Fiscal Stimulus to Mitigate Economic Slowdown in China

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Abstract

The thesis aims at introducing a new try to evaluate the feasibility of the Chinese decision in launching fiscal stimulus package of 4 trillion Yuan in 2008-2009 on economic growth and debt positions of the central and local governments. The difficulties in accessing the necessary data led to use "Bucket Approach Model" to estimate the fiscal multipliers size's impact and their persistency on provincial level, because of the beliefs that the national fiscal multiplier is neither sufficient to reflect the real impact of the package nor uncover the way of optimal distribution of the package' sources among the provinces. The thesis tried to shed the light on the progress of economic and fiscal indicators development since 1978, the date of transition from central planned to market. Main hypothesis of this dissertation was that, the decision of conducting fiscal stimulus package in 2008-2009 was correct and entailed significant expansionary impact on economic growth without harming the fiscal stance of the central and local governments. But the findings showed partial agreement of this hypothesis, in short term, first two years of implementing the package, the growth rate increased significantly, and it is assumed according to our model that the package contributed in significant part of it, but on the medium and long term the positive impact of the package was limited and died out quickly, in addition to uprising the risk of local government off balance loans in the balance sheets of local governments. For this reason, ignoring the priority of starting adjustment fiscal policy could lead to serious threats of the economic and financial stability of the economic regime in China.

Key words: Fiscal stimulus package, discretionary vs non-discretionary fiscal policy, fiscal multiplier.

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List of Abbreviations

IMF: International Monetary Fund.

FDI: Foreign Direct Investment.

TVEs: Towner Villages Enterprises

VAT: Value Added Tax

SOEs: State owned Enterprises

NBS: National Bureau of Statistics of China

CIER: China Institute for Employment Research

WMP: Wealth Management Products

Introduction

Fiscal stimulus package was used as unavoidable tool to smooth out the economic growth slowdown in China in 2008, after exhausting all the monetary policy's tools. Growth rate declined to less than 10% in 2008 compared to 14% in 2007. Further structural reforms were postponed because of the beliefs that the symptoms of the growth decline were cyclical rather than structural. Indeed, the growth during the implementation of the fiscal stimulus package increased quickly in 2010 to double digit, but it did not last for long time. Growth declined rapidly after 2010 and reached its lowest level in 25 years below 7% in 2016. Such evidences raised the problem of this dissertation, whether launching the fiscal stimulus package had positive significant impact on economic growth compared to its cost on fiscal positions of the central and local and governments.

In order to answer this question, we introduced in the first two chapters an overview of the development of some economic indicators since transition to market in 1978 and the most imbalances which faced the economy in time of launching the fiscal package. Then we presented a concept of the discretionary vs non - discretionary fiscal policy according to two school: Keynesian vs Ricardian and the common approaches of estimating the fiscal multiplier, which is considered an optimal indicator to evaluate the efficacy of the discretionary fiscal policy. Eventually, in the third chapter, we started by conducting a non parametric analysis of the fiscal reform in China and the development of the fiscal indicators before, during and after launching the stimulus fiscal package. Such analysis was necessary in order to understand the context of conducting the stimulus fiscal package. For the sake of answering the dissertation's main question, we estimated the fiscal multipliers size's impacts on provincial level instead of national level by using "Bucket Approach Model". Main hypothesis of the dissertation was that the decision of

conducting fiscal stimulus package was necessary and entailed expansionary impact on economic growth without harming the fiscal stance of the central and local governments. But the findings showed partial agreement of this hypothesis, in the short term of implementing the fiscal package, the growth rate increased significantly, but on the medium and long term the positive impact of the package was limited and died out quickly, in addition to uprising the risk of local government off balance loans in the balance sheets of local governments. For this reason, ignoring the priority of starting adjustment fiscal policy could lead to serious threats of the economic and financial stability of the economic regime in China.

Chinese fiscal stimulus package is very rich and challenging topic, due to the difficulties in accessing reliable data and the diversity in analytical tools. This dissertation could be developed by adjusting the results of Bucket Approach Model by reaching an accurate numbers of the distribution of the fiscal stimulus package among Chinese provinces, and among the economic sectors, since such data would improve the quality of our estimation of the size's impact of the fiscal multipliers and persistency of the provincial and national fiscal multipliers.

Chapter 1. The fiscal reform in China in perspective of transitioning toward market economy.

1.1 Chinese economy after decades of transitioning from command to market economy.

Since 1978, China made tremendous changes in the structure of its economy. Today It is not any more command economy but closer to a special kind of market economy (*Chinese call it Social market*)[1]. Even if the characteristics of its economic model is not well identified until now, but as Deng Xiao Ping said "It doesn't matter whether a cat is white or black, as long as it catches mice**.***"*[2] According to Ding's pragmatism doctrine, it is not a matter what the ideology is that determines the frame of the economic system whether it is capitalism, socialist system or any combination of both. What is important, which system achieves the economic growth and development regardless of its name. Deng realized that being isolated from the global economy will not be useful in restoring the pride, dignity and wealth of Chinese nation, neither nor it will achieve the goal of catching up with the advanced economies in the level development[3]**.**

Deng's strategy was distinguished from the promoted transition strategy (Shock Therapy) by the international organization such as World bank and IMF, he adapted a gradual approach in transitioning from command economy to market. This strategy was built based on the Chinese initial conditions and this was main reason of its success. For example, the transition strategy

1 Arvind, Virmani, "***CHINA'S SOCIALIST MARKET ECONOMY: Lessons for Democratic Developing Countries!"***, planning commission", (Working Paper No. 5/2006-PC, June 2006), p2.

2 *Yitzhak , Shichor,"**China and the Middle East**",* Testimony before the U.S.-China Economic and Security Review Commission",(2013), p 4, available online: https://www.uscc.gov/sites/default/files/SHICHOR_testimony.pdf

3 Yitzhak , Shichor***,"China and the Middle East***", p4.

started from agriculture sector which was the core sector in China and accommodated a huge share of labor force, then moved toward opening up trade sector by establishing free economic zones and replacing the protectionist policies with more market based ones. After that, reforming the industrial and service sectors took place in parallel with significant liberalization procedures such as gradual elimination of the planned prices, fixed exchange rate and the fixed interest rate etc [4]. Moreover, Beng's framed the reforms strategy in a thoughtful manner to solve the most urgent issues such as the shortage in food, Starvations threat, poverty, and the rigidity in growth and productivity etc. Gradualism approach in transition to market played crucial factor in increasing the citizens supports for the market reforms compared to other countries which preferred the shock therapy in transition and faced massive opposition from the citizens.

Deng believed in the necessity of concentrating the reforms on raising economic growth at the early stage of transition even if it caused some disparities in the benefits among regions and social classes which would be treated after boosting high economic growth[5].

The structural reforms prevailed almost all the economic sectors through different speeds. The private sector became gradually a crucial player in the new market system in China. Furthermore, the institutions and policy in China developed more effective market friendly tools (monetary, fiscal and income redistribution policies) to intervene in the market. Clearly Chinese economic model today is totally different from the planned economy which prevailed during 1949 - 1978.

[4] Justin, Yifu lin," ***China and global economy***", Remarks at the 20 Anniversary of the University of Science and Technology, 2011, http://siteresources.worldbank.org/DEC/Resources/UST-Justin-Lin-Hongkong.pdf

[5] Barry, Naughton, "***The Chinese Economy, Transition And Growth***", (The MIT press, Cambridge , Massachusetts, London, England, (2006), p6.

It is not the purpose of this research to dive in the transition strategy's details, but it is reasonable to overview quickly to the achievements of this important era in the contemporaneous history of China because of its necessity in analyzing the role of fiscal policy in Smoothing out the recent great depression impacts on Chinese economy:

1. **Degree of openness**: China economic today is more opened to the global market compare to what it had been before 1978. In spite of this noticeable progress in the liberalization steps towards market, but China still occupies a low ranking in economic freedom indicators. Its score on the 2016 reports of economic freedom was 52 point, and 144th among the world economies[6]. **The report praised the trade freedom, while showed concerns about Property Rights, Corruption, and Labor Freedom.**
2. **Size of the economy:** China passed Japan in 2014 to become the second largest economy after USA. In this year, China's GDP was estimated by 11.3 trillion USD dollar versus 18.5 trillion USD dollar for USA based on nominal measures, and the **largest economy** with 17.6 trillion USD dollar according to PPP measures. World bank predicted China's GDP to expand to 23 trillion US$ in 2017, compared to 19.4 trillion US $ for USA[7]**.**
3. **China's role in the FDI Flows**: Currently, China is considered the largest recipients of Global FDI. It received around 128 billion USD dollar in 2014, then Hong Kong 111 billion USD dollar, and then USA with 86 billion USD dollar. In addition, its role in out _flow of FDI and investing abroad increased sharply to 116 billion USD dollar in 2014 compared to less than 1

[6] Klaus, Schwab, "***The Globl Competitiveness Report 2016-2017",*** (World Economic Forum, 2017) http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf

[7] World bank official website, China, US Data Profiles, World bank websitehttps://data.worldbank.org/indicator/FR.INR.LEND?locations=CN

billion USD dollar in 2000. In 2016 FDI outflow exceeded the inflow for the first time and became the 3rd source of FDI and 3rd recipient for FDI [8].

4. **Manufacturer of the world:** China had passed japan in 2006 - 2007 to become the second largest manufacturer in the world. In 2014 it passed US to become the largest manufacturer in the world. In 2014, its gross added value in manufacturing exceeded US by 24% on average[9].

5. **Biggest Trader in the world:** China today is also considered a major trader in the world, its share of the world exports increased from 1.8% in 1990 to around 14% in 2015. Moreover, China accumulated a significant and sustainable Trade balance surplus during 2000 - 2014 (After joining WTO). It reached to 678 billion US $ in 2015 compared to less than 25 billion US $ in 2003 in spit of the negative impact of the great recession of 2008 on the global demand[10].

Therefor, according to Fareed Zakaria, China today is major player in the global economy which is "too big to hide"[11], thanks to high and long term economic growth. Average GDP growth in China was estimated by 9.9% on average during 1978 - 2011[12]. Unfortunately, this flourished image changed since the eruption of the global financial crisis of 2008, where the economic growth

[8] Wayne , *M.* Morrison, ***"China's Economic Conditions",*** CRS Report for Congress , Prepared for Members and Committees of Congress, 2017, p15.

[9] Wayne , *M.* Morrison, "***China's Economic Conditions***", IBID, p11.

[10] IBID, p21.

[11] *Ronald , Coase; ning, Wang,"**China's Road to Capitalism How China Became Capitalist ", (PANOECONOMICUS, 2013, 6, pp. 837-845, Received: 03 November (2013),* p1.

[12] *World bank official website, China Data Profile, World bank websitehttps://data.worldbank.org/indicator/FR.INR.LEND?locations=CN*

started to slow down rapidly. In this context GDP growth reached 6.9% in 2015, which considered the lowest level of growth in 25 years[13]**.** Two interpretation arose to explain this sharp and quick deteriorating in economic growth. The official one saw that the elements which generated the growth (investment - export) would still be supportive in the long term and the recent declining trend of the growth rate is just cyclical phenomena, for this reason the countercyclical economic policy (stimulus fiscal package 2008, easing monetary policy) should be sufficient to restore the solid high growth rate and there are no needs for an urgent structural reforms. On the contrary, the other team insisted on the necessity for conducting structural changes in the growth model of China by gradual transition from extensive economic growth to intensive one, from export investments driven growth to consumption service based growth. The structural reforms might not be desired by the governments right now for political reasons. Another argument by the 2nd team was that the growth pattern of China could be restored temporarily in the short term by conducting the countercyclical policies without structural reform's but not in the long term because of the cost of the long term accumulation of the internal and external imbalances would become higher and more painful[14]**.**

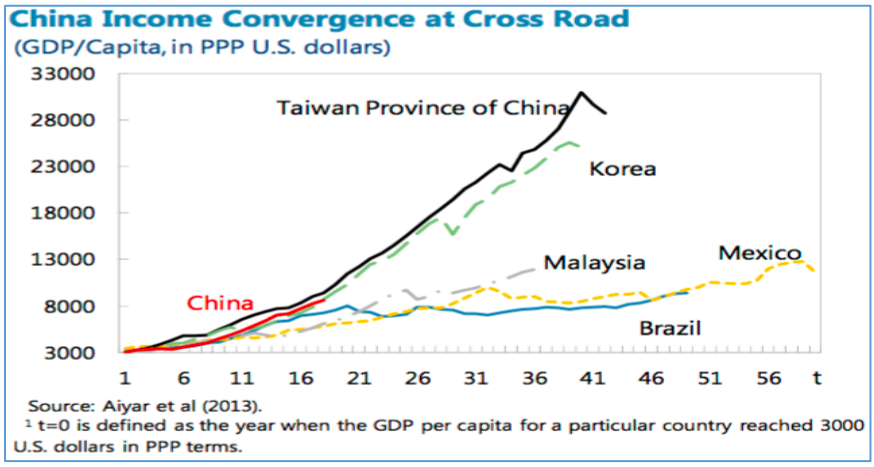
Indeed, Chinese economy kept the direct impact of the Global financial crisis under control. In spite of the declining in its GDP growth in 2009 to lower than 7%, it restored its high level above 9% quickly in 2009 thanks to the countercyclical monetary and discretionary fiscal policy. But it seems that the impact of these efforts were short and exacerbated the inherited imbalances in the economy. After that the growth since 2010 started to decline continuously in parallel with

[13] *World bank official website, China Data Profile, World bank websitehttps://data.worldbank.org/indicator/FR.INR.LEND?locations=CN.*

[14] Ettore , Dorrucci ; Pula , Gabor ; and Santa, bárbara , "**China's economic growth and imbalances** ", European central bank, occasional series paper, No 142, (2013) p 5.

government promises to start brave reforms steps to rebalance the economic structure and stimulate moderate and sustainable economic growth.

The traditional economic growth model in China reached its limits, and ignoring the needs for new take off toward new stage of reforms to transform the economy into more modern economy with high dependency in the long term growth source factor otherwise the risks of falling into what is known by "Middle Income Trap "is possible. This was the scenario for many economies which failed in transforming their economy from the old model of growth source factor (export - extensive investments drivers) toward modern and more efficient economy (economic of knowledge) where the growth depends more on (TFP, and services instead of traditional industries) as main driver for growth. The results were stagnating economic growth, increasing the internal and external imbalances like (debt accumulation, overcapacity in investments, lower productivity etc. this was the case of Malaysia, Brazil and Mexico years ago, while South Korea succeeded in the transition and moved toward high income economies (see the figure 1) [15].



[15] Ettore , Dorrucci,; Pula , Gabor ; and Santa , bárbara, "***China's economic growth and imbalances*** ", 2013, p 6.

Figure 1 China GDP per capita in PPP convergence path, Source: Zhang, Longmei (2016)" Rebalancing in China—Progress and Prospects" , IMF Working Paper , p 3

After the crises the tune of Chinese government speeches shifted slowly to accept the fact that it is impossible to achieve high and sustained economic growth forever, especially that the diagnostic analysis of the era of high economic growth (heated economy) was accompanied by high costs and imbalances in many macro economic indicators. Today Chinese economy faces many internal and external imbalances, large current and capital account surplus (Twin Surplus), large aggregate debt/GDP, skyrocketing in the local governments debt level, excessive dependence on export and investment in driving the economic growth, insufficient consumption and local demand, high saving rates, large inefficient state monopolies, financial repression, aging population, inequality between rural and urban area, inequality in labor income and capital income, and increasing expectation of citizen in parallel with higher opening up[16].

[16] Gregory, C. Chow; Dwight , H. Perkins, "***The Centrally Planned Command Economy (1949–84) from: Routledge Handbook of the Chinese Economy Routledge***", (Routledge, 2014), p 165. Available online: https://www.routledgehandbooks.com/doi/10.4324/9781315767475.ch3

Imbalances	Indicators	Advantages	Risks	Proposed solutions
Limitation of traditional sources of growth	Capital accumulation contributed to more than 50% of the total growth in the period 2000-2012, while the TFP's contribution improved on the expense of the labor contribution which decreased as a results of population aging. In other words Traditional sources of growth(capital, labor) which led the growth in China during transition and continued even after the 2008 crisis.	investment contribution of the GDP was on average 45% of the GDP (2000-2012), financed by high domestic saving 50% on average during transition. In my opinion this could be useful in the short term but in the long term would undergo to the diminishing return's law. Quality of the investment today is more important than size of investment in determining the returns of any investment.	Overcapacity in the investment (especially labor intensive industries) and diminishing return on investment, wasting resources especially in the fields that are dominated by SOEs which less productive and loss maker in general. Traditional field of investment could suffer from bottleneck problem and lead to more misallocation in resources.	High Quality of investment is more important that size. So I recommend Chinese government to shift its interest from the extensive investment policy to intensive investment policy, with more attention to modern and high quality projects for instance developing modern and high technology infrastructure which could stimulate the innovation and services industries. This goal requires structural reforms and further market reform and bigger role of private sector.
Current account surplus	It is unusual but China has surpluses in both current account (10% in 2007 and declined to 3% in 2015), and capital account which also shifted to be negative in 2014-2015 for the first time since 2000, because of cyclical conditions of the international capital market flows and countercyclical policy[17].	China aimed to keep surpluses in both current and capital account to form a protective line against external shocks.	China's twin surpluses imply high costs, since most of these amounts used to be invested in (US treasury) with low return rather than investing them in the domestic economy, even though the per capita ratio in China is still low and the return on investment in China is between 22- 33%, higher than 3 % return on US treasury.	Decreasing the twin surpluses by encouraging the consumption role in economy and consumer's autonomy are necessary and desired but that also requires other structural reforms such as more flexible exchange rate, interest rate and higher degree of capital account liberalization. Brave structural reforms in fiscal sector, and financial and trade policies would help in maximizing the benefits of more opening up and reduce the costs.
Saving puzzle	China 's saving to GDP ratio is around 50% on average during the last 15 years, this exceeds the international standard. The household saving Is the largest with 25% in 2012, driven by (constraint on household credit access, inefficiency in social network services, one child policy, ageing problem, and cultural reasons), then the corporate saving with range between 15-18% (no dividends policy especially in SOEs, uneven access to credit by non SOEs, and lower wage bill), finally the public saving increased sharply since 2002 (increase in revenue allocation)but still its contribution is the lowest[18]	Cheap sources of funding for investments, higher competitive advantages for export, protective line against any external shocks, control inflation.	Misallocation of resources, high opportunity cost of saving. Distorting the impact of the countercyclical fiscal and monetary policies.	Transition toward consumption-based economy requires reducing the investment, and that entails reducing the saving propensity, this could be incited by government policies (improving the social network services, lowering the burden on the citizen, increasing the disposable income, encouraging the consumption credit by financial institution)

[17] Semon, Tylor, "China's balance of payments: current and capital accounts now pulling in different directions", (2012) http://www.simontaylorsblog.com/2012/09/18/chinas-balance-of-payments-current-and-capital-accounts-now-pulling-in-different-directions/.

[18] Yang, Dennis Tao and Zhang, Junsen and Zhou, Shaojie, Why are Saving Rates so High in China? (February 2011). NBER Working Paper Series, Vol. w16771, pp. -, 2011. Available at SSRN: https://ssrn.com/abstract=1759843

	.transition paper reference			
Financial repression	Over regulated financial sector, dominated by State for example China financial system has Controlled interest rate and restricted credit policy, administrated reserve requirements , barriers on exit and entry from/ to market, large State ownership in banking system in addition to highly restricted capital account.	Cheap credit was policy rather than reflection of the market conditions in China during transition era, in purpose of fueling the investments and developing industrial sector, increase the competitiveness of the export oriented firm's. Maybe it helped in stabilizing the financial sector versus many external shocks, but it also accumulated imbalances in the economy. One more reasons could be keeping the inflation controlled in parallel with the pressure of hug amount of FDI inflows and surpluses in current and capital accounts.	Distortion the market competition rule represented by guaranteeing an equal access to credit, and so on in credit allocation. SOES benefited from the state monopoly of the financial sector in accessing cheap loans and credits compared with the private sector which faced difficulties. Misallocation of resources was a result of such policy.	Full but gradual liberalizing of fiscal and financial sector through reforming the mechanism of setting the interest rate on market basis and according to money demand and supply (steps happened in October 2015 in this way). Moreover starting by cautious liberalization of capital account in parallel with careful reform steps toward more flexible exchange rate Postponing Further market reforms and setting efficient regulation which reconcile between market and regulator goals could deepened the imbalances and threats the financial and economic stability[19].
Reserve of foreign currency	China accumulated hug amount of FX reserve, it reached 3.8 bn US$ in 2014 in spit of the high cost of the recent people bank of China's intervention policy in FX markets to support the YUAN's value. This amount is approximately equal to 22 month of imports and that exceed the international standard (6 month)**[20].** That referred to Chinese policy which imposed high restriction on FX outflows for firms, and households, for example still China set a cap on the maximum amount of transfers for the household by 50000$ per year, beside the high restrictions on portfolios flows[21]	Large FX currency reserve forms a buffer which help in absorbing potential financial shocks, as it also could be useful in supporting the development process by covering the cost of imports and external investments which serve the purposes of development.	Additional unemployed and wasted resources. Increasing the vulnerability of this reserve to the risks of any changes in the external economic conditions in the hosted markets (deteriorating in foreign currency value, lowering interest rate of the international currencies, sovereignty risks).	Investing the extra portion of the reserves in profitable projects inside China or as FDI abroad either by public sector or preferably by private sector through easing lending conditions. Another path of investing this resources is outside China in projects that could support developments in China. Also it could be used in developing the marginalized region where still the return on investment is higher than the developed regions, and accelerating the effort to reduce regional development gap.

[19] IMF staff, "The people's republic of China , ARTICLE IV CONSULTATION—PRESS RELEASE; STAFF REPORT; AND STATEMENT BY THE EXECUTIVE DIRECTOR FOR THE PEOPLE'S REPUBLIC OF CHINA", IMF Country Report No. 16/270, August 2016.

[20] Zhang, longemi," Rebalancing in China—Progress and Prospects ", IMF Working Paper, 2016 , Asia and Pacific Department.

