies that implementing fiscal policy will not cause interest rates to change much in the short run. Moreover, China's tax cuts and fee reductions reform to take a gradual approach rather than radical approach like a flood. Even if there are negative factors such as "increasing pressure on local finances", "credit crowding out" and "demographic impact on the policy effect", the pace of reform "in a small stream and a long one" can correct and rectify the negative impacts at the same time of gradually achieving the policy effect.

This paper analyzes the macroeconomic effects of China's tax cuts and fee reductions policy from the perspectives of consumer income and expenditure, combining China's local and central, demographic and consumption, household

savings and enterprise investment, and draws the following conclusions. First of all, China's tax cuts and fee reductions reform effect is remarkable, the continuous improvement of the mechanism of tax and fee reductions in accordance with the law, improve the level of governance of local government, so that the effect of the policy is more stable and far-reaching. Second, the implementation of tax cuts and fee reductions policy should focus on the youth consumer group, while paying attention to maintaining the welfare of the elderly group. The objective of multiplying fiscal effects can be more readily achieved by increasing the proportion of middle-income groups. Finally, China's economic system differs from those of Western countries in that it exhibits a relatively higher per capita willingness to save. Consequently, the tax reduction and fee reduction policies are able to play an ideal role, but they also need to be combined with monetary policies to stabilize market investment expectations.

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