[21] Hatzvi, Eden; Meredith, Jessica, Nixon, William- 2015" Chinese Capital Flows and Capital Account Liberalisation, p42-43

"https://www.rba.gov.au/publications/bulletin/2015/dec/pdf/bu-1215-5.pdf

Rural/ Urban developments disparities	The average level of Urbanization exceeded 50% in 2011, higher by 30% than the global average. And China is still concentrating on accelerating the urbanization ratio as a main goals of its strategy to rebalance the development level in whole China.	It is useful in accelerating the speed of transition from agrarian economies in rural areas to industrial what pushes the development forward in the less developed area's, but I believe that the coming strategy should imply developing service sector in parallel with industrialization in order to modernize synchronistic economy.	The development's gap still big between the regions in China (Coastal cities vs central and internal regions), also the risks on the peasant who are not able to move from land to factories. Other benefit it would reduce the immigration to the urban area's	Developing the infrastructures, social services comprehensive coverage, and improving the investment climate for domestic and foreign investors.
Consumption vs investments contribution of Growth	As we mentioned China has high saving/ investment ratio to GDP, as well as the consumption contribution to GDP was between 40-48% during 2000-2015, and this ratio is lower than the normal international standards for advanced economies (60%-70%).	Enhancing the consumption contribution in growth would reduce the vulnerability of the Chinese economy to the external demand shocks by rebalancing the source of growth from being highly dependent on the exports to be more dependent on domestic demand (especially household consumption). Also encouraging the consumption implies improving the standard living of citizens, and their negotiating power.	Inflationary risks on the long run, since the transition toward consumption based economy requires expansionary fiscal and credit policy which might entail long term inflationary risks if the adjustments policies were ignored. On the other hand, Chinese enjoy less standards of living and have less consumer autonomy as in the developed economy, what constraint the domestic demand to play significant role in economic growth.	Improve the quality of social service and deliver it for the remote area's, affording higher burden of cost by the government would increase disposal income and so on consumption. Easing the household – consumption credit policy, increasing minimum wages, reduce income tax, Flexibles exchange rate to encourage imports etc.
Industries vs services	China's rapid economic growth during the previous stages was based on developing industrial sector, and its share of GDP was estimated by 46%, which is still behind the contribution of the service sector in the advanced economy, and China's was supposed to give more interest to develop service sector's contribution of GDP in order to support the effort of transforming its economy to more consumption based.	Developing the service sector in the economy is necessary for China in the long term if China want to move one step up to be developed economy and avoid the MIT. Service sector has unlimited growth opportunity since its factor of production undeletable in different with industrial sector which still depend on traditional factor of production. China could develop its role in the Global Value chains and move from importing high tech to settle it domestically.	Overcapacity in many industries (steel, coal etc) lower return on investment, as a results of less efficient investment. Risk of structural unemployment's which could arise if the alternative accommodation policy did not take a place.	Eliminating the restrictions on labor movement among sector and regions to allow for more efficient usage of labor surplus. Assuring the fair competition in accessing financial resources. Developing solid intellectual property right framework, support R&D field etc[22]. Moreover redistribution the investment 's budget elements to develop modernized infrastructure which match the needs of service sector growing.
Income distribution	Gini index for income disparities stand on high level 0.49 in 2010, then decreased to 0.47in 2014 due to expansionary fiscal policy which improved social safety net. But still the gap is significant between the classes and among rural and urban regions. In this	-	It could threat the political and economic stability anytime. And discourage the productivity and incentives to work in the rural area's while it could also lead to an increasing in the immigration waves into the	Developing the rural area, modernizing the agriculture sector and increasing its productivity, improving the public service in rural, remote areas, for instance the social safety net

[22] Molnar, Margit; Westmore, Ben and others, (2015), "OECD Economic survey China, 2015 overview, p29" http://www.oecd.org/eco/surveys/China-2015-overview.pdf

	context the wage in rural area's form 1/3 of the wage In urban area's[23].		urban area's and increase the stress on their capacity to accommodate such scenario which already existed.	covers only around 65% of rural residence. And many other step that could reduce the differences.
Environmental responsibilities	China is considered one of the largest countries in term of the contribution to environment pollution either by carbon emission or local air pollution. Of course due to rapid growth and extensive industrialization development in the transition period.	No clear advantages, except the cost of traditional source of energy (oil, coal), industrial materials (steel, copper, etc.) could be cheaper than the alternative right now but costlier in terms of environmental bill which is now considered main element of total cost of production which should be noticed.	Transition toward more friendly industries carries potential increasing in the cost of production, but in the short term, on long term it could be cost saving transition in production style.	New environmental protection and resource tax laws; carbon emission trading scheme (expected to be introduced in 2017) Raising factor input costs (such as energy, land, and water), including through taxation, will help rationalize investment, especially in energy-intensive sectors, and help protect the environment. Increasing the service sector contribution in the economy, since it is less harmful to environment, and depend on more sustainable and renewable resource [24].
Credit growth	Rapid economic growth backed by rapid expansion in credit especially from banking sector which benefited from the high propensity of saving with low cost of deposits because of the caps on deposits rate, 70% of investment ratio could be explained by variation in credit intensity, but the crowding out by public sector and favorable treatment of SOEs distorted the efficiency of credit allocation[25].	Advantages depend on the quality of the credit channel as well as the efficiency of the borrowers in using these resources. For example small and medium enterprises contribute with more than 60% of GDP in 2012 and 70% of employments while its share of banks loans only 20%[28] .Further more giving more flexibility on setting interest rate on deposited and encouraging the consumption credit	Potential losses of such rapid inefficient credit growth expansion estimated by the global financial stability report of April 2016 by 7% of GDP only on corporate loans, and the losses would be larger in case of adding shadow credit and other other credit products losses (IMF country report, China, 2016, p 10). In addition to the accompanied risks of this	Flexible interest rate, decrease the production role of SOEs and opening the doors for private sector to access the financial resources according to market role would enhance the credit allocation and reduce the financial risks and economic imbalances.

[23] Molnar, Margit; Westmore, Ben and others, (2015), "OECD Economic survey China, 2015 overview", p41 http://www.oecd.org/eco/surveys/China-2015-overview.pdf

[24] IMF staff, "PEOPLE'S REPUBLIC OF CHINA 2013 ARTICLE IV CONSULTATION", IMF Country Report No. 13/211, July 2013, p 19, available online: https://www.imf.org/external/pubs/ft/scr/2013/cr13211.pdf

[25] Zhang, longemi," Rebalancing in China—Progress and Prospects", IMF Working Paper, 2016 , Asia and Pacific Department, p7

[28] Elliott , Douglas; Kroeber, Arthur; Qiao, YU, 2015 "Shadow banking in China: A primer ", economic studies at Brookings, p 6, available online : https://www.brookings.edu/wp-content/uploads/2016/06/shadow_banking_China_elliott_kroeber_yu.pdf

	Sharp increase in bank balance sheets (22% of GDP in 2015, and the claims of banks on non financial institution increased from 6% to 26% of GDP between 2010-2015[26]. Finally, the risk of high growth of shadow banks activities such as trust beneficiary rights (TBR) or local government investment vehicles (LGIVs). They grew after 2008 to finance local governments debt and public real state and infrastructure investment, these products allowed to lend riskier customer and gaining higher return but increasing the financial risks and default [27].	would help in supporting the transition to consumption based economy and reduce the overcapacity in investment, and rebalancing the economic structure.	policy in creating booms in many fields (investment overcapacity, real state booms, stock markets booms)[29].	
Fiscal vulnerability	Discussed later	Discussed later	Discussed later	Discussed later

Table 1 matrix (A) presents the most significant imbalances in the Chinese economy during the transition period since 1978.SOURCE: researcher design depends on many resources.

[26] IMF staff, "PEOPLE'S REPUBLIC OF CHINA 2013 ARTICLE IV CONSULTATION"2016, IBID, p10.

[27] Molnar, Margit; Westmore, Ben and others, (2015), "OECD Economic survey China, 2015 overview, p19-20" http://www.oecd.org/eco/surveys/China-2015-overview.pdf

[29] Zhang, longemi," Rebalancing in China—Progress and Prospects ",IBID, p7

"The highlight of the most recent blueprint which will charts China's development from 2016 to 2020 concentrated the efforts on rebalancing the economic structure by enhancing the role of consumption in six sub service sectors which are the information technology services; green industries; stable and low - income housing; travel and leisure industries; education and sports industries; in addition to the industries which support healthy ageing such as elderly care services ".[30]

This announcement is considered by many economist as a necessary step toward rebalancing the economic structure and enhance the role of the consumption and domestic demand in economic growth. It is not easy mission to do that after decades of export_ investment driven growth model, nay carries significant economic and social cost in the short term but better conditions for sustainable growth on long term. **Another challenge which could in my opinion hinder** or postpone these reforms are the cultural factor and the political willingness which usually does not prefer occurring institutional reforms which entail higher autonomy, power as well as higher expectation of the consumer about the life standards. as well as it requires more than policies changes. It requires institutional and cultural adjustments.

1.2 The main stages of fiscal reform since 1978

The fiscal reforms passed through many stages in China and still the fiscal sector needs long time to strengthen. The recent financial Crisis proved the necessity to preserve disciplined fiscal sector as an important basis of the economic stability.

[30] Shu, Shuli; "***How China's 13th five-year plan can make consumption a real driver of growth***"; (south China morning March 2015) , available online: http://www.scmp.com/comment/insight-opinion/article/1746949/how-Chinas-13th-five-year-plan-can-make-consumption-real

1.2.1 Fiscal sector before 1978.

Revenues and expenditures of the central and local governments in China were specified by the the center via central planning. Local governments did not have the autonomy to impose taxes or assign expenditures. Almost they were acting only as an executive arm of the central government which were responsible for conducting the national fiscal and economic plans. Their main duties were delivering public goods and services such as primary, secondary education, public safety, health care, social security, housing etc. However, the tax system was crude, there were no personal or corporate taxes. Instead the revenues were raised mainly from the profits of SOEs* which were ensured by the fixed - planned prices or by taking out the surpluses achieved by the other state's unites of production such as TVEs**[31], cooperatives and collectives[32]. Printing money to bridge the gap between the revenues and the production's financial requirements was accredited without further regard to its long term inflationary cost. In case of achieving surpluses in the collected revenues in some Provinces, automatically were remitted to the central government which redistributes them among the local governments according to the national central economic plan. That was ensured by the power of the central planning mechanism which targets specific fiscal and economics goals regardless of the unexpected circumstances that could hit the economy. However this system was known by the Fiscal Gap Transfers which was accredited as a method of an intergovernmental transfers by the[33].

[31] ** TVEs: Towner Village enterprises. *SOEs: State owned enterprises.

[32] Chunli , Shen; Fu Zou, Heng "***Fiscal Decentralization in China: History, Impact, Challenges and Next Steps ",*** ANNALS OF ECONOMICS AND FINANCE 13-1, 1–51 , JEL Classification Numbers: H1, H2, H3, H5, H7, R5, (2012), p4. Available online: http://aeconf.com/articles/may2012/aef130101.pdf

[33] Chunli , Shen; and others, "***Fiscal Decentralization in China: History, Impact, Challenges and Next Steps***", p 4

1.1.1 **Fiscal reforms during 1978 - 1993**.

Fiscal reform starts when fiscal agents gain some minimal degree of autonomy. In this regards, Chinese fiscal reforms were unavoidable during the gradual transition to from central planning to market. Three systems were adapted during this stage of reforms:

- ***contract responsibility system 1980***
- ***Modified contract responsibility system 1985***
- ***Fiscal responsibility system in 1988***).

The main outlines of these systems were derived from the classification of the accredited revenues to (local fixed revenues - center fixed revenues, and shared revenues). They reflect clearly the centralization degree of the fiscal policy among the local governments and the central government[34].

The first system was implemented in 1980. It incited the local governments to increase their revenues collections regardless of any considerations, thus the power of central government decreased as well as its share of the total revenues *(graph 2), while the second system reduced these incentives and restored part of the previous restrictions on the local* governments fiscal behaviors. In other words, these adjustments forced the local governments in the provinces which achieve surpluses in their revenues to remit *part of them* to the central government in order to cover the fiscal deficits in the other provinces. The government's procedures were understood due to the large deviation in the levels of the development within the provinces etc. The 3rd system, the local

[34] ***IBID, p 5-7***

governments were required to finance its expenditure through their fixed, and shared revenues[35]**.** In case of insufficient revenues, the local governments were allowed to ask for subsidies from central government. For example, the center could allow them to keep either the shared or the central government tax revenues in some exceptional situations to complete their fiscal plans. In addition to that, other subsides arms were established for the same purposes such as the special purposes grants, the capital grants etc**.** [36]

In the same context, and as a result of the high margin of autonomy which was given for the local authorities in imposing/exempting taxes until 1985, some of them used this autonomy in undesired ways. For instance, many of them either tried to increase their revenues by imposing new tax or changing the tax base in purpose of attracting new investments by giving taxes' grants or exemption for improper reasons[37]**.**

These practices showed shortages in the proposed reforms because they were conducted without clear and solid legal framework to symphonize and supervise the local governments fiscal practices. The overall consequences of this reforms try could be briefed by some indexes.

First of all, the fiscal disparities and the imbalances among local governments increased sharply in terms of the responsibilities and the available revenues resources. Additionally, the complexity in the taxes' structure increased significantly and affected the total revenue of the government. Consequently, the aggregate revenues deteriorated from around 33% in 1988 to around 22% of GDP in 1993 (see the figure 2). On the other hand, central government tried to transfer more responsibilities to the lower level local governments, which started to act as provider for many

[35] ***IBID.***
[36] ***IBID, p 10.***
[37] ***IBID.***

services like (unemployment insurance, pension funds, and housing subsidies) instead of being only financier of these services. The share of local expenditures increased to 72% in 1993 of the total public expenditure compared to just 45% in 1981**.**

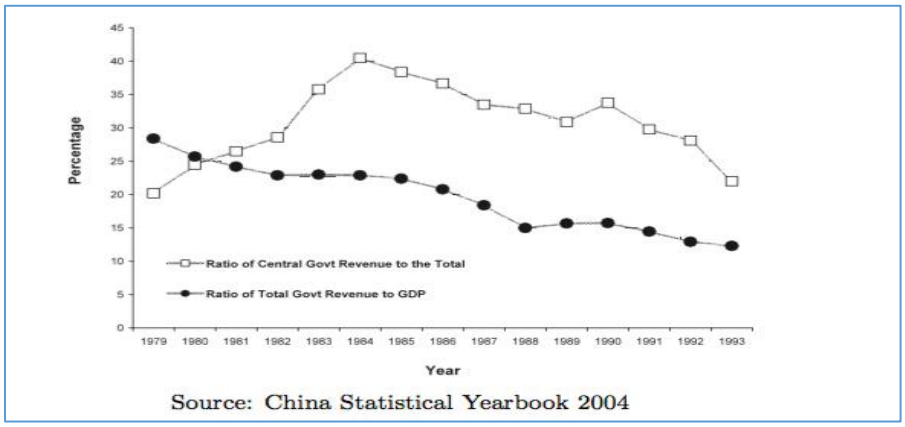


Figure 2 the ratios of both central Government revenue/ total revenue and total revenue to GDP during 1979 – 1993, source: China statistical yearbook 2004.

1.2.2 Tax sharing system in 1994

This is considered the most important fiscal reform during transition period until today. An institutional framework was established for the intergovernmental fiscal relationship between central and local governments. The main purpose of issuing this framework was restoring the lost power of the central government and dealing with the deteriorating trend of the revenues. This reform included simplifying the structure of the tax system, unifying the tax burden on the taxpayers and increasing the transparency in revenue's division between both central and local governments. Furthermore, the new reform replaced the negotiating approach in allocating the taxes between the central and local governments which prevailed before 1994 with rule - based system of tax sharing[38]**.**

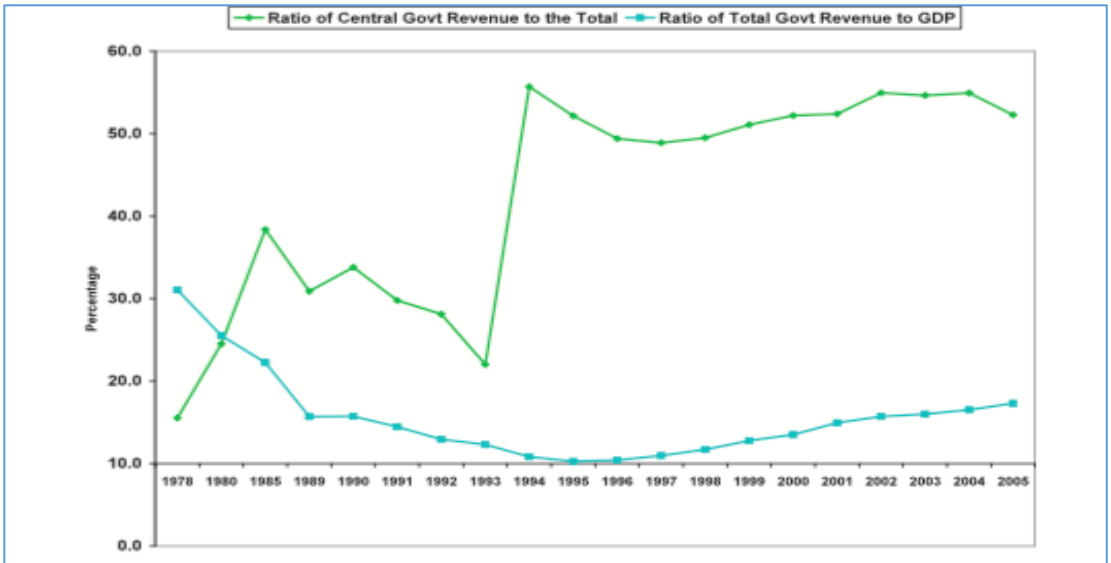
[38] ***IBID.***

Starting by tax sharing system (**Fenshuizhi**): "the taxes structure was greatly simplified. Value Added Tax (VAT) replaced the turnover – based product tax and was implemented at a uniform rate of 17%. Corporate Income Tax was unified to include all the domestic enterprises (including SOEs) and the top rate was reduced from 55 percent to 33 percent. While in the old system the revenues of SOEs were restricted by the negotiations about the percent of transfers which should be deducted and remitted to the central government budget. Furthermore, the reform added Excise taxes on tobacco, liquor, and other luxuries were introduced" [39].

Another important step was taken beside restructuring the tax types by establishing the National Tax Services (NTS) in the majority of the provinces as a center body to audit the tax collection behaviors on all the governmental levels. Their responsibilities were based on collecting central - fixed revenues and shared revenues across local provinces in addition to their authority in supervising and appointing the directors of local NTSs. NTS's were given powerful role in controlling the tax reduction or exemption practices between the local governments and forcing them to obtain approval of central government[40].

These reforms led quickly to significant increase in the aggregate government revenue, which increased from around 521 billion Yuan in 1994 to more than 3160 billion Yuan in 2005. The share of central government revenue also improved significantly and reached 56% in 1994 compared to 22% of GDP in 1993, then the ratio stayed around 50% on average up to 2005 (see the figure 3)[41].

[39] ***IBID, p 11***
[40] ***IBID, p14***
[41] ***IBID.***



Source: Authors, based on data from China Statistical Yearbook 2006.

Figure 3 the ratios of both central Government revenue/ total revenue and total revenue to GDP during 1978 - 2005

The following table (2) shows the main division of the revenues between the central government and the local governments according to 1994 reforms in the fiscal year of 2007 - 2008:

Tax Assignment

Taxes	Central(%)	Local(%)
Central Tax		
Tariffs	100	0
Consumption Tax	100	0
Shared Tax		
VAT	75	25
Business Tax	3	97
Stamp Tax on Security Exchange	97	3
Personal Income Tax	60	40
Company Income Tax	60	40
Local Tax		
Resource Tax	0	100
Urban Maintenance and Development Tax	0	100
Urban Land Using Tax	0	100
Agriculture and Related Tax	0	100
Tax on Contracts	0	100
Tax on the Use of Arable Land	0	100
Vehicle Purchasing Tax	0	100
Other Local Taxes	0	100

Source: Shen (2008).

Table 2 Structure of Tax assignment between central and local governments

Secondly, the assignments of expenditure set out in the constitution which was consistent with the international practices. The central government carries the responsibility of delivering the nationwide services including defense expenditures, foreign affairs, expenses related with the central government's operations, in addition to funding the entities that work under central government's control like universities, public schools, hospitals, research institutions, newspapers, publishing houses etc. While the sub governments duties included delivering the public goods and services, social security coverage, and high autonomy in administrating the development issues of their localities. In case of the absence of specific central government guidelines, the actual assignment of the expenditure responsibilities usually was referred to the higher level of governments. For instance, the provinces assign the cities/ prefectures revenues and expenditures, and the prefectures specify the expenditures of other lower countries (country levels, and TVEs) etc.[42]

On the practice, it was ambiguous and overlapped system of distributing the responsibilities among different levels of government where each level of government was trying to maximize their portion of the revenues and push down more responsibilities to the lower government level as before**.**

In the table (3) below, it displays the growth in the shares of local governments of the total expenditures of specific public goods and services between 2000 and 2009.

[42] ***IBID, p17***

	Local 2009	Local 2000
Total	**80%**	**69%**
Transportation	**77%**	**66%**
Education	**95%**	**89%**
Health care	**98%**	**90%**
Social	**94%**	**99%**

Source: China Statistical Yearbook, 2010.

Table 3 shares of local governments of the total expenditures (2000,2009)

Moreover, and as it is displayed in the figure (4), the portion of the local governments of expenditure declined from 70% of the total fiscal revenues in 1994 to less than 55% in 2013. On the expenditures side, local governments shares increased from 70% to 85% of the total expenditures in 2013. This trend reflects the increasing fiscal gap and mismatching between the distribution of the fiscal revenues - expenditures policy within the local and central governments and within the local governments themselves[43].

[43]Iacob, Koch-Weser***," China Fiscal Policy Revamp Faces Hurdles ",*** (USCC Economic Issue Brief, No. 6, 2014), p6, available online: https://www.uscc.gov/sites/default/files/Research/Issue%20brief_China%20Fiscal%20Policy%20Revamp%20Faces%20Hurdles.pdf

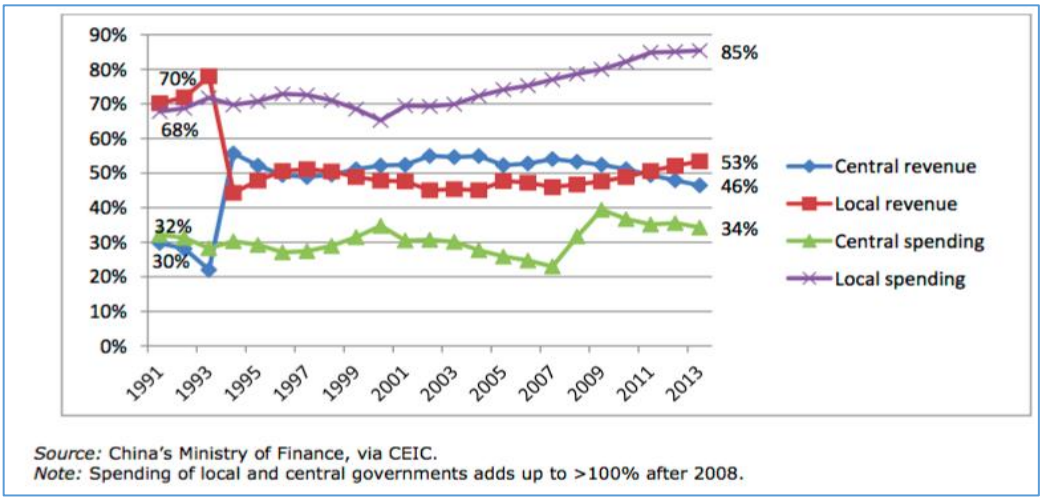


Figure 4 progress of the shares of central/local governments of total fiscal revenues and expenditures

In my opinion, the fiscal reforms of 1994 was important and achieved the purpose of restoring the central government power and control but this goal caused decreasing the incentives among the local governments to increase their efficiency in collecting tax and other revenues.

1.2.3 The most recent fiscal reforms

During the period between 2014 - 2016 Chinese government conducted many important reform's procedures in the fiscal sector. According to IMF country report about China[44]**.** The government issued New Budget Law in 31 of august 2014 which provided a framework for significantly greater transparency and accountability for local governments debt management in order to improve the quality of budget management and the achieve the debt sustainability of the local governments. These procedures conducted as a correction practice to deal with the upraised cost of the dramatic

[44] "***THE PEOPLE'S REPUBLIC OF CHINA***", ARTICLE IV CONSULTATION—PRESS RELEASE; STAFF REPORT; AND STATEMENT BY THE EXECUTIVE DIRECTOR FOR THE PEOPLE'S REPUBLIC OF CHINA, (IMF, No. 16/270, 2017), p 7, available online: https://www.imf.org/en/Publications/CR/Issues/2017/08/15/People-s-Republic-of-China-2017-Article-IV-Consultation-Press-Release-Staff-Report-and-45170.

increase in the local governments debt after 2008 and launching the stimulus fiscal package to boost the economic growth. The recent reforms imposed more restrictions on the ability of the local government in issuing debt directly on their own credit profile especially by constraining the off - balance sheet's local government financing vehicles (LGFVs) and other off budget items. In addition to adding new requirements of preparing rolling budget plans, increasing the supervision practices on their revenues and expenditures behaviors through monitoring the flows and competition of the capital which financed by issuing bond for predetermined purposes like public services not for operational spending and creating debt - alert system. The last important thing in these changes was encouraging the privatization of the SOEs in the localities to solve their debt problem to avoid public finance crisis which could lead to banking crisis and threat the economic model stability overall[45]. Other related reforms could be briefed as the following:

- "Business tax fully converted to VAT for remaining services (May 2016)
- Employer contributions toward social security payments reduced (April 2016)
- Improved regulation and reduced number of fees paid to various government funds by firms (February 2016).
- Revised price adjustment mechanism for oil products (January 2016),
- Expanded zero rating for exports (October 2015).
- Tax cuts implemented for small and high tech firms (September and November 2015).
- Reform of the Personal Income Tax to further promote equity and redistribution.

[45] "*Fitch: China Local Gov't Bond Law to Improve Budget Transparency", (Reuters, Sep 2014), http://www.reuters.com/article/fitch-China-local-govt-bond-law-to-impro-idUSFit74121920140904*

- New environmental protection and resource tax laws; carbon emission trading scheme (will be introduced in 2017) ".[46]

To conclude, I believe that the results of fiscal reform of 1994 on the practice were not as drawn in time of setting the reforms plan, on one side, the recent fiscal reforms are considered necessary steps toward strengthen the fiscal position of China government, building more sustainable economic model and meet the environmental commitments to reduce the carbon emissions, on other side, these reforms are still suffering from many shortages as the following:

- Still there is no clear and strong indication for reducing the problem of the gap among high income provinces and low income ones (fiscal redistribution gap) rather than solving the problem of inefficiency in collecting the tax and other revenues.
- The dependency on indirect tax seems to be concentrated continuously as before instead of shifting to the direct tax which is in my opinion more equal. According to one estimation, the cost of collection tax is around 10% of tax revenues, while it does not exceed 0.5% in USA[47]**.** This is because of the wide range of tax items and sophisticated division of the taxes among central and local governments. Also, China could go further in simplifying VAT, improving the individual income tax as a tool to better income redistribution policy.
- Last point, in spit of the positive orientation of the government to issue new law for protecting the environments, but it is expected that it will not include tax on the carbon

[46] ***"THE PEOPLE'S REPUBLIC OF CHINA",*** IMF , p7.

[47] Koch-Weser, Iacob, "***China Fiscal Policy Revamp Faces Hurdles "***, op cit, p 3.

emission on the firms and that raise doubts about how the government could control the pollution problem.

Eventually, the results of this reforms need to be tracked in the following years to evaluate the implementation process of these reforms, and whether it will achieve their purposes or on the practice the results would be different as it was after 1994 reform, in addition to rethinking about the shortages of this reform which I introduced some of them.

Chapter 2: Fiscal policy's role in Smoothing out the economic cycle: between theory and practice.

2.1 Fiscal policy versus Monetary policy feasibility in Smoothing out economic cycles.

Fiscal policy is considered an important arm of the public policy called public policy adjustment. It is instrumented by public institutions and admitted by legal - law. It aims to achieve public objectives, for instance macro economic and social objectives[48]**.** The second half of the 20th century proved that fiscal policy played a crucial role in stabilizing the economic activity during the economic cycles. These beliefs increased due to the uprising of interventionist school after the great recession of 1929 which absorbed its basics from John Maynard Keynes' thoughts. Keynes called for government intervention during economic cycles in order to correct the inefficiencies and failures of the market as well as decreasing the cost of leaving the correction process to be done by the invisible hand mechanism of the market[49]**.**

[48] Vasile , Brytian, Amelia, Bucur, Et, ***"Discretionary vs Non Discretionary in fiscal mechanism_ Non automatic fiscal stabilisers vs automatic fiscal stabilisers "*** , (Economic Research Journal, volume 29, 2016), p3. available online: http://www.tandfonline.com/doi/full/10.1080/1331677X.2015.1106330

[49] Renee , Courtois ,"**what we do and do not know about discretionary fiscal policy**", (EB09-04 - The FEDERAL Reserve Bank of Richmond, 2009), P 1.

Since the early of 1980s, the interests in the role of fiscal policy as a tool to Smooth out the economic cycle decreased, while the decision makers believed in the validity and efficacy of the monetary policy in stabilizing the economic activity during the economic cycle. This important shift in economic policy resulted from the failure of the Keynesian economist either in finding a solid interpretations or introducing valid solutions for the "Stagflation" crisis which hit the US economy during 1980 - 1982. The Stagflation of 1980's took a form of double - dip recession accompanied with double digit of inflation. The Monetarist School led by Milton Friedman proposed a solid argument about the causes and nature of this phenomena. He referred back the causes of the 1980's stagflation to the rapid expansion in money supply due to expansionary fiscal policy which was used for a long period without setting out adjustment policy for this growth. Based on this diagnosis, Monetarist's scholars successfully introduced a solution for this problem by calling for independence of the monetary authorities in conducting monetary policy according to the market circumstances in order to stabilize the economy. Monetary authorities should be responsible for controlling the money supply away from political influences, in other words, monetary authority should tighten the monetary policy to reduce the rate of growth of the surplus of the money supply in order to bring down inflation. Decreasing the inflation was supposed to restore the economic growth through increasing the confidence of market's agents as well as decrease the costs of production for the business sector[50]. Indeed, the monetarist's therapy worked, and this event was the reason behind the growth influence of monetary policy since the last quarter of 20th century.

[50] Renee , Courtois ,"***what we do and do not know about discretionary fiscal policy"*** , IBID, p1, see also Tom, Bevan, 2014 "***The dominance of monetary policy over other forms of policy is now an accepted aspect of Modern macroeconomic management. Discuss***", article published on Marshall Society, Available online: http://marshallmagazine.co.uk/blog/1415491200/the-dominance-of-monetary-policy-over-other-forms-of-policy-is-now-an-accepted-aspect-of-modern-macroeconomic-management

After passing the crisis time of stagnation, the role of the monetary policy in stabilizing the economy in normal times and even in facing the economic shocks increased significantly. For instance, Monetary policy proved to be more flexible and quicker in responding to the market developments by using many efficient tools, in addition to developing new tools that take in consideration the market expectations in its analysis for market, and that is still missed in conducting the fiscal policy [51].

The foregoing points show the common shortages in implementing the fiscal policy compared to monetary policy:

1. Many evidences support the argument which says that "Fiscal actions carry with them long inside lags, between the time when a new policy is initially proposed and when it is passed, and outside lags, between when the legislation is signed into law and when it is implemented. That institutional structure informs the nature of fiscal information flows. When agents react to fiscal news before the news appears in fiscal variables, conventional econometric methods will deliver misleading inferences, Forward guidance of monetary policy can create similar issues, but the problems are less severe because in this respect monetary signals are noisier than fiscal signals" [52].
2. The Ricardian critical thinking showed doubts about the Keynesian thoughts related to the expansionary role of the stimulus fiscal policy in times of recession. According to Riparian's school, expansionary fiscal policy has no direct impact on the aggregate

[51] Alan, S.Blinder, "***The Case Against the Case Against Discretionary Fiscal Policy***", Federal Reserve Bank of Boston conference, "The Macroeconomics of Fiscal Policy," Working Paper No. 100, (2004) p 7.

[52] Alan, S.Blinder, "***The Case Against the Case Against Discretionary Fiscal Policy***", p7.

demand. Instead, it leads to many side effects such as (higher interest rates and crowding - out of private investment [53].

3. Common pool theory, which is also considered one of the main causes of fiscal deficit and fiscal alcoholism. This could be resulted from the situation when decision makers favor relatively small groups by introducing discretionary tax cut or increasing expenditures without any rational calculations to the long term adjustment cost. Such bias is less in the monetary policy which is more likely to have higher margin of independency and autonomy than fiscal policy[54].

4. According to **Eric *M. Leeper (2015)*** fiscal analysis is ***darned hard*** compared to the monetary policy for many reasons, for example fiscal policy generates confounding dynamics which affect the economy at both business cycle and in much lower frequencies. Fiscal policy's variables, transmission channels and instruments are heterogeneous. Most of its variables are endogenous. Its impact depends on the monetary regime and fiscal expectations. And finally fiscal policy today is more influenced by the leverage power of the supranational institution (IMF advices and conditions for many economies during 2008 crisis)[55].

5. Discretionary fiscal policy is difficult to be reversed after the recovery compared with the monetary policy[56].

[53] Jason, Furman, ***" The New View of fiscal policy and its application "***(2016) available online http://voxeu.org/article/new-view-fiscal-policy-and-its-application.

[54] Ľudovít , Ódor , "Another Quiet Revolution? Future role of independent fiscal institutions in Europe", Discussion Paper introduced to the Council For Budget Responsibility No. 5/2014, (2014), available online: http://www.rozpoctovarada.sk

[55] Eric, M.Leeper, "***Fiscal analysis is darned hard",*** working paper presented in the "Rethinking Fiscal Policy After the Crisis," conference sponsored by the Slovakian Council for Budget Responsibility, Bratislava, the paper available on Indiana University and NBER; 2015, eleeper@indiana.edu, p 3,15.

[56] Ľudovít , Ódor , Another Quiet Revolution? Future role of independent fiscal institutions in Europe, 2014.

The great recession that followed the financial crisis of 2008 revived the debates about the role of both monetary and fiscal policy in stabilizing the economic activity and Smoothing out the recession. It seems that adapting discretionary fiscal policy was unavoidable for many economies after using all the available monetary intervention tools, but hesitation dominated in most of the governments because of the limited fiscal space especially in indebted economies.

Central banks used almost all the available tools to stimulate economic growth. For example, conventional tools drove the interest rate to what is known by zero bound level (ZBL) in many advanced economies, which meant that interest rate as one of the most important tools of MP became ineffective in influencing the market behaviors and agents' expectations (liquidity trap). As a consequence, central banks used other unconventional tools to compensate the weakness of interest rate. For instance, CB's launched asset purchasing programs, expanding provision of credit, lowering the reserves requirements and forward guidance beside to allowing for discrimination lending and bailout programs for some banks, firms and governments in case of loosing market's fund access. The results were not sufficient to support the economic growth rather than restore the lost confidence in the financial and non financial sector in the short term [57]. However, in my opinion, these monetarist reactions were necessary to smooth the drop down trend and conducted on time. Hence fiscal policy brought back again to the forefront of decision makers and scholars.

There are overwhelming evidences that support the point that monetary policy is still important and sufficient in dealing with over/under heated economy or stabilizing the economy in case of short - term business cycle, but the fiscal policy is more effective and needed to be used in real

[57] John , C. Williams, "***Monetary Policy at the Zero Lower Bound***",Hutchins Center on fiscal &monetary policy at brookings, (2014), p 12, available online: https://www.brookings.edu.

time in case of the longer term business cycle under specific conditions which varies from one economy to another, and with the predetermined time of adjustment policy.

2.2 The reasons of using asymmetric types of fiscal policies in Smoothing out the great recession of 2008.

The responses to the great recession were asymmetric within the governments in the advanced, emerging and developing countries due to different initials fiscal, and economic conditions. For example, in many advanced economies the governments launched large fiscal expansion package (China, USA, Japan, Russia etc.), but within only a few years many of them transformed to conduct large fiscal consolidations. Many arguments say that such stimulus fiscal package helped in shortening the recession spells of the crisis in many advanced economies but the status in the majority of the emerging economies were a bit different due to spending bias before the crisis, small size of automatic stabilizer and fiscal space, and limited access to the credit. These factors restricted the governments ability to conduct large fiscal stimulus procedures in the crisis time[58].

Generally, governments are more likely to adopt countercyclical fiscal policies in times of economic slowdown if their budgets have sufficient fiscal space, in addition to the fact that the impact of any discretionary fiscal policy (stimulus policy) depends on many factors that related with the macroeconomic policies, the design of the stimulus packages, timing, and the size of the fiscal multiplier of both tax and governments expenditures (More details in the next subsections). Furthermore one of the key findings of the literature is that expansionary fiscal responses are

[58] Emanuele , Baldacci; Sanjeev, Gupta and Granados, Mulas, ***"How Effective is Fiscal Policy Response in Systemic Banking Crises?"***, IMF working paper, Fiscal affair department Wp/09/160, 2009 p3

helpful in achieving sustained economic recovery after the crises only if it took into consideration the medium and long term fiscal sustainability, otherwise it could deepen the indebtedness problem, crowding out effect on private investments and raises the risk of high and unmanageable inflation rate[59].

The asymmetric responses to the crisis not only stopped on the governments reactions to crisis of 2008 but also the international organizations failed in proposing clear and reliable diagnostic analysis for the crisis and in introducing consistent economic advices for the troubled economies. In this context, see the **Figure** (5) below.

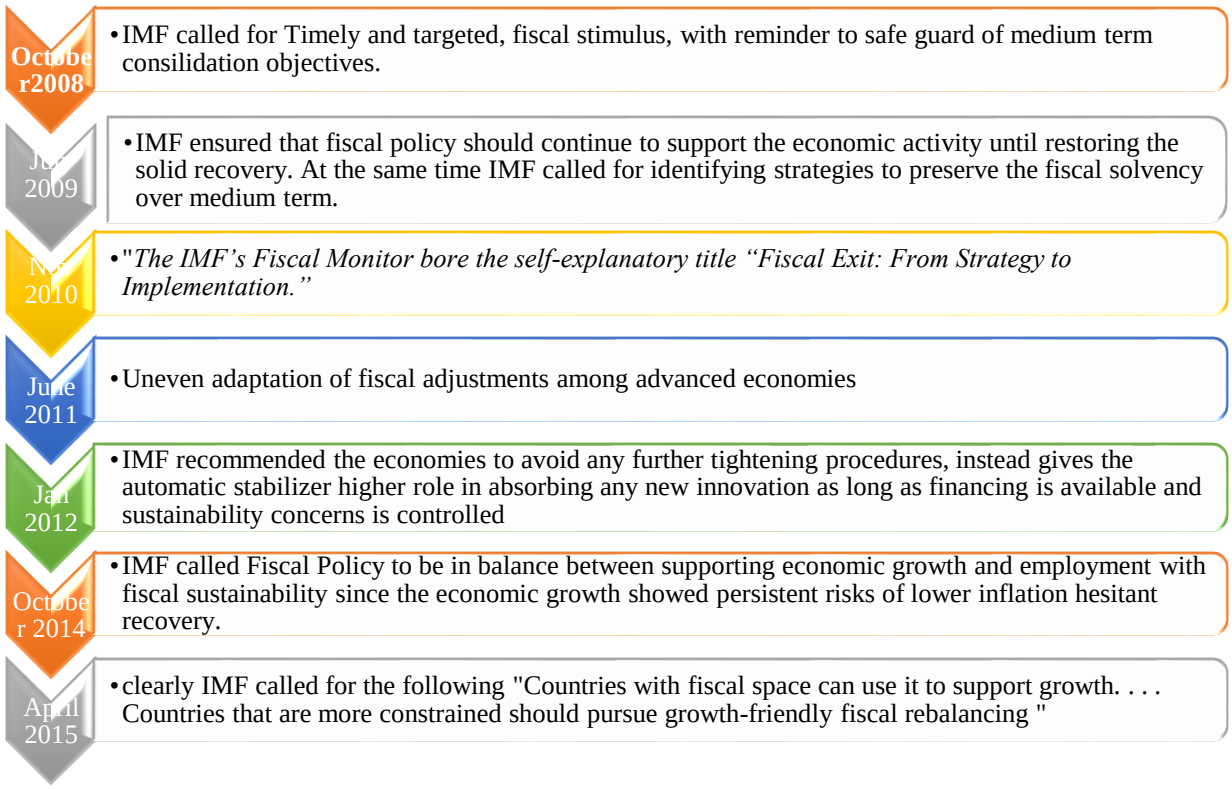


Figure 5 explains the sequences of the IMF views and recommendations for the fiscal policy in different stages, source: researcher design, depend on the data existed in the M. Leeper (2015, p14)

[59] Emanuele , Baldacci; Sanjeev, Gupta and Granados, Mulas, ***"How Effective is Fiscal Policy Response in Systemic Banking Crises?"***, p3.

In sum, it could be concluded that the experience of the crisis proved the necessity to improve the institutional characteristics of implementing the fiscal policy in order to enhance its efficiency, flexibility, transparency, and speed in responding to the crisis. As well as improving the fiscal analysis which is still constrained by the accounting mentality rather than the economic analysis. in my opinion, Unsuitable fiscal policy might shift the problem from the demand side to shortages in the supply sides. All of these factors are a sample of further elements that should be examined by fiscal analysis before selecting the optimal fiscal response.

2.3 The main characteristics of the discretionary versus non - discretionary fiscal policy

Fiscal policy could be classified into two fundamental categories; in which could react to the changes in the aggregate demand. The first one is discretionary fiscal policy, while the second one is non - discretionary fiscal policy or automatic stabilizer.

2.3.1 Discretionary fiscal policy Vs non - discretionary fiscal policy

There is no unified definition for the discretionary fiscal policy but in general it implies "deliberate changes in public spending and taxes policy in order to Smooth out the economic cycle" [60]. It takes two forms according to the economic conditions. In time of recession and economic slowdown, the expansionary discretionary fiscal policy is recommended in general. Where it policy implies either cutting in the taxes, or increasing in the public expenditures, while restricted fiscal policy is recommended in time of over heated economy either by increasing taxes, or cutting public expenditures.

[60] Mihaela , GÖNDÖR; Romano, NEAG," ***DISCRETIONARY FISCAL POLICY AND GOING CONCERN PRINCIPLE FOR SMES IN CRITICAL ECONOMIC ENVIRONMENT ",*** JEL Classification: E62, H32, Q56, 2011, p43, available online: http://revecon.ro/articles/2011-2%28bis%29/2011-2%28bis%29-4.pdf.

Non - discretionary fiscal policy (Automatic stabilizer): According to Tam and Kirkham is defined as "the variation in the budget balance as a result of an exogenous aggregate demand or real GDP shock." [61] In the same context ***ŞEN*** defined it as changes in the government revenues and expenditures due to the changes in the cyclical stance of the economy[62].

Generally, the discretionary fiscal policy suffers from some shortages which limit its efficacy in responding to the economic shocks on real time compared to automatic stabilizer. According to Mihaela, GÖNDÖR and Romano Neag, and others, the discretionary fiscal policy carries long implementation lags, political decision - making process, inflexibility, fiscal risks, crowding out effect and it is not reversed automatically in time of economic cycle changes as it is discussed previously[63].

Conversely, the **Automatic Fiscal Stabilizer (non - discretionary fiscal policy)** does not suffer from these shortcomings. But in different AFS is quicker and self automated in responding to any changes in the economic activity status. It does not require any adjustments from the policy makers and provides timely reversal of any fiscal expansion[64]. In other words, it entails timely and gradual response to the economic conditions.

Many empirical evidences measured a significant impact of the AFS in Smoothing out the cyclical changes in economy, but the main question is still debated whether the AFS's size effect on the

[61] Kirkham, Heather; Tam, Julie. "***Automatic Fiscal Stabilisers implication for New Zealand*** **"** **,** Department of economic, Stanford university, Treasury working paper 01/10,(2000) p ***3.*** available online: http://www.treasury.govt.nz/publications/research-policy/wp/2001/01-10/twp01-10.pdf.

[62] Hüseyin, SEN," The Role of Taxes as an Automatic Stabilizer: Evidence From Turkey", North Anatolian Development Agency, Yıldırım Beyazıt University, Faculty of Political Sciences, Department of Public Finance, Ankara, Turkey, (date not available) p 1.

[63], Hüseyin, SEN," ***The Role of Taxes as an Automatic Stabilizer: Evedince From Turkey***" p 1, see also Mihaela , GÖNDÖR; Romano, NEAG," ***DISCRETIONARY FISCAL POLICY AND GOING CONCERN PRINCIPLE FOR SMES IN CRITICAL ECONOMIC ENVIRONMENT "***, p 43.

[64] Hüseyin, SEN," ***The Role of Taxes as an Automatic Stabilizer: Evidence From Turkey***", p 1,2.

economy is sufficient by itself to stabilize the economy without a need for discretionary fiscal policy or other non fiscal intervention, and under which conditions.

2.3.2 Estimating the size effect of non - discretionary fiscal policy.

Many scholars tried to measure the size's effect of the automatic stabilizer by separating its impact of the impact of discretionary procedures. In this context, there are two popular paths to measure ASF [65]**:**

1. European Commission, in the context of EU fiscal surveillance framework, measured the size of AFS by (the Budgetary sensitivity), which measures "the change in the level of revenue and expenditures resulting from a marginal change in Gross Domestic product (GDP)".

$$\varepsilon_R = \theta_R \frac{R}{Y} = \left[\left(\frac{dR}{dY}\frac{Y}{R}\right)\frac{R}{Y}\right] = \frac{dR}{dY} \qquad (1)$$

$$\varepsilon_G = \theta_G \frac{G}{Y} = \left[\left(\frac{dG}{dY}\frac{Y}{G}\right)\frac{G}{Y}\right] = \frac{dG}{dY}$$

Where:

R: is government revenue

G: government expenditures

Y: is GDP

θR , θG: output elasticity of government revenue and expenditure respectively.

[65] Mihaela , GÖNDÖR; Romano, NEAG," ***DISCRETIONARY FISCAL POLICY AND GOING CONCERN PRINCIPLE FOR SMES IN CRITICAL ECONOMIC ENVIRONMENT*** ", p 419.

2. IMF and OECD use (The Budgetary semi - elasticity) to estimate the AFS, through measuring the reaction of the ratios of the expenditure and revenues to GDP to a relative change in GDP

$$\eta_R = \frac{d\left(\frac{R}{Y}\right)}{\frac{dY}{Y}}(\theta_R - 1)\frac{R}{Y}$$

$$\eta_G = \frac{d\left(\frac{G}{Y}\right)}{\frac{dY}{Y}}(\theta_G - 1)\frac{G}{Y}$$

Generally, AFS is determined by a group of elements which were presented by Mihaela and Romano as the following:

- "Degree of progressivity of the tax
- The weights of pension benefits elements in the budget.
- The size of the the government, measured either by expenditure or revenue to GDP, Larger size of Government *entails larger impact of AFS and less needs to discretionary fiscal policy.*" [66]

Furthermore, the size effect of the AFS varies from one country to another according to the initial characteristics of each one. AFS in each country has different degree of Sensitivity and elasticity of expenditures and revenue to changes in economic conditions.

[66] Mihaela , GÖNDÖR; Romano, NEAG," ***DISCRETIONARY FISCAL POLICY AND GOING CONCERN PRINCIPLE FOR SMES IN CRITICAL ECONOMIC ENVIRONMENT*** ", ***p 418-420***

Additionally, the following points represent the main factors that play a crucial role in identifying the mechanisms of AFS encompasses*:*

- "the structure of public revenues.
- the structure of public expenditures.
- the nature of the tax system i.e.
- fiscal rules.
- the transfer system.
- the unemployment benefit schemes.
- the degree of openness of the economy etc." [67]

2.3.3 Estimating the size effect of discretionary fiscal policy

Fiscal multiplier is considered short term measure of the discretionary fiscal policy. In spite of the absenteeism of a unified definition of the fiscal multiplier. IMF introduced simple and sufficient one for the fiscal multiplier. It is "the ratio of change in output (GDP) to a discretionary change in government spending or tax revenue or in other words is the change in the output resulted from a discretionary change in both or one of public spending or tax revenue by 1$" . [68]

Two multipliers are commonly used (focusing on expenditure):

$$\text{Impact multiplier} = (\Delta Y(t))/(\Delta G(t))$$

$$\text{Multiplier at horizon } i = (\Delta Y(t+i))/(\Delta G(t))$$

where t can be a quarter or a year depending on the frequency of the data that is used in the study.

[67] ***IBID, p 420.***

[68] Nicoletta , Batini ; Luc, Eyraud and Anka, Weber, "***A Simple Method to Compute Fiscal Multipliers*** ". (IMF working paper, WP/14/93, June 2014), p 2.

Measuring the fiscal multiplier still forms a big challenge for economists and decision makers because of the difficulties in separating its impact from the AFS effects. Other difficulties are included in recognizing all the factors that determine its size under different conditions and times. The financial crisis of 2008 incited the scholars to conduct wide range of researches in order to find an optimal approach to measure this value since it is considered an imponderable index in estimating the influence of the discretionary fiscal policy on the economic growth, or in predicting in the optimal size of the required fiscal procedures to stabilize the economy[69]**.** Hence underestimating the size of the fiscal multiplier could lead to lower results than expected either in the economic growth or in the estimation of the required adjustment policy to restore the sustainable debt/deficit ratios. On the other side and in case of tightening the fiscal policy in purpose of converging the fiscal variables (budget deficit, debt level threshold) to the planned targets, this might harm the growth and push the economic into vicious circle of deflation cycle [70]**.**

Many elements play a significant role in determining the size effect of the fiscal multiplier, IMF divided these elements into two groups:

1. **The structural characteristics** which affect the way how the economy responds to the changes in the fiscal policy in "Normal times". These are as the following**:**
    - **"Trade openness"** : According to Barrell and others (2012) Countries with higher propensity to import (larger economies, or considered partially opened to trade) are more likely to have larger fiscal multiplier[71].

[69] Nicoletta , Batini ; Luc, Eyraud and Anka, Weber***, "A Simple Method to Compute Fiscal Multipliers ",*** WP/14/93, p 2**.**

[70] ***Ibid, p2***

[71] ***Ibid, p 6-7***

- **"Labor market rigidity"** : According to Cole and Ohanian (2004,2012) fiscal multiplier is more likely to be larger in the the economies with rigid labor markets, where the markets are more regulated and influenced by more powerful labor unions. Hence more rigid labor market implies less flexible wages and higher response of the economic to the demand shocks[72].
- **"The size of the automatic stabilizers"** : According to Dolls, and others (2012) larger AFS implies lower size effect of the fiscal multiplier, since the AFS offsets part of discretionary changes in the fiscal policy[73].
- **"The regime of the exchange rate"** : According to Born and others (2013) and Ilzetzki and others, (2013). Economies with higher degree of flexibility in their exchange rate's are more likely to have smaller fiscal multiplier, because of the offsetting mechanism of the exchange rate to part of the changes in the discretionary fiscal policy[74].
- **The debt level**: According to Ilzetzki and others (2013) in addition to Kirchner and others (2010) the economies with higher level of debt to GDP tend to have lower fiscal multipliers, so larger stimulus package in these countries decrease the credibility and confidence of the private sector demand, incite higher risk premium on the sovereign government debt[75].

[72] ***Ibid***
[73] ***Ibid***
[74] ***Ibid***
[75] ***Ibid***

- "**Public expenditure management and revenue administration**" Generally, the economies which face difficulties in collecting taxes and revenue, in addition to inefficient public expenditure, have a smaller fiscal multiplier effect[76].

2. **Conjectural factors:** IMF identified 2 main characteristics that tend to increase or decrease the size effect of fiscal multipliers from their normal values temporarily**:**

   - **The status of the business cycle**: It is generally accepted among scholars that the fiscal multipliers are more likely to be larger in time of recession or downturn and smaller in time of expansions (table 3). For that expansionary fiscal policy is less effective and costlier in the prosperity time, because of the small output gap compared to the full capacity level, and the crowding out effect of the public investment on the private sector, in addition to the inflationary risk. On the other hand, the consolidative policy in time of recession or slowdown cycle could be costlier because of the consolidative policy increases the borrowing constraints on the agents and decreases their ability to smooth their consumption horizontally[77].

   - **Degree of the monetary policy accommodation to fiscal policy shocks:** According to **(Erceg and Lindé, 2010; Woodford, 2011)** the fiscal multiplier is larger when the monetary transmission channels become impaired, for instance (Zero lower bound interest rate) which prevailed in most of the advanced economies after the great recession of 2008. **Christiano and others (2011)** concluded that the conditions to obtain larger fiscal multiplier effect than in normal times tends to increase the public expenditure when Zero lower bound rate is still existed. Also

[76] ***Ibid***

[77] ***ibid, p 6-8***

the larger the discretionary fiscal policy the shorter the period the economy will stay at Zero Lower Bound (table 4)[78].

	Spending			Revenue		
	Expansion	Linear	Recession	Expansion	Linear	Recession
Auerbach and Gorodnichenko (2012a), United States, 6 quarters	0	0.4	1.7	N/A	N/A	N/A
Auerbach and Gorodnichenko (2012b), OECD, first year	−0.2	0.2	0.5	N/A	N/A	N/A
Auerbach and Gorodnichenko (2014), Japan, 4 quarters[a]	1	1.2	2.4	N/A	N/A	N/A
Batini and others (2012), 4 quarters[b]	0.82	0.93	2.08	−0.08	−0.17	0.08
Baum and others (2012), 4 quarters[c]	0.72	0.79	1.22	−0.04	0.29	0.35
Canzoneri and others, 2012, DSGE, United States, impact multiplier	0.89	1.3	2.25	N/A	N/A	N/A
Hernandez de Cos and Moral-Benito (2013), Spain, 4 quarters[d]	0.6	0.65	1.3	N/A	N/A	N/A
Owyang, Ramey, Zubairy (2013), United States, 2 year multipliers[e]	0.7	N/A	0.8	N/A	N/A	N/A
Owyang, Ramey, Zubairy (2013), Canada, 2 year multipliers[e]	0.4	N/A	1.6	N/A	N/A	N/A

[a]Using deviation of output from HP trend as measure of business cycle.
[b]Average of all countries in sample (including euro area).
[c]Average of G6 in sample.
[d]Using output gap to define expansions and recessions.
[e]Regimes reflect high and low employment.

Table 4 Fiscal multiplier s over the business cycle (included in Nicoletta , Batini, IMF published report)

	No ZLB	ZLB	Notes
Christiano and others (2011)	1.1	3.7	Impact multiplier for temporary increase in spending in the United States. Multiplier at ZLB assumes policy implemented at time t when ZLB begins to bind. If there are implementation lags of fiscal stimulus, multiplier declines. For instance, an implementation lag of 1 period reduces the multiplier to 1.5.
Eggertson (2010)	0.5	2.3	Impact multiplier for temporary increase in government spending in the United States.
Erceg and Linde (2010)	1	4	ZLB multiplier of 4 is based on a temporary spending increase of 1 percent of GDP in the United States, and ZLB duration of 8 quarters. Larger positive spending shocks are associated with lower multipliers since they shorten the duration at which the economy is at ZLB. For instance, for a government spending increase of above 3.5 percent of GDP, the multiplier declines to 1.5. Similarly, a cut in spending increases the multiplier since it prolongs the duration of ZLB. For instance, a cut of 1 percent of GDP is associated with a multiplier of up to 6.

Table 5 Government spending multipliers and the zero lower bound, (included in Nicoletta , Batini, IMF published report)

[78] ***ibid.***

2.4 Literature review of the impact of discretionary fiscal policy in time of economic cycles

2.4.1 Keynesian school

During the financial crisis of 2008, there have been inconclusive debates about which fiscal variable entails a larger expansionary impact on the economic growth, the public expenditure based expansionary fiscal policy or tax cut based policy. The answers on this question was not scientific before the recent crisis, since the selection was politically based issue among the right of center parties which support tax cuts while the left of center parties favored the public expenditures side of the expansionary fiscal policy. Today thetrys to answer this question is tending gradually to depend more on fiscal analysis and the estimation of the size of fiscal multiplier in each case in different from previous period[79].

John Maynard Keynes (1883 - 1946) rejected the view that the government's budget should be balanced. He argued that appropriate budgetary policy should be dependent on the economic conditions. In times of recession the efforts should be directed into inciting the aggregate demand even though by allowing for budget deficit either directly by increasing the public expenditures or indirectly by cutting taxes which is expected to leverage the after tax disposal income of household and push them to consume more. In contrast, if the economy faces inflationary pressure, then the optimal fiscal policy should be consolidative in order to smooth or reduce the heated demand in the economy[80]. This could be done automatically by the self impact of the automatic stabilizer, or

[79] Alberto, Alesina, Silvia, Ardagna , ***"Large Changes in Fiscal Policy Taxes Vs Spending",*** (National Bureau of Economic Research, 1050 Massachusetts Avenue Cambridge, MA 02138, working paper 15438, (2009), p 2.

[80] Cal Jillson, "*American Government: Political Development and Institutional Change*", Routledge, Tylor & Francis group, New York and London, 8th edition, (2016).p 482.

by the contractionary discretionary fiscal policy. According to **Alesina (2012)** there is ample support for this argument by the majority of the economists, but under different conditions these mechanisms might not work as it was drawn by Keynes[81].

Another question related with discretionary fiscal policy is still standing, which is more preferred to be used expenditure or taxes based fiscal policy?

The majority of economist in favor of supporting the usage of the public expenditure based fiscal stimulation policy instead of tax cut based policy because it has a larger fiscal multiplier in agreement with the Keynesian's school. According to the basic Keynesian model the size of fiscal multiplier of government expenditures are >= 1, and the fiscal multiplier of the cutting tax is smaller than the previous one. Main interpretation of this argument is that the government expenditure will have direct impact on aggregate demand at the first moment of spending before it becomes more dependent on the marginal propensity of spending. The marginal propensity of spending plays a crucial role in identifying the size effect of cutting tax multiplier from the beginning of the intervention policy, which is most likely to be below 1 in time of recession.

Bob Hall and Susan Woodward evaluated the impact of spending increases from World War II and the Korean War in 1953 on GDP growth and concluded that the government spending multiplier is about one, **also Valerie Ramey's** research concluded that the government spending multiplier of about 1.4. In contrast , further research conducted by **Romer and Romer (2010)** showed that the tax multiplier size effect is 3[82]**.** This size maybe overestimated but it is still larger than the expenditure multiplier and such a finding **contrasted the Keynesian model**.

[81] Alberto, Alesina, Silvia, Ardagna , ***"Large Changes in Fiscal Policy Taxes Vs Spending", p 2.***
[82] Alberto, Alesina, Silvia, Ardagna , ***"Large Changes in Fiscal Policy Taxes Vs Spending", p 3.***

The interpretation behind Romer and Romer's findings is that in case of replacing the lump - sum decrease by cutting the payroll tax, the cost of labor would be lower, hence if the labor and capital are highly complemented, the demand for capital and investment would increase. What's more, an improvement in the consumption is expected to occur as a result of expanding the individual's disposal income. Similar impact could happen in case of decreasing the investment tax credit [83].

According to Jac Depczyk, the type of the expenditure's increases or tax cuts is matter, in addition to the design and timing of the discretionary procedures. In case of spending the government extra resources on building infrastructure, which has development links with other economic sectors, the economy would have larger fiscal multiplier than tax cuts. In the same way, the tax cuts which target the poor class of the society which usually has a higher propensity to consume would cause better impact than not efficient public expenditure[84].

Many empirical researches conducted by **Blanchard and Perotti, Mountford and Uhlig, Alesina and Ardagna, and Alesina, Ardagna, Perotti, and Schiantarelli** supported the previous conclusion and emphasized on the necessity to estimate the impact of the expansionary fiscal policy in view of the special conditions of each economy. The world and the time are not symmetric or static; it is changeable in dynamic way. What was valid during after World war II era or After the 1970 crisis may not work today, or what worked for USA could not be suitable for Euro zone's economies or China in the current crisis of 2008[85].

[83] Gerg, Mankiw, "***spending and tax multiplier***", article published in 11Dec 2008, available online: http://gregmankiw.blogspot.hu/2008/12/spending-and-tax-multipliers.html.

[84] Jac , Depczyk,"***Much ado about multipliers-Why do economists disagree so much on whether fiscal stimulus works"***, published in Sep 24th 2009, available online: http://www.economist.com/node/14505361

[85] Gerg, Mankiw, "***spending and tax multiplier***".

2.4.2 Ricardian equivalence theory.

Many scholars of the new classical theory, which is considered a developed theory of Ricardian equivalence theory*[86], expressed their doubts about the validity of generalizing the Keynes's proposal of Smoothing out the stagnation/recession's cycles by increasing budget deficit either by cutting tax or increasing government expenditure. New classical scholars argue that there are significant doubts about the impact of any modification in the fiscal policy on aggregate demand, in addition to refuting the existence of differences in using different tools in financing the government expenditure on the aggregate demand. Their alternative argument says that all the government expenditure should be covered/ paid out eventually by taxes[87].

Brian, Motley explained the mechanism of the previous arguments, by mentioning that Riparian's scholars assumed the case of deducting the taxes without any significant reducing in the government outlay expenditures, or increasing its expenditures by borrowing from private sector (crowding out) or printing money (inflationary tax) could not be permanent procedures because of the risk of debt accumulating and interest rate change especially in times of low economic growth. What the government does is accumulating larger liabilities which should be covered somehow by increasing in the taxes at some time in the future. This is unavoidable, and the cost increases as the consolidation policy is being delayed [88].

Moving to the impact on the aggregate demand, by assuming that the economic agents (individuals, firms etc.) are rational, and they recognize the dynamic of the decision maker's

[86] *the additional contribution in this theory on the Ricardian theory is including the rational expectation in the analysis of the economy's response of the changes in the fiscal policy.

[87] Brian, Motley, "***Ricardo or Keynes: Does the government debt affect consumption"***, federal reserve bank of san Francisco, Economic review winter 1987 number 1, (1987), p48.

[88] Brian , Motley***, "Ricardo or Keynes: Does the government debt affect consumption", p48-49.***

policy which implies just shifting in the timing of tax liabilities, holding that they are able to respond rationally by lending or borrowing (no credit constraints, perfect capital market etc.). This argument is consistent with consumption theory which was formulated by Melton Friedman as " permanent income hypothesis of consumption" and Modigliani and Bumberg's hypothesis of " the life cycle approach". According to these theories, households plan their expenditure over a relatively long time horizon, and they smooth out the effect of any variation on their income on their consumption over the life cycle. So temporary increasing in the household disposal income resulted by tax cut or governments transfers would not make significant change in the current consuming behavior. they can save the extra income, and the opposite is right if the current tax payments increased but lowering the future tax is expected. Hence households have no incentives to change their consumption behavior; They can borrow now and pay the extra tax, while lowering tax payments would provide the required fund to repay the borrowed money[89]**.** But the real world also is not perfectly Ricardian.

As a rebuttal to this interpretation, one way to criticize the Ricardian views is could related to the presumption of individual's rationality, and no one can assume such assumption. In addition, this interpretation does not take into consideration the time money value, lowering tax today increases the individuals' wealth more than promising lowered tax in the future and the opposite is right.

2.4.3 Could contractionary fiscal policy be expansionary?

It is one of the hottest topics which occupied the interests of the scholars since the 2008 crisis. Such interests derived from the status of some economies which found no choices except

[89] ***Ibid, p48- 49.***

conducting a consolidative fiscal policy in spite of the recessionary pressures because of the limited fiscal space position and the narrowed windows of maneuver.

Consolidative or austerity fiscal policy implies raising the tax or cutting the government expenditure in order to stabilize the fiscal position of the public sector. Based on Keynesian school, the austerity fiscal policy would incite direct contractionary impact on aggregate demand and so on pushing down the economic growth in the short term while the Ricardian scholars have also a contradictory interpretation. They believe as we mentioned previously, that any changes in the fiscal policy's components do not cause any direct or contemporaneous change in the economic activity as the private sector is expected to offset the reduction in the government activity. Alternatively, they claim that reduction in government's expenditure has a potential chance to encourage the rational economic agents to spend more on consumption and investments (crowding in effect). This is because of the assumption that any recognition the government's commitment to bridge the budget deficit and reduce the debt level would send a positive signal for the market to expect lighter taxes in the future, and less inflationary stress, what stimulates the demand today [90].

Many empirical studies tried to measure this impact of the fiscal adjustment policy on the GDP growth. Alesina and Perotti (1997) study encompassed a full sample of OECD countries and by focusing on three case studies (Denmark, Ireland and Italy) found that fiscal adjustments which rely primarily on spending cuts have a better chance of stimulating expansionary impact, while fiscal adjustments which rely primarily on tax increases and cuts in public investment tend not to

[90] Fernando, Luiz; Manoel, de castro pires, "***The effects of fiscal policy after the global recession: assessing the evidences***", (Brazilian Journal of Political Economy, vol. 33, nº 2 (131), pp. 315-321, April-June/2013), p 316,317.

last and are contractionary. Additionally, Alesina and Ardagna (2010) examined the impact of adjustment fiscal policy in 21 OECD countries during 1970 - 2007, and found out significant positive impact on the economic growth and reducing the debt to GDP by more than 4.5%. So in their findings, the expansionary impacts of the consolidative fiscal policy are possible in case of combining the adjustment with structural reform[91].

In parallel with the previous results, the study of the Giavazzi and Pagano (1990) and Perotti (2011) looked at the consolidation episodes of Denmark and Ireland in the 1980s and found out that the composition of the budget composition (lowering government spending) played a crucial role in the success of the consolidation policy **[92].**

On the other hand, Guajardo et al. (2011) did not find strong evidences for an expansionary effect of the fiscal consolidation polices. The major finding of his study which used the dynamic panel model of real economic activity was that 1% of GDP fiscal consolidation reduces private consumption by 0.75% in 2 years and real GDP by 0.62%. Ilzetzki and Vegh (2008), also found out similar results, the fiscal consolidation has recessionary impacts. lastly, a study conducted by Easterly et al (2008) introduced a new assumption that the consolidation fiscal policy in the developing economies may not only cause recessionary impacts on the economic growth, but also expand the deficit of the budget rather than reduce it. This is more likely to be driven in case of lowering the interest rate to 0 level **[93].**

[91] Fernando, Luiz; Manoel, de castro pires, "***The effects of fiscal policy after the global recession: assessing the evidences" p 317.***

[92] Maria, Attinasi Grazia; Alexander, Klemm***," THE GROWTH IMPACT OF DISCRETIONARY FISCAL POLICY MEASURES",*** European central bank, NO 1697, (2014), p 5.

[93] Maria, Attinasi Grazia; Alexander, Klemm " ***THE GROWTH IMPACT OF DISCRETIONARY FISCAL POLICY MEASURES***", p 5-7.

There are two transmission channel for the fiscal adjustment in order to achieve the goals of bringing down the budget deficit and debt/GDP level to its normal ratios.

- **On the demand side**: fiscal adjustment could run expansionary effects if cutting expenditures or increasing taxes perceived as permanent procedure. In this regards, the rational agents in the economy receive such policy as a signal that the government is trustworthy in correcting the fiscal deficit which would help in avoiding higher cost of future fiscal adjustment. Later, this would incite the consumer to increase their consumption as they expect permanent increase in their future disposal income with holding the assumption of "liquidity constraint". Another channel of the expansionary effect on demand side is related with the expectation of the agents to interest rate trend. If the fiscal adjustment of the government is being received by the agents as a credible step to correct the fiscal position of the government, then the risk of potential default of government on its outstanding debt becomes lower, leading to lower risk premium by the agents on government debt. As a results This would incite similar reduction in the cost of borrowing in the economy for the economic agents (consumer or firms), and increase the agents' wealth and so on the consumption and investment[94]**.**
- **On the supply side:** increasing the income taxes or cutting the government expenditures is assumed to stimulate expansionary impacts on economic activity via labor market if the decreases in the government's size in the economy caused reduction in the employment in the public sector. Hence, Increasing the supply of labor in the market affect the real wages required by the unemployed labor force and the negotiation power for the labor union. Expected output is decreasing the wages which forms significant components of the firm's

[94] Alberto, Alesina, Silvia, Ardagna ***"Large Changes in Fiscal Policy Taxes Vs Spending", 2009, 2010. P p38.***

costs which would help in enhancing the profitability, investment and competitiveness of the private sector [95].

The decision of conducting a consolidative fiscal policy is not pure economic issue. It is restricted by the political bargaining among the groups of interest. It is more sensitive than in case of expansionary fiscal policy, which usually is preferred by the governments.

The debates today stand on how to restore fiscal stance without harming the economic recovery path after the great recession of 2008? which policy is preferred :tax increase or expenditure cut?

According to Alesine (2009) the historical lessons carry some hope, for instance in UK the debt/GDP ratios had been controlled and went down after the World War II just because its historical credible fiscal stance. Furthermore, in case of USA during the 1990s, neither the conducting massive cuts in the public expenditures nor increasing the tax were adapted to deal with the debt and fiscal deficit, only the high economic growth driven by the market's confidence in the government behaviors was sufficient in restoring the fiscal stance. This is reasonable since the high economic growth and moderate inflation rate (to reduce the real value of outstanding debt) is one of the main factors in achieving debt sustainability for many economies with high debt/GDP level[96]. Crucial questions arise in this context of arguments, what if the economic growth stagnated on a low level as it is the common case in many advanced economies, and less clear in the developing economies? How could the decision makers would deal with the skyrocket level of debt/GDP and budget deficit?

[95] Alberto, Alesina, Silvia, Ardagna ***"Large Changes in Fiscal Policy Taxes Vs Spending", 2009, 2010. P p38.***

[96] Alberto, Alesina, Silvia, Ardagna ***"Large Changes in Fiscal Policy Taxes Vs Spending", IBID. P 2-4.***

Such a scenario, carries in my point of view, serious risks. For that reason, keeping the alternative plan of conducting significant fiscal adjustments should be born in mind.

The expected effect of fiscal adjustment policy is not clear and varies across the time and economies as it is the case with estimating the impact of expansionary fiscal policy which we have just discussed.

The recent crisis proved again for the scholars, governments, international intuitions and all the groups of interests that the global economic relations are becoming more sophisticated, what requires the necessity for developing new methods of analysis for the economic activities, as well as developing new tools of economic policies. The recent crisis confirmed the shortages in the economic and analysis in introducing solid and credible interpretations for what happened in 2008 in time and failed to propose sufficiently the optimal solutions. Monetary policy dominated the economic policy during the last few decades, as the fiscal policy did after World War II. But the attempts to find an optimal combination among them are still out of reach in the prospective term. Recently Many papers started to consider the non - fiscal factors which has a direct impact on the size effect of the countercyclical fiscal policy. Like monetary policy stance, labor market rigidity, trade openness etc. Based on that it is possible to say that non of the economic policies could have external validity due to the differences the structural and conjectural of the economies as well as the ambiguity of the crises nature. Hence, the optimal alternative is to measure the feasibility of using different combinations of economic policy' tools in a simulated crises scenario, which could help in designing an effective countercyclical policies and save the uncertainty time of decision making.

Chapter 3: Evaluating the feasibility of the stimulus fiscal package of 2009 on Chinese economy

3.1 Diagnostic analysis for the Chinese fiscal stimulus package since 2008: non - parametric method

3.1.1 the size of the fiscal stimulus package 2008 – 2009

The first sign of the impact of the global financial crisis on Chinese economy appeared in the fourth quarter of 2008 when the economic growth declined sharply to 7.1% compared to 13.5% in the same quarter in 2007. The unexpected declining of economic growth was accompanied with an increase in the unemployment rate in the urban cities by 2 percentage points in 2008 according to National Bureau of China. Other estimations claimed that the actual unemployment ratio increased with higher digits than the official announcement since not all the labor force which work at the urban area were registered there. The contribution of the net export to GDP growth declined since 2008 and turned to be negative by 40% until the middle of 2009; also the consumer price index declined sharply during 2008 - 2009, indicating to a significant deflationary impact on growth and low consumer and producer confidence. On the public finance side, the revenue of the government declined sharply during 2008 due to the decline in the GDP growth. Along similar lines, the minister of finance warned of tough fiscal years after 2008. The figure (6) shows the decline in Government revenue growth (annual growth based one monthly data) which deteriorated from 40% in January 2008 compared to the same period in 2007 and to -12% in 2009 compared to April 2008[97].

[97] Christine , Wong, "***THE FISCAL STIMULUS PROGRAM AND PROBLEMS OF MACROECONOMIC MANAGEMENT IN CHINA*** ", School of Interdisciplinary Area Studies University of Oxford, PUBLIC

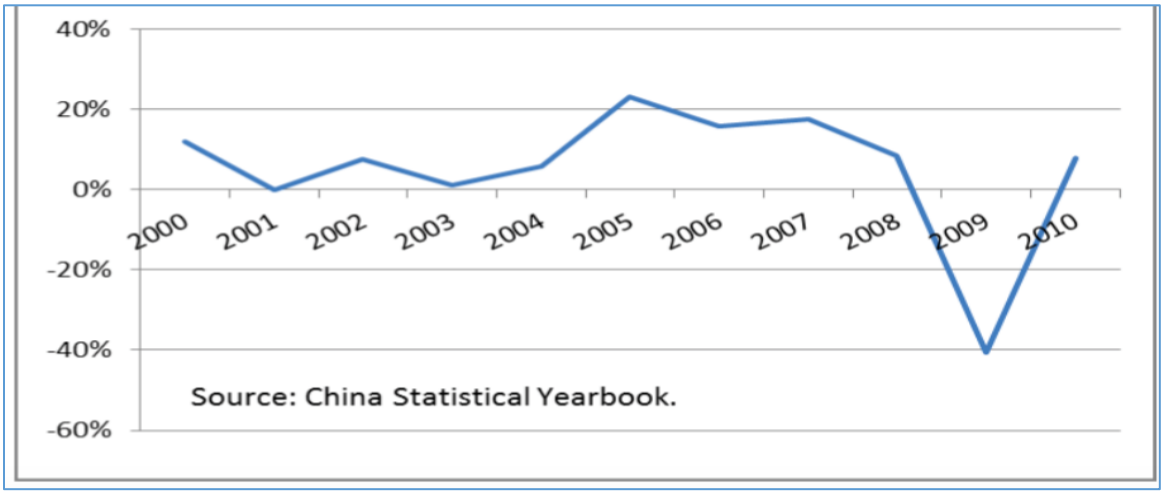


Figure 6 Annual contribution of the net export in economic growth, Source: (Wong, Christine, 2011, p 5).

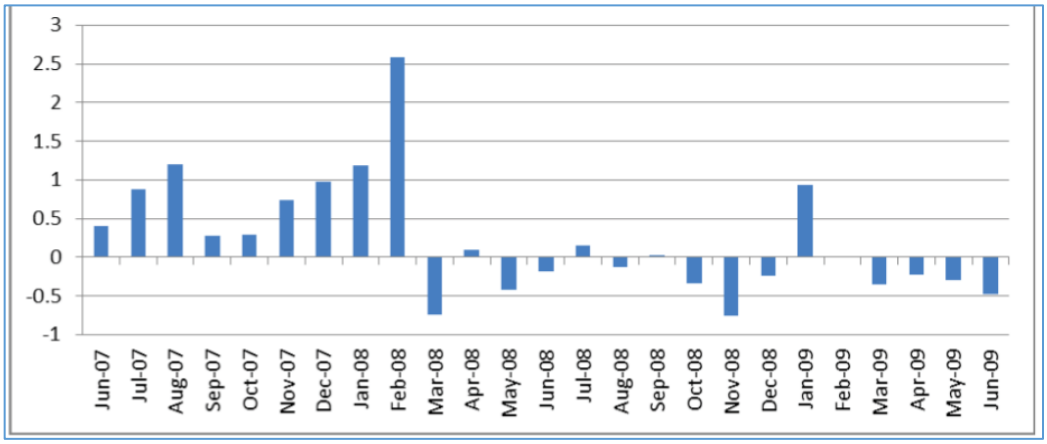


Figure 7 Change in CPI (MOM%), source: (Wong, Christine, 2011, p 5).

GOVERNANCE AND TERRITORIAL DEVELOPMENT DIRECTORATE PUBLIC GOVERNANCE COMMITTEE , Working Party of Senior Budget Officials, (OECD, 2011) p 1-5.

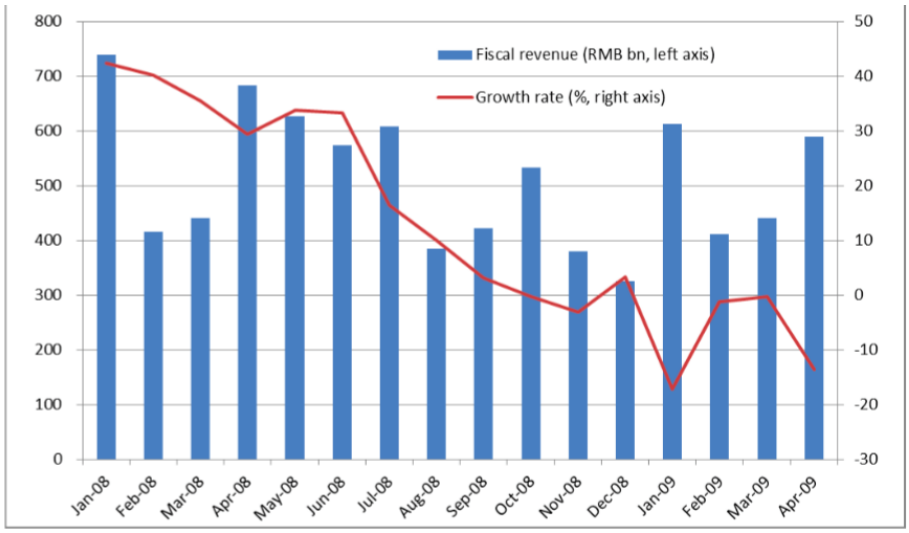


Figure 8 Monthly fiscal revenue (YOY growth),source: China Data Online, MOF website. (Wong, Christine, 2011, p 5).

Chinese government did not ponder for a long time and responded quickly to the ambiguous recessionary trend of the global crisis. Chinese government called for "big, fast, and effective" stimulus program to Smooth out the economic growth slowdown. Indeed, the government announced a large fiscal package to stimulate the economy. The package's size was 4 trillion YUAN or (586 billion $) equal to 11-13% of annual GDP in 2009 - 2010, in parallel with easing the monetary policy[98].

Many parties welcomed this step; for instance, the World bank, IMF, and many scholars praised the stimulus package announcement because of their hope that these procedures in such a large economy like China will have a positive impact on the global economic recovery. In the same context, many economists supported this step and found out that it is an opportunity for China to

[98] BAI , En; TAI HSIEH, CHONG; ZHENG , CHANG SONG, ***"The Long Shadow of China's Fiscal Expansion"***, 2016, p 137, available online on: https://www.brookings.edu/wp-content/uploads/2017/02/baitextfall16bpea.pdf.

correct its imbalances and support the global economic growth. Dominique Strauss - Kahn who was director of the International Monetary Fund, said that "*it will have an influence not only on the world economy in supporting demand but also a lot of influence on the Chinese economy itself, and I think it is good news for correcting imbalances*" .[99] Paul Krugman wrote in 2010 that China had engaged in a "much more aggressive stimulus than any Western nation—and it has worked out well" .[100]

Chinese reaction rested on the Keynesian's school represented by the belief in the importance of role of the government intervention in closing the output gap caused by deterioration in domestic and external private demand and confidence in the economy. This reaction took the form of increasing the government expenditures and deduction in tax. Our main focus would be on evaluating the feasibility and rationality of conducting the fiscal stimulus package of 2009 through estimating the fiscal multiplier.

3.1.2 The Composition of the 4 trillion fiscal stimulus package

According to the table (6), investment in infrastructure dominated the stimulus package with more than half of the overall spending, including the exceptional spending on repairing the damaged infrastructure after Sichuan earthquake. Furthermore, the government allocated significant portions for developing high speed railways, grid modernization projects, in addition to the interest of the government in enhancing the energy efficiency projects by supporting investment in clean vehicles, grid infrastructure, and other clean energy technology. Less interest went to health,

[99] BAI , En; TAI HSIEH, CHONG; ZHENG , CHANG SONG, "***The Long Shadow of China's Fiscal Expansion***", p 129.

[100] Paul, Krugman, "***Keynes In Asia***", published on New York time, column of the conscience of a liberal, 24 July 2010, available online: https://krugman.blogs.nytimes.com/2010/07/24/keynes-in-asia/.

education and social welfare projects (only 4% of the total package). This distribution, in points of view of many economists were supposed to obtain priorities in view of the efforts to support direct domestic demand. The first observation which could be raised from the initial design of this package is that it was not optimal and did not succeed in targeting the declared goals of supporting sustainable new sources of economic growth instead of the traditional sources. Moreover, the design, as we will see later reflected the implicit relationship between government and groups of interest either in public sector or in private sector, since most of the benefited projects are co-partners between both.

The planned collective responsibility of the financial resource was distributed (1.18 trillion Yuan) to the central government, and the rest (2.8 trillion Yuan) was left for local government, enterprises and banks [101].

elements	shares
Sichuan earthquake public infrastructures repair	26%
innovation projects	9%
Ecological and environmental projects	3%
health and education	4%
infrastructure	38%
rural livelihood and infrastructure	10%
low cost housing	10%
	100%
financing sources	

[101] Christine , Wong, "***THE FISCAL STIMULUS PROGRAM AND PROBLEMS OF MACROECONOMIC MANAGEMENT IN CHINA*** ", p 1-5.

central government 173billion$	29%
local government 180 billion$	31%
bank lending 233 billion$	40%
	100%

Table 6 Assigned shares of fiscal stimulus package's elements 2009 - 2010, and financial resources, source: researcher design based on world bank data: http://siteresources.worldbank.org/INTSDNET/Resources/5944695,1247775731647/INFRA_China_Newsletter.pdf

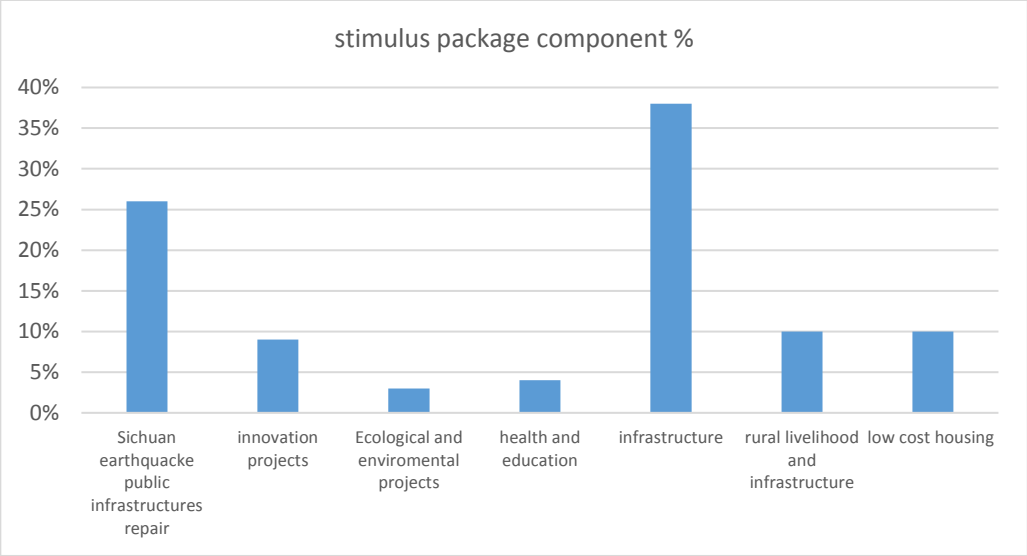


Figure 9 the planned component of the stimulus fiscal package 2008,(http://siteresources.worldbank.org/INTSDNET/Resources/5944695 1247775731647/INFRA_China_Newsletter.pdf)

3.1.3 institutional reforms were unavoidable to launch the package in 2008.

It is important to mention some characteristics of Chinese' market in order to understand the pragmatic practices of the Chinese government. The strategy of opening up toward private sector took its place and accelerated gradually since 1990, but the freedom of private sector in accessing

to markets opportunities until today is constrained by the dominating role of state owned enterprises in production chain during the whole transition period.

In 2013 China was ranked 151st in the world in terms of the ease of "starting a business". The alternatives usually were created since 1990 through what was known by "special deals". Under these deals many local governments used its enormous power during the fiscal deregulation period to support groups of private firms to start their projects without difficulties, especially in some sectors which used to be dominated by SOEs but kept the financial constraints over local governments. This behavior of some local governments, according to many studies ***(Bai, Hsieh, and Song 2016***), explains significant part of the rapid economic growth era in the last 2 decades in China. The private sector proved its efficiency in the fields which were opened to. In opposite to State owned enterprises which until today face many financial and administrative problems. Most of SOEs failed to transform from loss making firms to profit making, and this status of SOEs forms heavy burden on the stability of the fiscal position of the governments [102]**.**

The dark side of Special deals was included in the implicit cost of obtaining the special deals or treatments from the local governments. They usually required obtaining political support from the local governments and so on higher non - operational production cost [103]**.** Furthermore, the budget law of 1994 prohibited local governments from borrowing or issuing debt. Implementing unprecedented fiscal programs by local governments were not possible without conducting urgent institutional change in order to help the local governments to collect the required financial resources to implement the plan without violation to the budget law. Besides to responding to the

[102] *B*AI , En; TAI HSIEH, CHONG; ZHENG , CHANG SONG, "***The Long Shadow of China's Fiscal Expansion",*** p 132, 133.
[103] ***Ibid.***

calls to open more doors and opportunities for the the private sector to participate more wide in conducting the planned projects of the stimulus packages side by side with the SOEs or in partnership contracts.

Here are the main institutional modifications introduced in 2009 to pave the way for the implementing the stimulus package [104]**:**

1. Circumventing the budget law by allowing the local governments to borrow under **off – balance sheet companies to issue** (LFVs)*[105]. These kind of loans were not included or appeared in the central governments balance sheets and, as a result, no technical violation to the budget law was occurred. Important to mention that this decision went public in March 2009.
2. In 2009 the ministry of finance issued a new regulation which allowed the local government to finance investment projects by all the potential resources (budgetary revenue, land revenues, and borrowing by LFVs).
3. The last important change allowed the local government to borrow from **financial institutions** in contrast to the previous legislation which had prohibited them from such practice.

The main purpose of LFVs was to finance commercial projects in local infrastructure and social housing.

[104] ***Ibid, p 141-142.***

[105] LFVs: local financing vehicle as a company whose business covers "infrastructure and utilities" and whose major shareholder is a local governments or a subsidiary of a local government

3.1.4 What were the impacts of the fiscal stimulus package on the economic growth and stability: non - parametric analysis?

The main purpose of the stimulus package was boosting the economic growth, and restoring the double digit growth rate. Tracking the development of the economic growth and the other economic indicators may not reflect precisely the impact of the stimulus package on the economy since the monetary policy also was used to Smooth out the recessionary cycle of the crisis, but it could be useful in showing the nature of the impact since the size of program was really enormous.

3.1.4.1 Economic growth (Strong but short term recovery)

According to the graph (10), the economic growth started to decline since the beginning of 2008. GDP deteriorated from 14.2% on average in 2007 to less than 10% in 2008 and continued on the same path in the first quarters of 2009, which was the same time of implementing the fiscal stimulus package. In parallel with launching the 4 trillion (FSP) the government and People Bank of China took other expansionary procedures, like tax cuts, and eased monetary policy (decreased interest rate on lending many times, releasing the conditions of granting credits, deduction in VAT tax especially for corporation, and increase a health care deduction etc.). In 2010 the average GDP growth restored the double digit growth rate by 10.6%. Differently from many official expectations, the recovery did not last for a long time. Since 2011 the Chinese economy has entered into a continuous period of slowdown pressure. GDP growth declined rapidly and reached 6.9% in 2015, which is considered the lowest level in 25 years. This, in my point of views put an end of long era of double digit growth rate and indicates a new stage of the Chinese economic model which is difficult to be restored at the current level of development previously is reached by Chinese economy.

The available evidence and numerical indicators suggest that the stimulus package was useful in supporting the recovery only in the short term. Many questions could be raised about the efficiency of selecting and conducting the programs and projects in view of the crucial imbalances, which faced the Chinese economic model and the large cost of this stimulus program which was 11-13% of GDP. On the other hand, that also does not mean that the stimulus package was not necessary. Many scholars support the claim that the government procedures protected the economy from sharper decline. True impact of this program needs more quantitative research to estimate the exact impact of the discretionary changes in the fiscal policy on growth, and until now there are no optimal way to measure precisely the impact of discretionary fiscal policy on growth. The aim of this chapter is to give another try to measure this impact through bucket approach on local levels instead of the national one.

The Figure 10 below shows that the Chinese economic growth in spite of the rapid decline in the growth rate but still higher than the average of other similar economies in Asia and pacific and upper middle income countries.

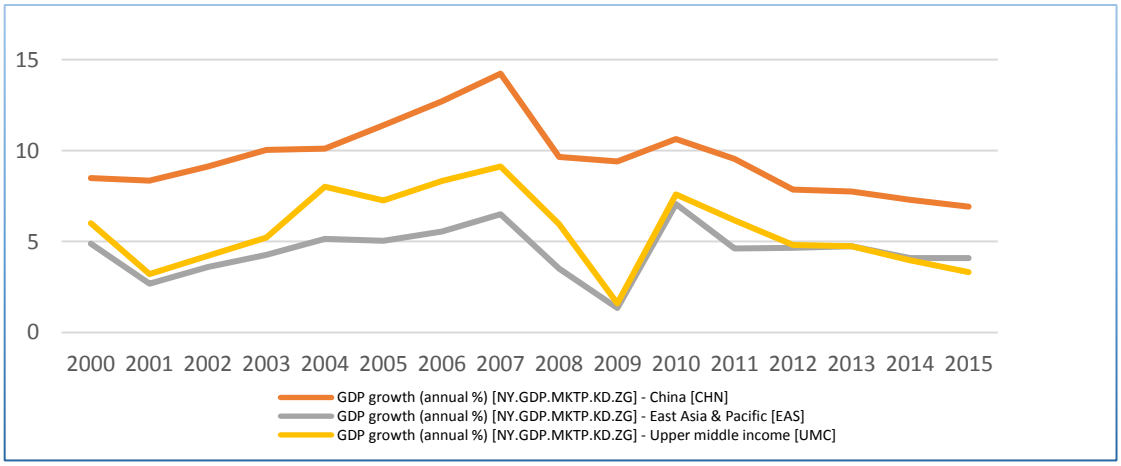


Figure 10 GDP growth in China and other regions (2000 - 2015), source: researcher, depend on World bank data, China profile.

3.1.4.2 The sources of economic growth since the launching of the stimulus package

According to China's statistic year book (2010), the main driver of the strong recovery in the year of implementing the stimulus package in 2009 was the investment in capital formation. This element contributed to more than 8.7 percentage points of the average growth. Secondly the consumption contributed to 4.1 percentage points, which is lower than the previous years. while the net export's contribution was negative by 3.7 percentage points due to the declining in the external demand. In general, the data emphasized the typical belief of the Chinese decision makers in the feasibility of capital investment as the main driver of the growth as this was obvious from the design of the package.

The figure 11 below brows the absence of the true willingness in transforming the economy from investment and export based growth model to consumption and service based economy. This transformation was recommended by many economists since the traditional growth model seems to have reached its limited and the economy suffers from overcapacity in many investments fields (for example steel, Coal, mining industries) which also have diminishing returns on investments. Such overcapacity was enhanced by the high regulations on these industries, in addition to the unlimited governmental subsidies that affected negatively the resources allocation in these sectors.

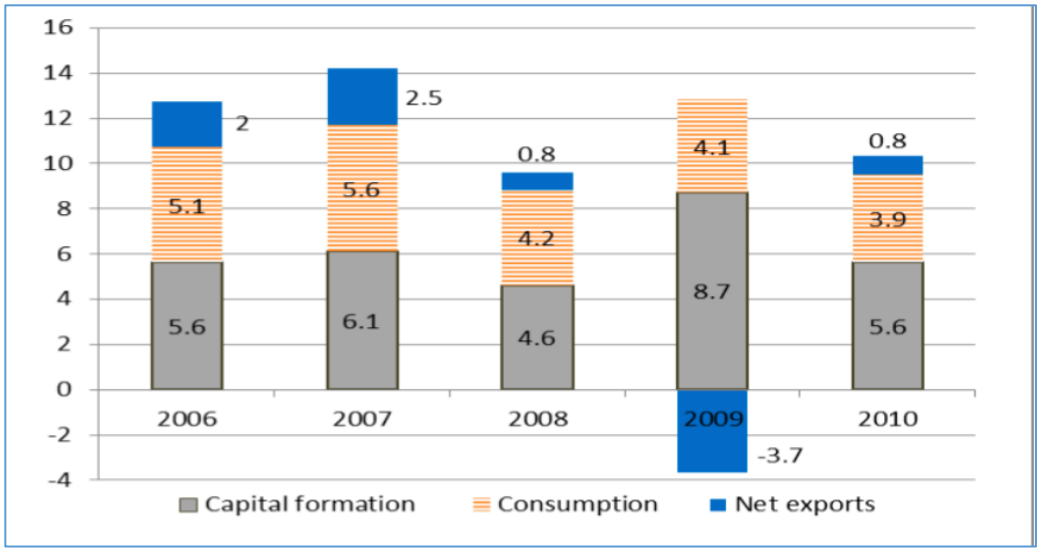


Figure 11 sources of economic growth during 2006 - 2010, source: CSY 2010 and Dragon Week (March 2011).

3.1.4.3 Slight shift toward enhancing the consumption role in economic growth.

The fiscal stimulus package did not deviate from the traditional beliefs in investment as the main driver of the growth. The ratio of the capital formation continued its uprising trend and reached the highest level in 2011 by 43.3% of GDP, while the total final consumption (households and government) declined since 2000 and reached its lowest ratio in 2010 with 48.2%. This decline was driven mainly by households consumption contraction which also reached its lowest level in 2010 with 34.9% of GDP. This ratio of consumption/GDP is lower than the international standards of some advanced economies, where the consumption contribute to 60-70% of GDP. We mentioned previously, this division of the demand side in the Chinese economy is considered one of accumulated structural imbalances.

The traditional beliefs in investment as optimal source of growth seems to be changed since 2011. In this context, the Twelfth Plan (2011–2015), the government concentrated on the priority of rebalancing the economy, shifting the interests from focusing on investment toward consumption, and the development from urban and coastal areas toward rural and inland areas - initially by

developing small cities and greenfield districts to absorb the increase in the migration phenomena. etc.

The transition needs time and serious political willingness but we could notice slight adjustments in the shares of consumption to GDP. It increased to 49.8% in 2013 and the household consumption increased to 36.2% in the same year compared to 48.6% in 2008, it is still less than the average ratio of the last decade. However the households share in total disposable income increased from 58.3% to 62% in 2012 [106].

Year	Final Consumption			Gross Capital Formation			Net Export
	Household Consumption	Government Consumption	Sum	Gross Fixed Capital Formation	Inventory Change	Sum	
2000	46.4	15.9	62.3	34.3	1.0	35.3	2.4
2001	45.3	16.1	61.4	34.6	1.9	36.5	2.1
2002	44.0	15.6	59.6	36.2	1.6	37.8	2.6
2003	42.2	14.7	56.9	39.1	1.8	41.0	2.2
2004	40.6	13.8	54.4	40.5	2.5	43.0	2.6
2005	38.9	14.1	53.0	39.6	1.9	41.5	5.5
2006	37.1	13.7	50.8	39.5	2.2	41.7	7.5
2007	36.1	13.5	49.6	39.0	2.6	41.6	8.8
2008	35.4	13.2	48.6	40.5	3.2	43.7	7.7
2009	35.4	13.1	48.5	44.9	2.3	47.2	4.3
2010	34.9	13.3	48.2	45.6	2.5	48.1	3.7
2011	35.7	13.4	49.1	45.6	2.7	48.3	2.6
2012	36.0	13.5	49.5	45.6	2.1	47.7	2.8
2013	36.2	13.6	49.8	45.9	1.9	47.8	2.4

Source: China Statistical Yearbook (2014)

Table 7 contribution of final consumption and gross capital formation of GDP during (2000 - 2013)

106 ***China statistical yearbook (2014), available online: http://www.stats.gov.cn/tjsj/ndsj/2014/indexeh.htm***

3.1.4.4 Ambiguity in estimating the fiscal deficit in China.

The government's spending increased significantly since 2009. It jumped from 11 trillion Yuan in 2011 to 17.5 trillion Yuan in 2015 according to the ministry of finance data(figure 12). Consequently, the official fiscal deficit for both central and local governments increased quickly from -1.1% of GDP to -3% of GDP in 2009, and decreased slightly, before going up again since 2011. This is considered close to the standards international ratio. But as we mentioned before, this ratio hides the off balance sheet expenses of the local governments funded by LGFVs. If China added the off balance sheet (debt of LGFVs) to the general public expenditures, the ratio would be around 10% of GDP and this implies higher risks on the sovereignty of government debt and threats the financial stability as most of the local governments funding financed by banks loans and bonds[107].

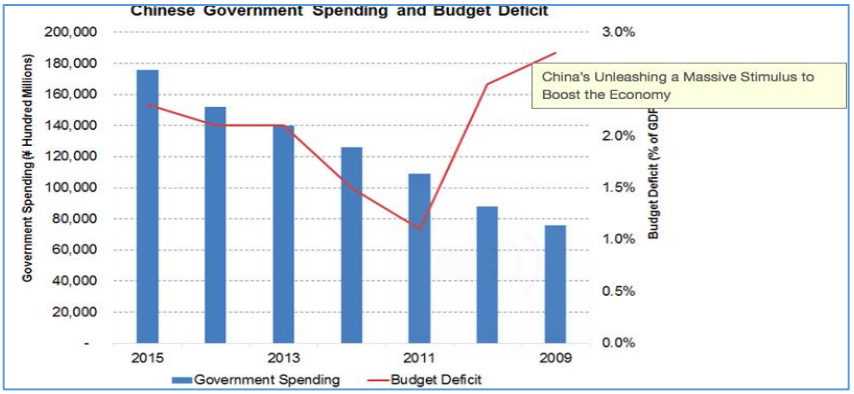


Figure 12 Chinese Government spending and budget deficit., source ministry of finance. China

[107] Gabriel, Wildau, "***China local governments revive off-budget fiscal stimulus***", published in financial times, 20 SEP 2016, available online: https://www.ft.com/content/b303f280-7f14-11e6-8e50-8ec15fb462f4

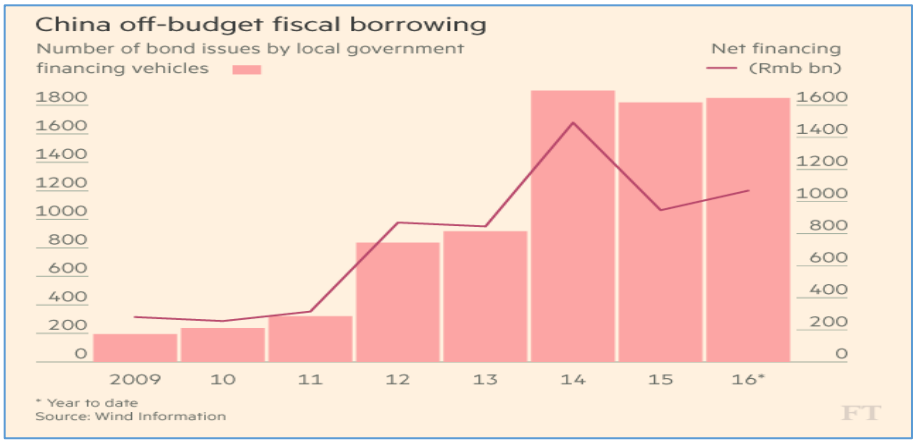


Figure 13 China off budget fiscal borrowing

3.1.4.5 Ballooning in local government debt.

The total debt of Chinese local government increased significantly since 2009. According to the national Audit Office data, the aggregate local government debt surged from 10.7 trillion Yuan in 2010 to around 16 and 17.9 trillion Yuan in 2012 and 2013, and reached 24 trillion Yuan in 2014 with more than 20% average growth rate. It formed more than 40% of the GDP and expected to exceed 50% by the end of 2020 [108].

By checking the composition of the debt, one notice is that the direct debt formed the largest portion of the total debt and recorded the highest growth rate compared to the guaranteed debt and the potential liabilities, which raises the risks of the failure of the the borrowers on the sovereignty of the local governments fiscal position and the banking system.

[108] Zhenqian, Huang, "***Enhancing responsibility of local government borrowings in China***", Master thesis, (John F. Kennedy School of Government Harvard University, 2016), p1, available online: https://ash.harvard.edu/files/ash/files/sypa_final_zhenqian_huang.pdf

For more details about the classifications of local governments debt, see the table (7)

Source of debt	Direct liabilities (Local governments' responsibilities to repay; current liabilities)	Contingent liabilities (Local governments' repayment responsibilites to repay under certain conditions; future liabilities)
Explicit debt (Local governments' debt comfirmed by law)	• Local governments' bonds issued by the central government • Local governments' bonds issued by themselves • Borrowings from foreign governments and international organizations • National debt transferred to local governments • Agricultural development debt • Payments overdue of local government-owned food production, supply and sales enterprieses • Account payable • Salaries and pension of civil servants • Legally defined debt from local government financing vehicles, public institutions and utilitiy companies, which should be repaied by fiscal revenue.	• Debt from local government financing vehicles, public institutions and utilitiy companies, which should not be repaid by fiscal revenue but guaranteed directly or indirectly by the local governments. • The borrowings of the lcoal governments which will not be repaied by fiscal revenue. • Debt guaranteed by local government agencies, public institutions and local government financing vehicles.
Implicit debt (Local governments' debt defined by their roles)	----	• Debt raised for public welfare projects by local government financing vehicles, public institutions and utitility companies, which will not be repaied by fiscal revenue and is not guaranteed by the local governments.

Source: Liu, et al., 2012, pp. 9.

Table (7): the structure of local governments debt classifications

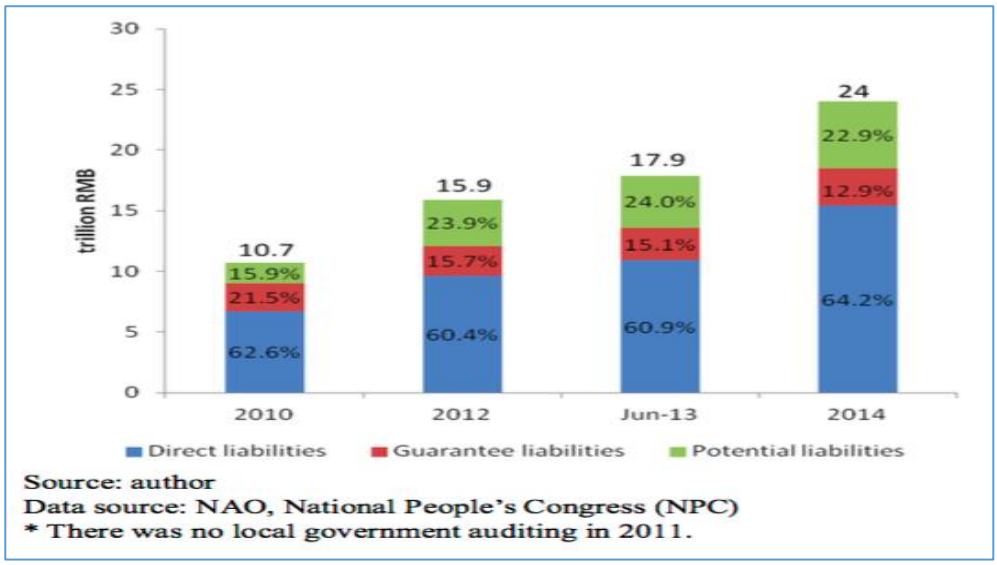


Figure 14 The types of local governments debt during 2010 - 2014

Overall Most of the local governments had lower than 60% as debt level to their GPP with one exception the province **(Guizhou)** which was estimated to exceed the threshold as of end 2013 after adding the contingent liabilities to its debt [109]**.** these ratios are considered accepted as they are below the international standards and under control, assuming the international level could be used as standard on regional level but the hidden risks still existed in the debt profiles of the local debt. For example, IMF's estimation that 50% of the local debt should be paid back in 2017, and the estimated cost of the debt service of the local governments debt is 6% of their gross revenues. Such liabilities are accruable in the times when the local government revenues are declining because of the slow down in economic growth and the deteriorating in their revenues especially the lands sale revenues which formed an essential source of funding for the local governments since 1990. In addition to taking into consideration this source as a last resort in repaying the

[109] Zhenqian, Huang, "***Enhancing responsibility of local government borrowings in China***", p4.

accrued debt especially in the lowest level of the governments provincial/municipal which usually have higher debt/GDP than 100% compared to the bigger localities. This source is not sustainable financial resource and could not be used to cover the sustainable expenditures[110] .

According to NAO more than half of the local governments debt is financed through banks loans especially policy and other local banks, and it is not clear how much of this is guaranteed by government[111].

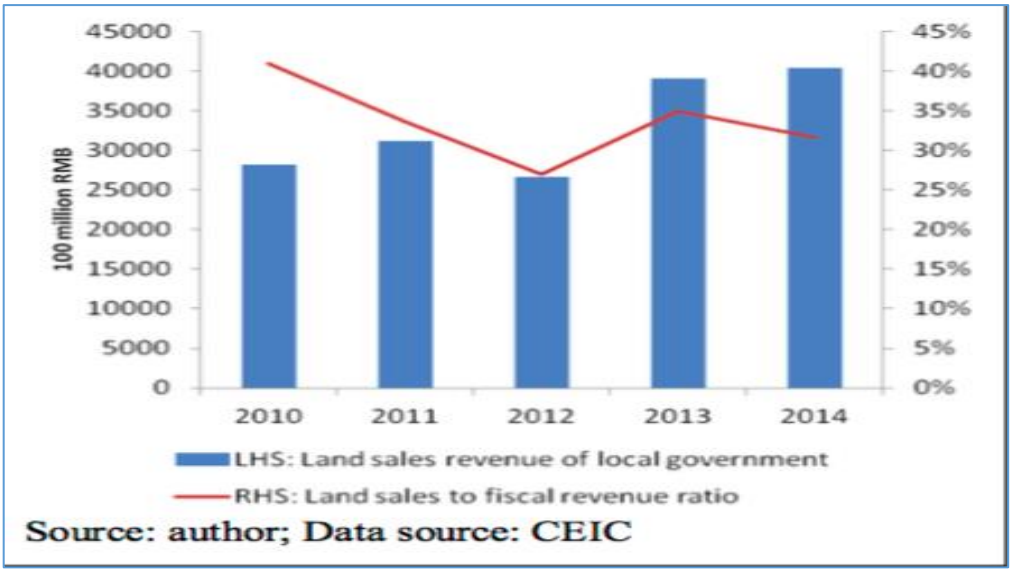


Figure 15 Trend of land sales revenue for local governments, 2010 - 2014

[110] Zhenqian, Huang, ***"Enhancing responsibility of local government borrowings in China", p4.***

[111] Zhenqian, Huang, ***"Enhancing responsibility of local government borrowings in China", p5.***

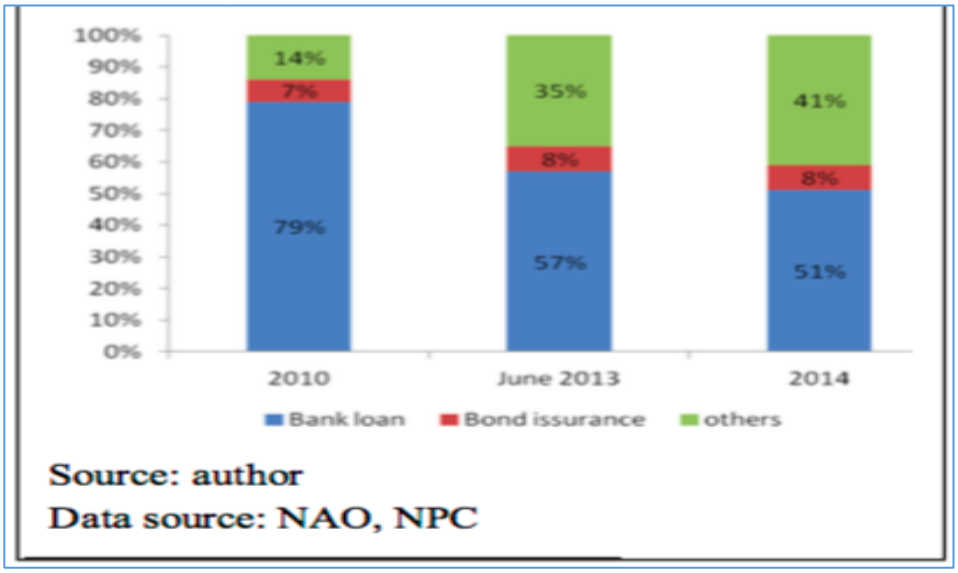


Figure 16 Sources of local government borrowings, 2010 - 2014

The accelerated escalation of the local governments debt is becoming a real threat for the fiscal stance in China as long as there is no clear plan in the government agenda to announce the expected time for adjustment policy. Instead it seems that the higher margin of freedom, which was legislated to the local governments to borrow the financial resources to conduct the fiscal stimulus package of 2008 during 2009 - 2010 continued after and this trend could be noticed from the trend of developing of the LFVs after the ending of this program. The number of LFVs grew rapidly even after the period of stimulus fiscal package end in 2010. Total number estimated to be around 7170 LFVs in June 2013. Net bond issuance by local government financing vehicles (LGFVs) increased from 946 billion Yuan in whole 2015 to more than 1 trillion Yuan in the first eight months of 2016[112], which reflects the Chinese policymakers' efforts to stimulate the growth by conducting additional stimulus packages. Furthermore, it is important to mention that the LGFV

[112] Gabriel, Wildau, ***"China local governments revive off-budget fiscal stimulus***", financial times, 2016.

debts are not explicitly guaranteed by the governments, but might be implicitly true, and that appears from the behavior of the governments in supporting their financial position, and injecting cash in order to keep them solvent.

To summarize this section, Chinese government should not ignore the risks of unstable fiscal position of the local governments, especially the high level of debt to GDP, since the good position of central government fiscal position could be threated if the local governments faced difficulties in paying its liabilities. Based on that, I believe that the government should start preparing to growth friendly fiscal adjustment policies to correct the deviations in the fiscal position, especially on the local governments level, otherwise the market will loose the confidence in the economy. The cost of late adjustments policy will put more pressures on the domestic demand, and constraints the efforts to enhance the propensity to spend, and as a result, restrict the growth.

3.1.4.6 Uprising the shadow banking activities to fundraise the local governments' fiscal needs.

As we mentioned before, local governments were responsible to finance and conduct the biggest portion of the stimulus package in 2009. One of the main channels to fill their financial gap was through bank loans and land sales. Access to bank loans channel required changing the fiscal arrangements for the local governments and adjusting the monetary policy in order to ease the credit conditions. In 2008 the People Bank of China decreased the requirement ratio to 13.5% from 17.5% for small bank and to 15.5% for large banks. Then reduced the base one-year lending rate from 7.47% to 5.31%, and the base deposit rate from 4.14% to 2.25% while kept lending rate around 5%. Additionally, PBOC increased loan quotas of all commercial banks. As a result, the overall lending targets increased from 4.9 trillion in 2008 to almost 10 trillion Yuan in 2009 as

shown in the graph 18 which also shed the light on the uprising of the activities of the shadow banking which started to accelerate after 2009, and reached the highest level in 2013.

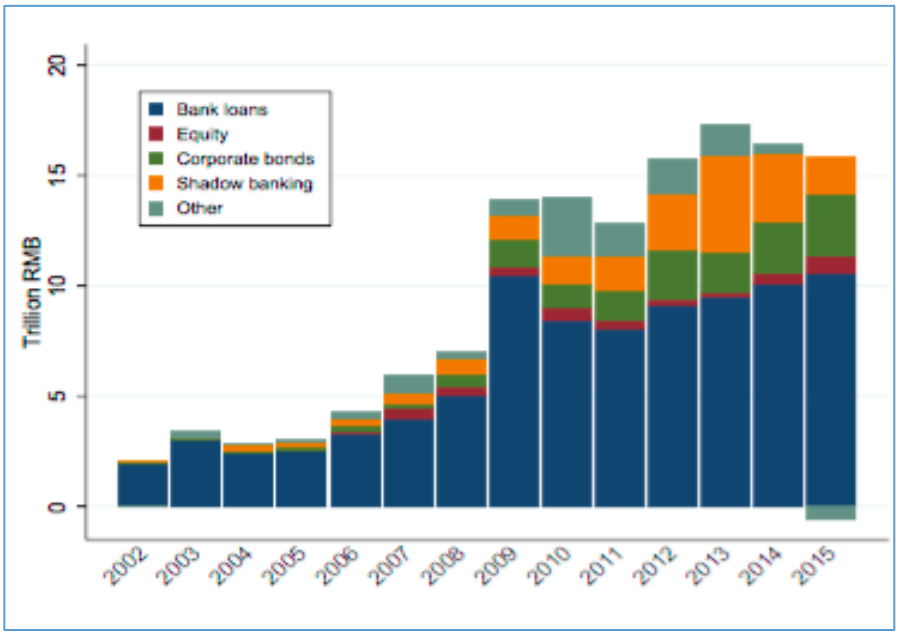


Figure 17 Credit flows from the financial system to GDP, source: Total Social Financing, People Bank of China

Another graph (18) below shows the rapid growth of the bank credit as % GDP after implementing the fiscal stimulus package in 2009 which continued till 2015 in spit of the temporarily tightening in monetary policy in 2010 - 2011. One can recognize a jump in the annual new banking loan share to GDP in 2009. The ratio evolved to more than 27% of GDP in 2009 compared to normal average

around 15% of the GDP of the previous years 113. After that the ratio declined and went back to the normal share around 15% till end of 2014[114] .

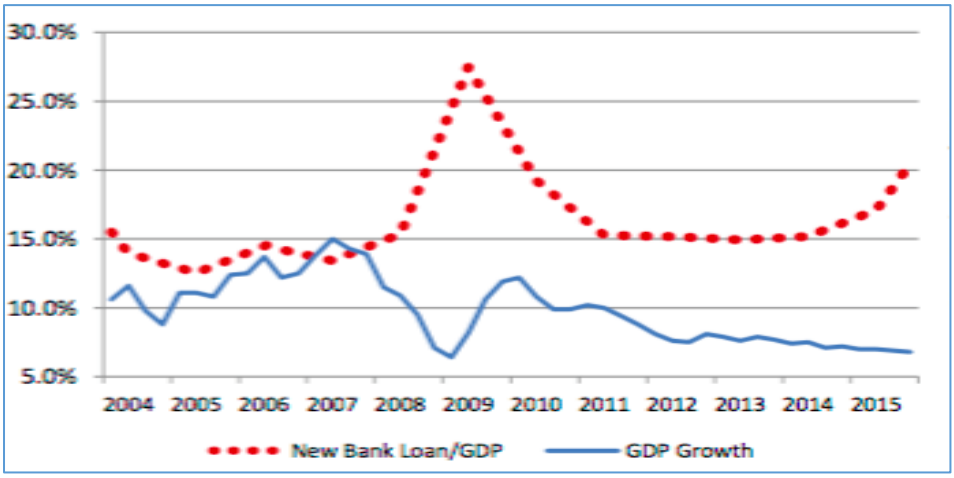


Figure 18 New Bank Loan as a Percentage of GDP, Source: Chen, Zhuo; He, Zhiguo and other, 2017, p10

The local governments at the beginning of 2008 obtained the majority of the the banking loans growth. According to **Bai et al. (2016)** estimated that 90% of the local government investments in 2009 were financed by the banks loans granted mainly by the State own banks (the big four in addition to the policy banks which are committed to support the economic agenda of the governments) "[115]. In the same context, it could be noticed from the figure (19) that the highest

[113] In 2009 the declining in the economic growth of the GDP contribute in the sharp increase in the net banking loans to GDP but still the increasing rate is significant.

[114] Zhuo , Chen; Zhiguo , He and others ***"The Financing of Local Government in China: Stimulus Loan Wanes and Shadow Banking Waxes "***, (2017), p9 available on the Chicago faculty web: http://faculty.chicagobooth.edu/zhiguo.he/research/StimulusloanMCB.pdf

[115] Zhuo , Chen; Zhiguo , He and others ***"The Financing of Local Government in China: Stimulus Loan Wanes and Shadow Banking Waxes "***, (2017***), p9.***

portion of the new bank loans was allocated for nonresidential purposes and that is consistent with Stimulus package's purposes in encouraging infrastructure - investments spending[116].

Figure 19 New Non - Residential vs. Residential Loans ,source: Chen, Zhuo; He, Zhiguo and other, 2017, p10.

The Shadow Banking activities have very wide definitions and that raises difficulties in measuring its size in any economy. The term "shadow bank" was originated in 2007 by Paul McCulley of PIMCO, as "a big bond fund to describe risky off – balance sheet vehicles hatched by banks to sell loans repackaged as bonds"[117]**.** Not all the times shadow banking activities are harmful. they help in some circumstances in fueling the economic growth by introducing cheaper and less restricted funds for the economic agents but on the account of the stability and safety of these products since

[116] ***Ibid.***

[117] Jac, Depczyk, ***"Much ado about multipliers-Why do economists disagree so much on whether fiscal stimulus works"*** , Economist E journal, (Sep 24th 2009). Available online http://www.economist.com/node/14505361**.**

the shadow banking activities are less regulated (for instance no capital requirements like banks) and less likely to be guaranteed by government[118].

The rise in the activities of the shadow banking in China refers to 2010, the time when the monetary authority tightened the credit policy and discouraged the the banks from granting loans to some industries in parallel with imposing caps on the deposit's rates. Shadow banking transactions in China have expanded and diversified quickly in the last few years. By following the development of the shadow banking activities from the growth since 2008, The following angels provided attractive returns to both the investors and intermediaries and formed important source of fund for the borrowers who faced barriers to access funds including the local governments after 2010[119].

- **Off balance sheet Trust loans**: which include both entrusted and trusted loans. These products are usually arranged via banks to move the resulting loans out of their balance sheets.
- **Wealth Management Products (WMP):** which is issued usually by the Chinese commercial banks to traditional household's investors and offer higher returns than the traditional deposits rate. the commercial banks invest the resources of WMP in corporate bonds such as MCBs*[120] or any other assets. According to **Bloomberg (2016),** "WMP forms one of the most popular and sophisticated products of the shadow banking's in

[118] Jac, Depczyk***; "Much ado about multipliers-Why do economists disagree so much on whether fiscal stimulus works".***

[119] Zhuo , Chen; Zhiguo , He and others ***"The Financing of Local Government in China: Stimulus Loan Wanes and Shadow Banking Waxes "***, ***p28.***

[120] MCBs: Municipal Corporate Bonds.

China, especially when the financial institutions develop WMP with Trust or other financial innovations"[121].

The figure (20) below shows the growth in the share of the trust loans and WMP and new loans scaled by GDP since 2004. It is noticeable that the size of off balance sheet to GDP started to record significant increase after 2011 and reached the top for the trust loans in 2013, then started to decline while the WMP size of GDP accelerated up to 2015. This could be interpreted as a results of the substitution from trust loans to WMPs after the China Banking Regulatory Commission tightened the regulations on trust products in 2014[122]

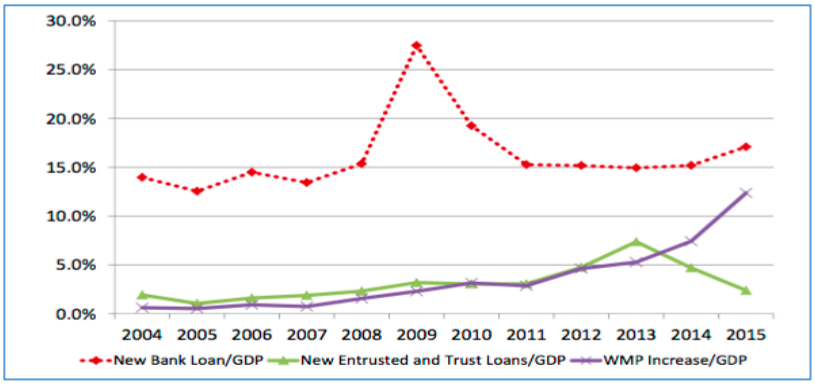


Figure 20 New Entrusted/Trust Loans and Increase in WMP, source: Chen, Zhuo; He, Zhiguo and other, 2017

[121] Tracy, Alloway, , ***"Four Fresh Worries About China's Shadow Banking System "***, Bloomberg, (Sep 2016), available online: https://www.bloomberg.com/news/articles/2016-09-07/four-fresh-worries-about-China-s-shadow-banking-system.

[122] Zhuo , Chen; Zhiguo , He and others ***"The Financing of Local Government in China: Stimulus Loan Wanes and Shadow Banking Waxes "***, ***p29***

Local governments drove the main prosperity in the shadow banking activities, according to the figure (21) below we can see the fraction of the local governments non - bank debt (MCB, Munibond, and Trust) owed to shadow banking activities which are measured by the sum of (Trust loans, undiscounted banker's acceptances and corporate bonds) recorded noticeable growth from around 1.5% in 2008 to around 22% in 2014 and in one year they jumped to more than 34% in 2015. Such new development emphasizes the role of local governments in surging the shadow banking activities[123].

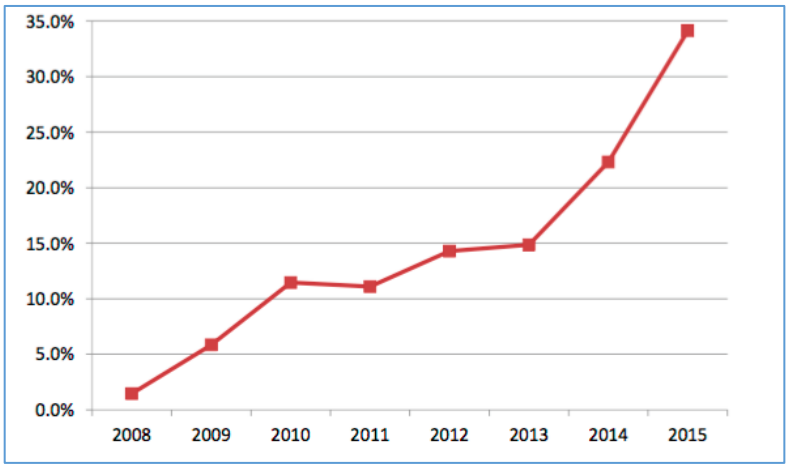


Figure 21 Local Government Non - Bank Debt over Shadow Banking,source : (Chen, Zhuo; He, Zhiguo and other, 2017)

One interesting issue that should be mentioned is that a significant portion of the crucial increase in the volumes of the MCBs issued by LGFVs were in was in purpose of refinancing the matured banks loans of the local governments and that is concluded from their structure since one of the main conditions of issuing MCBs is to express the purpose of the issuance. This is shown in the following figure (22)

[123] ***Ibid.***

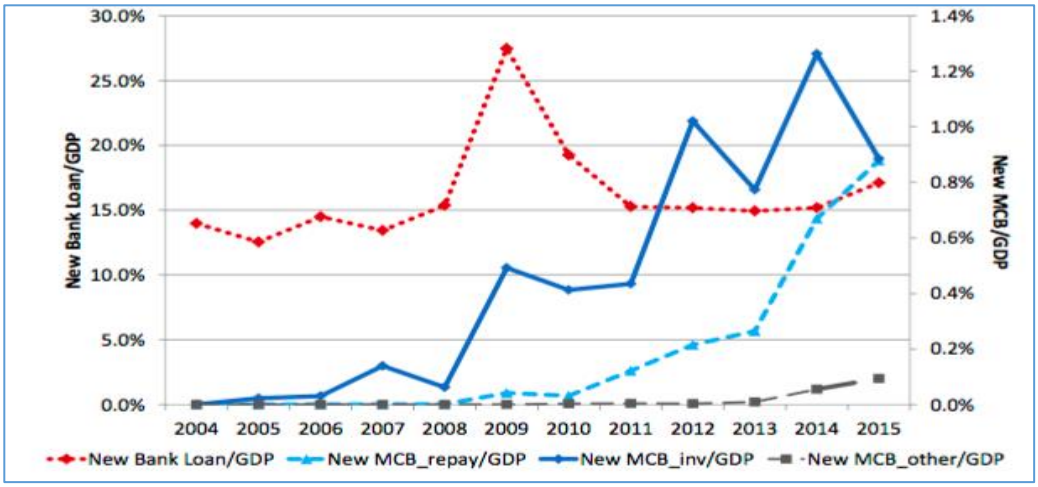


Figure 22 Newly Issued Municipal Corporate Bonds (MCB) by Purpose, Source : (Chen, Zhuo; He, Zhiguo and other, 2017)

After this general check up for the developments in the shadow banking activities, one could conclude that shadow banking activities today imply serious risks of the stability of the financial system. It has a linkage with banking sectors, other non bank financial institutions, public finance sector and the real sector. For this reason, any disturbances which could hit their activities, or one of their chains, could threaten the stability of the economic system at any time. On the other hand, I can say that pressure of the financial crisis and the response of the government to stimulate the economic growth through implementing fiscal stimulus package imposed pressure on the banks and non bank financial institutions to develop their activities in uncompetitive financial environment and heavily regulated. Such challenges helped in developing and modernizing the financial market in China.

3.2 Evaluating the impact of the discretionary fiscal policy on economic growth in China: Bucket Approach Model

Conducting a confidential estimation of the fiscal multipliers by using either SVAR Model or DSGE are limited by the shortage in the available high frequency data (Monthly, Quarterly) and long time series about Chinese economy. This problem is not only related to China, but it is common in many emerging and low income economies. Alternatively, IMF proposed "Bucket Approach" model as an useful tool to estimate the range of the fiscal multiplier size's effect according to two groups of factors[124]. Our optimal model that could be applied in the Chinese case is the Bucket Approach.

Many researchers tried to measure the fiscal multiplier of Chinese economy on the national level, in this context Wang, Xin (2015) used SVAR model and found out that the fiscal multiplier in China is large and approximately equal to 2. Another estimation of the fiscal multipliers in autonomous prefectures in China conducted by Yingxin Shi (2013) Found out that "fiscal multipliers for prefectures are between 0.61 and 4.93, with an average of 1.93. These results indicate that additional fiscal expenditure is still effective in increasing local income and promoting economic growth for most of the autonomous prefectures"[125].

The added value of this estimation is thetry to estimate the fiscal multiplier in 2009 in China on provinces level instead of national level by using Aucket Approach. My decision was based on the following reasons:

- The national fiscal multiplier in case of China could be helpful in deciding whether to launch the stimulus fiscal package, but such calculation implies that the fiscal multiplier is

[124] Nicoletta , Batini ; Luc, Eyraud and Anka, Weber, "***A Simple Method to Compute Fiscal Multipliers*** ", p 6.
[125] Yingxin, Shi, and Mototsugu, Fukushinge, "***Long-Run Fiscal Multipliers for Autonomous Prefectures in China,*** pacific economic review journal, Volume 20, Issue 5, (December 2015), Pages 687–695, Abstract.

one across the provinces. I believe this is misleading and not sufficient estimation. In addition to the fact that national fiscal multiplier does not help in optimizing the design of the stimulus fiscal package. On the contrary, estimating the provincial fiscal multipliers are more efficient as it reflects the differences in the characteristics of each provenance which cause difference size's effect across the provinces . Moreover, in this path, the decision makers would be able to optimize the fiscal package's resource allocation by raising the interests in the provenance with high fiscal multiplier compared to the rest.

- Chinese economy is not considered as a homogenous economic because of the emerging differences in the level of development across its provinces .
- Local fiscal multipliers would be useful in guiding the future economic and fiscal policy's plans in order to reach to optimal distribution of the discretionary fiscal policy among provinces which have medium - high fiscal multiplier and the rest which have low fiscal multiplier effect.

Note that the following points present the general steps that were used in estimating the fiscal multipliers of Chines provinces using Bucket Approach:

1- Mainly the data were collected from the China Statistical Yearbook for different years vary between 2000 - 2009.

2- Structural characteristics are six, each one should obtain score either 1 or 0, then summing the total score of these characteristics in order to find out the primarily fiscal multipliers in normal times. After that the primarily fiscal multipliers should be adjusted by two conjectural characteristics.

3- Some structural characteristics like Trade openness, size of automatic stabilizer and public revenue administration required assigning their scores based on average of sub indicators of previous 5 years.

4- Due to the absence of any potential sources of labor market rigidity indicators on the local level of Chinese economy, the national score of China obtained from the global competitiveness report of 2009 - 2010 of labor market efficiency was used as a starting point for further adjustments to reflect the provincial differences. Weights of 3 sub indicators were added to the benchmark score which in my opinion could reflect significant differences in the labor market rigidity across Chinese provinces: Average regionals wage growth % 2010 compared to their guidelines, Average efficiency score of Chinese provinces labor market, and whether the provinces are considered or have any kind of Special Economic Zones, since it is known that SEZs were given high level of autonomy.

5- Average Debt/ GPP ratio for each provinces are adapted from ready sources (NBS and Wind June 2013) and available only in 2013, because of the scarcity of the data[126].

6- In case of estimating the output gap as an indicator to check whether the economy suffers from economic cycle or not, longer time series between 2000 - 2009 were used to get more accurate results.

3.2.1 Fiscal multiplier's estimation in normal times

As we mentioned previously the structural characteristics determine how the economy responds to the fiscal policy in normal time, and there are six indicators as the following[127]:

[126] Xiaowei, Huange; Chen, Seng and Yi, David Wang" ***Does China's Debt-for-Bond Swap Reduce Banks' Risk?"*** School of Banking and Finance University of International Business and Economics, p5, available online: https://editorialexpress.com/cgibin/conference/download.cgi?db_name=CICF2017&paper_id=329.

[127] Nicoletta , Batini ; Luc, Eyraud and Anka, Weber, "***A Simple Method to Compute Fiscal Multipliers*** ", p 9.

1. **Trade openness**: Based on the collected data from 31 provinces across China, and after proportioning the size of the gross imports of each provenance to its Gross Provincial Product. 0 was assigned for the provinces which had import/GPP ratio larger than 60% during 2005 - 2009, and 1 to the provinces with lower ratio. According to Bucket Approach higher proportion of import/ GPP indicates higher propensity to import, higher degree of openness which implies lower fiscal multiplier effect.
2. **Labor market rigidity**: The World Competitiveness Report of 2009 - 2010 assigned the national score of Chinese labor market's efficiency 4 out of 7. This is considered as midpoint on the scale. Countries with score below 4 is considered as rigid market, while ones with score > 4 are those whose labor markets are considered efficient. In order to adjust this score to reflect the provincial differences in the efficacy of the labor market. The national score which is considered as a starting point that were rescaled by +-1 point depending on whether the average of the total score of the following 3 sub indicators is bigger than their average (add 1) or smaller (subtract 1).

   Details of calculation are as the following:

   - **Regional wage growth in 2009 - 2010**, the logic behind this additional variable is that the provinces with higher growth in average wages seem to have more efficient labor market relatively to others as it is shown in the Matrix (B). The range of the available regional growth ratios was divided to 4 bands, starting by minimum growth at 8.1% and the maximum at 14.9%, with band width of 2%. After that Scores between 1-4 were assigned to each provenance according to the band that their ratios belong to.

- **Average efficiency scores of provinces in China between 1978 - 2008:** This index is released quarterly by China Institute for Employment Research (CIER, 2013). Assigning the score to each provenance was conducting according to its CIER score in 2011 by giving score between 0-4, where provenance with higher efficiency obtains higher score[128].
- **Special Economic Zones (SEZ) and geographic location**: Assigning the score varies according to the existence of Special Economic zones, or to their geographic locations as the following:
  - If provenance does not have SEZ and located in east or northeast, we give score 1 if it is located in the center or inland of China we give score 0.
  - If provenance has SEZ and inland, we give 2 if it has SEZ and located in the eastern or northeast part of China we give score 3.
  - if overall SEZ and east or north east we give 4.

3. **The size of automatic stabilizer**: It is measured by estimating the share of public expenditure to gross domestic product. Larger automatic stabilizer (local government expenditure > 40% of GPP) entails smaller fiscal multiplier, hence it was assigned the score 0, while the smaller automatic stabilizer was given the score 1.
4. **Exchange rate regime:** Fixed or quasi – fixed exchange rate entails higher effect of the fiscal multiplier. Hence, countries with any exchange rate arrangements or restrictions were assigned a score of 1 for this element, while the countries with fully floating exchange rate system was assigned a score 0. In China the exchange rate system was and

[128] CIER index= Amount of Applications in Job Marketing / Needs of Recruitment in the Market.

still managed exchange rate and interest rate system, hence all the provinces were given the score 1.

5. **Public Debt level**: provinces with total debt/GPP smaller than 40% were given a score 1 while others with debt/GPP bigger than 40% were given a score 0. The fiscal multiplier is larger when the debt level is below the threshold of debt (40% for emerging markets).
6. **Effective public revenue management**: It is measured by comparing the collected tax revenues with the potential one. The potential tax is not easy to be measured especially on the local levels in China because of the shortage in the available data. Alternatively, the method of Radu Soviani was adapted as a way to estimate this factor by assigning score 1 for the provinces which have total local revenue larger than 35.5% of GPP and 0 if lower[129].

After assigning scores for the structural characteristics of the fiscal multipliers in each Chinese provenance, we summed the scores in order to classify the size of the fiscal multiplier in normal times. The fiscal multipliers was estimated to be small with size's effect of {0.1-0.3} if the aggregate score was below 3 out of 6, and the medium class if the score between 3-4/6 then the fiscal multipliers size's effect was estimated to be between {0.4-0.7}, and finally large Fiscal multipliers with size's effect was estimated to be between {0.7-1} if the total score of the structural characteristics were between 4-6

[129] Radu , Soviani "***Could the Recession have Been Shortened in Romania after the 2009 Crisis? A Short Answer Given by Fiscal Multipliers during Recessions***", The Academy of Economic Studies from Bucharest, Bucharest, Romania , International Journal of Economics and Finance; Vol. 7, No. 11; 2015, p 175.

Provenance name	Import/GPP	Trade openness score	Debt/GPP	Debt stability score	Public Expenditure/ GPP	Automatic Stabilizer Score	FX rate regime	labor market score	Public revenue administration	Total score of Structural factors	Size of Structural FM	Size of Structural FM
Beijing	114%	0.00	38.15%	1.00	0.169247896	1.00	1.00	0.00	0.00	3.00	Low	0.1-0.3
Tianjin	46%	0.00	34.74%	1.00	0.128378062	1.00	1.00	0.00	0.00	3.00	Low	0.1-0.3
Hebei	5%	1.00	26.60%	1.00	0.113034844	1.00	1.00	0.00	0.00	4.00	Medium	0.4-0.6
Shanxi	5%	1.00	37.60%	1.00	0.182404122	1.00	1.00	1.00	0.00	5.00	high	0.7-1
Inner Mongolia	5%	1.00	35.00%	1.00	0.175279759	1.00	1.00	1.00	0.00	5.00	high	0.7-1
Liaoning	16%	1.00	31.00%	1.00	0.158894586	1.00	1.00	0.00	0.00	4.00	Medium	0.4-0.6
Jilin	9%	1.00	35.00%	1.00	0.17929208	1.00	1.00	0.00	0.00	4.00	Medium	0.4-0.6
Heilongjiang	5%	1.00	28.00%	1.00	0.174018784	1.00	1.00	1.00	0.00	5.00	high	0.7-1
Shanghai	78%	0.00	38.76%	1.00	0.18433508	1.00	1.00	0.00	0.00	3.00	Low	0.1-0.3
Jiangsu	39%	0.00	25.00%	1.00	0.100425833	1.00	1.00	0.00	0.00	3.00	Low	0.1-0.3
Zhejiang	18%	1.00	18.50%	1.00	0.087010901	1.00	1.00	0.00	0.00	4.00	Medium	0.4-0.6
Anhui	6%	1.00	31.00%	1.00	0.171002627	1.00	1.00	1.00	0.00	5.00	high	0.7-1
Fujian	20%	1.00	21.00%	1.00	0.105903604	1.00	1.00	0.00	0.00	4.00	Medium	0.4-0.6
Jiangxi	5%	1.00	25.00%	1.00	0.163440988	1.00	1.00	1.00	0.00	5.00	high	0.7-1
Shandong	14%	1.00	14.00%	1.00	0.08702624	1.00	1.00	0.00	0.00	4.00	Medium	0.4-0.6
Henan	2%	1.00	18.00%	1.00	0.12255732	1.00	1.00	1.00	0.00	5.00	high	0.7-1
Hubei	5%	1.00	35.60%	1.00	0.139891836	1.00	1.00	0.00	0.00	4.00	Medium	0.4-0.6
Hunan	3%	1.00	36.00%	1.00	0.180561484	1.00	1.00	1.00	0.00	5.00	high	0.7-1
Guangdong	103%	0.00	18.00%	1.00	0.211348012	1.00	1.00	0.00	0.00	3.00	Low	0.1-0.3
Guangxi	5%	1.00	32.00%	1.00	0.191251234	1.00	1.00	0.00	0.00	4.00	Medium	0.4-0.6
Hainan	13%	1.00	44.40%	0.00	0.226343725	1.00	1.00	0.00	0.00	3.00	Low	0.1-0.3
Chongqing	9%	1.00	57.58%	0.00	0.407734589	0.00	1.00	1.00	0.00	3.00	Low	0.1-0.3
Sichuan	4%	1.00	34.76%	1.00	0.191175836	1.00	1.00	1.00	0.00	5.00	high	0.7-1
Guizhou	2%	1.00	78.18%	0.00	0.288624388	1.00	1.00	1.00	0.00	4.00	Medium	0.4-0.6
Yunnan	5%	1.00	55.33%	0.00	0.251591786	1.00	1.00	1.00	0.00	4.00	Medium	0.4-0.6
Tibet	1%	1.00	49.00%	0.00	1.061158106	0.00	1.00	1.00	0.00	3.00	Low	0.4-0.6
Shaanxi	3%	1.00	31.00%	1.00	0.187992379	1.00	1.00	1.00	0.00	5.00	high	0.7-1
Gansu	8%	1.00	46.78%	0.00	0.27551456	1.00	1.00	1.00	0.00	4.00	Medium	0.4-0.6
Qinghai	2%	1.00	49.84%	0.00	0.321199991	1.00	1.00	1.00	0.00	4.00	Medium	0.4-0.6
Ningxia	4%	1.00	34.00%	1.00	0.275999539	1.00	1.00	1.00	0.00	5.00	high	0.7-1
Xinjiang	6%	1.00	36.00%	1.00	0.243189237	1.00	1.00	0.0	0.0	4.00	Medium	0.4-0.6

Source: Researcher preparation: Data from different sources but mainly from Chinese statistical yearbook.

Table 8 Matrix (B): Arithmetic matrix of the structural characteristics of the Normal Fiscal Multiplier "Bucket Approach"

3.2.2 Fiscal multipliers' estimation during economic cycle.

In order to measure the fiscal multiplier in Chinese provinces, we should adjust the structural fiscal multipliers to the conjectural characteristics:

1. **Adjustment of the range for economic cycle:**

   In this section, as for being being able to give precise adjustment for the economic cycle, Bucket Approach requires estimating to the status of the economy at the time point of launching the stimulus fiscal package, so finding output gap for each provenance at 2009. By using **Hodric_prescott** filter via **Eviews** software on the collected data of each Chinese gross provenance product during the period 2000-2013, we obtained the output gap in 2009. The mechanism of giving scores for this character included scaling each bound of the structural fiscal multiplier by 0.6 up if the economy rests at the peak of negative output gap, and scaling it down by 0.4 if it is at the peak of positive output gap. The given results vary across the provinces.

   The results showed that almost all the provinces in China were settled on different magnitude of negative output with one exception of the Qinghai provenance which had positive output gap.

2. **Adjustment of the range for monetary policy stance**: The second character is related with the monetary policy stance, where more constraint monetary policy contributes in increasing the size effect of the fiscal multiplier while more automated monetary policy contributes in decreasing this effect. The scaling range varied between [0 for automated and flexible monetary policy-0.3 for fully constrained monetary policy (Zero Lower Bound Rate of interest rate)].

There are no differences in monetary policy among Chinese provenance since all of them implement an united monetary policy, and the freedom of the branches of the People Bank of China were limited by the central monetary policy of the PBOC. Based on what is common, monetary policy in China was constraint by managed exchange rate, interest rate and reserve ratios, but still have opened doors for maneuvering as long as the interest rate did not reach ZLB, so we decided to scale up the fiscal multiplier by 0.2.

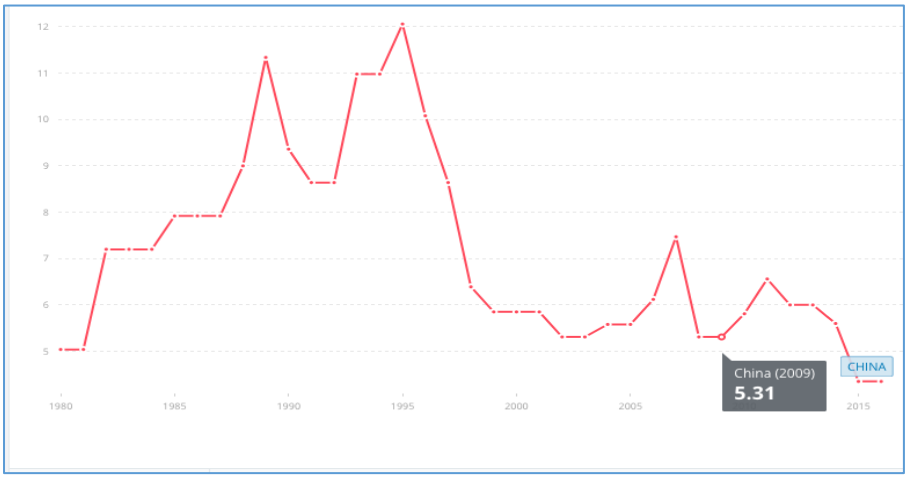


Figure 23 lending interest rate 1996 - 2016, people bank of China, World bank, source: World bank website: https://data.worldbank.org/indicator/FR.INR.LEND?locations=CN

We used the following formula for scaling up/down the value fiscal multipliers of the Chinese provinces in normal times in order to obtain the final fiscal multipliers in cycles' time.

Final Fiscal Multiplier = Fs*(1+Ccycle)*(1+Mmon)

- Fs: Structural fiscal multipliers rang
- C_cycle: the scale of cyclical effect of the economy
- M_mon: the scale of the monetary policy stance

Provinces	Structural FM	Economic cycle scale	Monetary policy scale	Final lower bound	Final upper bound
Beijing	0.1-0.3	0.6	0.2	0.192	0.576
Tianjin	0.1-0.3	0.3	0.2	0.156	0.468
Hebei	0.4-0.6	0.6	0.2	0.768	1.152
Shanxi	0.7-1	0.5	0.2	1.26	1.8
Inner Mongolia	0.7-1	0.1	0.2	0.924	1.32
Liaoning	0.4-0.6	0.2	0.2	0.576	0.864
Jilin	0.4-0.6	0.2	0.2	0.576	0.864
Heilongjiang	0.7-1	0.6	0.2	1.344	1.92
Shanghai	0.1-0.3	0.1	0.2	0.132	0.396
Jiangsu	0.1-0.3	0.2	0.2	0.144	0.432
Zhejiang	0.4-0.6	0.6	0.2	0.768	1.152
Anhui	0.7-1	0.2	0.2	1.008	1.44
Fujian	0.4-0.6	0.5	0.2	0.72	1.08
Jiangxi	0.7-1	0.6	0.2	1.344	1.92
Shandong	0.4-0.6	0.2	0.2	0.576	0.864
Henan	0.7-1	0.1	0.2	0.924	1.32
Hubei	0.4-0.6	0.5	0.2	0.72	1.08
Hunan	0.7-1	0.6	0.2	1.344	1.92
Guangdong	0.1-0.3	0.6	0.2	0.192	0.576
Guangxi	0.4-0.6	0.2	0.2	0.576	0.864
Hainan	0.1-0.3	0.5	0.2	0.18	0.54
Chongqing	0.1-0.3	0.6	0.2	0.192	0.576
Sichuan	0.7-1	0.3	0.2	1.092	1.56
Guizhou	0.4-0.6	0.4	0.2	0.672	1.008
Yunnan	0.4-0.6	0.6	0.2	0.768	1.152
Tibet	0.4-0.6	0.2	0.2	0.576	0.864
Shaanxi	0.7-1	0.2	0.2	1.008	1.44
Gansu	0.4-0.6	0.5	0.2	0.72	1.08
Qinghai	0.4-0.6	-0.4	0.2	0.288	0.432
Ningxia	0.7-1	0.2	0.2	1.008	1.44
Xinjiang	0.4-0.6	0.6	0.2	0.768	1.152

Table 9 Matrix (C): The conjecture's arithmetic matrix of the fiscal multiplier' size in 2009, source: researcher calculations.

In order to evaluating the government's behavior in allocating the fiscal stimulus package resources, we should know the portion of each provenance from this package. Unfortunately, there

are also shortages in the available data, Alternatively, Maps (a,b) below show two indicators that help in observing approximately where the interests of the central government were distributed across the provinces in 2009.

1- The Approved debt for local governments: Map (a) shows higher privileges were given to the internal provenance, then the northern west provinces "Xinjiang". Tibet was an exception since it had a low privilege. The eastern part which is considered the most developed, received less interests of the governments in debt allowance as % of their GPP.
2- Domestic fixed investment growth: Almost the same as the first indicator, internal and western part of China had a higher growth rate than the eastern_ developed part.

Generally, these results are consistent with out model which supports assigning higher portion of the fiscal package to the less developed provenance due to their higher fiscal multipliers.

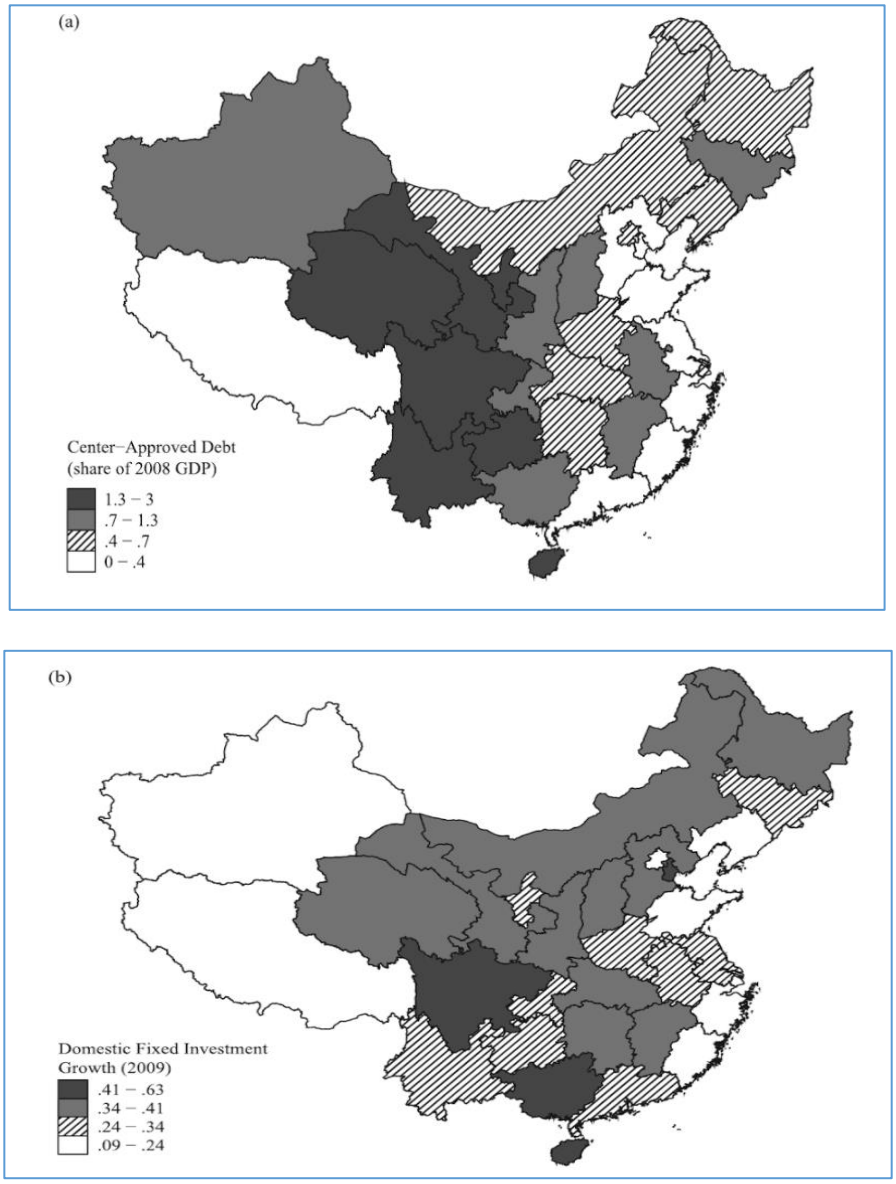


Figure 24 Maps (a - b) show an approximation of the geographic distribution of the stimulus fiscal package in 2009 among Chinese provinces through the changes in the debt/GDP between 2007-2008, Source: (a-b) Wallace, Jeremy L, "Cities and Stability: Urbanization, Redistribution, and Regime Survival in China", 2014, Oxford university press, p 179.

Figure 25 Map (c): Map of Chinese provinces location, source: China highlights.com, https://www.Chinahighlights.com/map/China-provincial-map/

3.2.3 The persistency of the fiscal multipliers' impact across Chinese provinces.

It is difficult to measure or predict in the persistency of the impact of the fiscal multiplier measured by Bucket Approach, since this approach is not as dynamic as SVAR or DSGE. However, according to Nicoletta Batini and others, Fiscal multiplier's size effect are more likely to reach its peak in the second year by (10%-30%), and faded away by the fifth year[130]. So the persistency of the fiscal multipliers across Chinese provinces could be calculated for the 2nd year 2010 according to 2 scenarios. Scenarios imply increasing the both bounds of the FMs by 10% and 30% respectively. The final results of the fiscal multipliers and the feasibility of conducting the stimulus package according to each provenance fiscal multiplier would be as the following:

[130] Nicoletta , Batini ; Luc, Eyraud and Anka, Weber, "***A Simple Method to Compute Fiscal Multipliers*** ". IMF working paper, WP/14/93, 2014, p 19.

	Base scenario			Scenario 1 (10%)			Scenario 2 (30%)		
Provenance	**Final lower bound**	**Final upper bound**	**Feasibility degree**	**Final lower bound**	**Final upper bound**	**Feasibility degree**	**Final lower bound**	**Final upper bound**	**Feasibility degree**
Beijing*[131]	0.192	0.576	low-medium	0.2112	0.6336	low-medium	0.2496	0.7488	low- medium
Tianjin*	0.156	0.468	low-medium	0.1716	0.5148	low-medium	0.2028	0.6084	low- medium
Hebei*	0.768	1.152	medium-high	0.8448	1.2672	medium-high	0.9984	1.4976	medium- high
Shanxi**	1.26	1.8	high	1.386	1.98	high	1.638	2.34	high
Inner Mongolia***	0.924	1.32	medium-high	1.0164	1.452	high	1.2012	1.716	high
Liaoning**	0.576	0.864	medium	0.6336	0.9504	medium	0.7488	1.1232	medium- high
Jilin**	0.576	0.864	medium	0.6336	0.9504	medium	0.7488	1.1232	medium- high
Heilongjiang**	1.344	1.92	high	1.4784	2.112	high	1.7472	2.496	high
Shanghai*	0.132	0.396	low	0.1452	0.4356	low-medium	0.1716	0.5148	low- medium
Jiangsu*	0.144	0.432	low-medium	0.1584	0.4752	low-medium	0.1872	0.5616	low- medium
Zhejiang*	0.768	1.152	medium-high	0.8448	1.2672	medium-high	0.9984	1.4976	medium- high
Anhui***	1.008	1.44	high	1.1088	1.584	high	1.3104	1.872	high
Fujian*	0.72	1.08	medium-high	0.792	1.188	medium-high	0.936	1.404	medium- high
Jiangxi***	1.344	1.92	high	1.4784	2.112	high	1.7472	2.496	high
Shandong*	0.576	0.864	medium	0.6336	0.9504	medium-high	0.7488	1.1232	medium- high
Henan***	0.924	1.32	medium-high	1.0164	1.452	high	1.2012	1.716	high
Hubei***	0.72	1.08	medium-high	0.792	1.188	medium-high	0.936	1.404	medium- high
Hunan***	1.344	1.92	high	1.4784	2.112	high	1.7472	2.496	high
Guangdong*	0.192	0.576	low-medium	0.2112	0.6336	low-medium	0.2496	0.7488	low- medium
Guangxi***	0.576	0.864	medium	0.6336	0.9504	medium	0.7488	1.1232	medium- high
Hainan*	0.18	0.54	low-medium	0.198	0.594	low-medium	0.234	0.702	low- medium
Chongqing***	0.192	0.576	low-medium	0.2112	0.6336	low-medium	0.2496	0.7488	low- medium
Sichuan***	1.092	1.56	high	1.2012	1.716	high	1.4196	2.028	high
Guizhou***	0.672	1.008	medium-high	0.7392	1.1088	medium-high	0.8736	1.3104	medium- high
Yunnan***	0.768	1.152	medium-high	0.8448	1.2672	medium-high	0.9984	1.4976	medium- high
Tibet***	0.576	0.864	medium	0.6336	0.9504	medium-high	0.7488	1.1232	medium- high
Shaanxi***	1.008	1.44	high	1.1088	1.584	high	1.3104	1.872	high
Gansu***	0.72	1.08	medium-high	0.792	1.188	medium-high	0.936	1.404	medium- high

[131] *East, ** Northern East, *** others (internal, west)

Qinghai***	0.288	0.432	low-medium	0.3168	0.4752	low-medium	0.3744	0.5616	low- medium
Ningxia***	1.008	1.44	high	1.1088	1.584	high	1.3104	1.872	high
Xinjiang***	0.768	1.152	medium-high	0.8448	1.2672	medium-high	0.9984	1.4976	high
national fiscal multiplier	0.69	1.07	medium-high	0.76	1.17	medium-high	0.90	1.39	medium- high

Table 10: The potential scenario of the persistency of the provincial fiscal multipliers, researcher calculation.

Based on the results presented in the Matrix D above, our argument should be estimated according to:

1- **Base scenario**: The national fiscal multipliers at the first year of conducting the package is between 0.7- 1, and this is not sufficient to stimulate the growth.

2- Taking into consideration the **persistency** of the size impact of the fiscal multiplier. In the 2nd year 1% increase in the public expenditure would cause increasing the GDP either by [0.8-1.2] according to scenario 1 or by [0.9-1.4] in case of scenario 2. So in the 2nd year of implementing the fiscal package which is 2010 the impact was more likely to entail a positive impact on economic growth in China.

The national fiscal multiplier is more likely to be under/overestimated because its calculation method assumes equal distribution of the fiscal package among the Chinese provinces which have different fiscal multiplier's size effect. But this is not the case. According to Maps (a, b, c) the distribution of the stimulus fiscal package was consistent with the values of the fiscal stimulus package across the provinces . If we assumed the rational usage of the allocated resources of the fiscal package, then the provinces with larger portion of the fiscal package are supposed to have been contributed in larger effect on economic growth than the rest with smaller portions. These are intuitive results since the precise distribution of the fiscal package among the Chinese provinces is not available, and I could not calculate the national fiscal multiplier by using the

weighted average instead of the normal average. Based on that, I can claim that the national fiscal multiplier is more likely to be larger than what is showed in our model. Here is the importance of estimating the feasibility of the stimulus package through estimating the provincial fiscal multipliers rather than the national one.

Primarily, the decision of conducting the fiscal stimulus package was suitable on short term given the size's effect undergo to scenario 1,2. On long term, the cost of financing this package should be added to our judgment, and the rapid growth of local government debts raise serious concern about potential financial, fiscal and economic risks if the government did not shed the interest on restoring the sustainable debt ratio.

Conclusion:

In principle the value of national fiscal multiplier of China in 2009 is slightly sufficient to support the decision of Chinese government in launching the discretionary fiscal policy. but on the provincial level the argument could be supportive to this action given that the government distributed the package in rational way. Less developed provinces with larger fiscal multipliers according to Bucket Approach model received in general higher portion of financial portions of its GPP to be spent compared to other developed provinces which had in 2009 lower fiscal multipliers.

The fiscal multipliers size's effect is existed on short term 3 years in maximum. This could be explained by the jumping of the economic growth in 2009 - 2010 to ex crisis level with two-digit growth which retorting back to further slow down after that. This is expected since most of package were spent to traditional sectors which undergo to diminishing return law like infrastructure and other fixed capital were the winner sectors. In addition to the fact that majority of the fiscal package

were allocated to SOEs which suffer from diminishing in productivity and the rapid increases in their non - performing loans.

In the medium and long term, the impact of the fiscal multipliers faded away quickly, while the costs continued increasing, thus raising the fears from financial and economic crisis at any moment given that the government till today has not announced any plan about conducting adjustment consolidative fiscal policy.

The signs of fiscal alcoholic sin have been increased after launching the first fiscal package, since Chinese government continued its expansionary policy after 2009 - 2010 without giving any attention to the risk of increasing the shadow banking practices, and their implicit risks of accumulating the debt on local levels on the fiscal, financial and economic stance. For instance, the new bank loans which were the main source of funding of the stimulus fiscal package increased to 25% of GDP in 2009 compared with 15% of GDP in 2008. These, were redeemed in 2011 not by the surplus of the fiscal budget but by borrowing from other non banks loans like LGV, MCB, and Trust loans. In total non - bank loans skyrocketed from 6 trillion Yuan in 2008 to more than 27 trillion in 2016. Most of these resources carry higher risks since their costs are higher than banks loan and the probability of its default are as high as banks loans because of the weak performance of SOEs which dominated higher part of these credits via local governments.

I would suggest the following:

1- Chinese economic growth slowdown most likely is not caused only by cyclical factors, but also significant part refers to the structural elements. Hence, the fiscal stimulus package was useful in the short term in smoothing out the growth slowdown. However, in order to restore the stability of the economic growth, China needs more structural reforms.

2- Any further structural reforms should concentrate on eliminating the barriers which restrict the private sector in working freely in all the sectors. Most urgent barriers which should be eliminated are the favorable treatment of SOEs in accessing the financial resources, sectors, and that could be achieved by guaranteeing the principle of fair, free competitive market.

3- It is the time to start the adjustment fiscal policy, since these large amount of money injected in the economy during the previous years, should be repaid, and the cost of this policy could be larger in case of longer procrastination. I believe that the adjustment policy at this time would pass with affordable social, and economic costs. I believe that such policy is unavoidable if the government wants to avoid financial and economic instability in the long term.

4- The government should accept that double digit economic growth is neither costless nore possible in the long term, and it should shift its efforts to support the transition of the economic growth from traditional factors to sustainable growth factors.

Ultimately, I believe that at the current economic growth above 6.5%, the adjustment fiscal policy in parallel with further market oriented structural reforms could be useful and support sustainable growth in the long term. The market confidence would improve with correcting the local and central government's debt level, and that is expected to support solid economic growth in the future.

Bibliography

Alesina , Alberto; Ardagna , Silvia, ***"Large Changes in Fiscal Policy Taxes Vs Spending",*** National Bureau of Economic Research, 1050 Massachusetts Avenue Cambridge, MA 02138, working paper 15438, (2009).

Alloway , Tracy***,"Four Fresh Worries About China's Shadow Banking System ",*** Bloomberg, (Sep 2016), available online: https://www.bloomberg.com/news/articles/2016-09-07/four-fresh-worries-about-China-s-shadow-banking-system.

Attinasi Grazia , Maria; Klemm, Alexander***," THE GROWTH IMPACT OF DISCRETIONARY FISCAL POLICY MEASURES",*** European central bank, NO 1697, (2014).

"THE PEOPLE'S REPUBLIC OF CHINA", ARTICLE IV CONSULTATION—PRESS RELEASE; STAFF REPORT; AND STATEMENT BY THE EXECUTIVE DIRECTOR FOR THE PEOPLE'S REPUBLIC OF CHINA, (IMF, No. 16/270, 2017), p 7.available online: https://www.imf.org/en/Publications/CR/Issues/2017/08/15/People-s-Republic-of-China-2017-Article-IV-Consultation-Press-Release-Staff-Report-and-45170.

Bevan, Tom, 2014 "***The dominance of monetary policy over other forms of policy is now an accepted aspect of Modern macroeconomic management. Discuss***", article published on Marshall Society, Available online: http://marshallmagazine.co.uk/blog/1415491200/

Batini, Nicoletta; Eyraud , Luc, and Weber, Anka, "***A Simple Method to Compute Fiscal Multipliers*** ", IMF working paper, WP/14/93, June 2014.

Brian , Motley, "***Ricardo or Keynes: Does the government debt affect consumption"***, federal reserve bank of san Francisco, Economic review winter 1987 number 1, (1987).

Brytian, Vasile , Bucur, Amelia, Et,***" Discretionary vs Non Discretionary in fiscal mechanism_ Non automatic fiscal stabilisers vs automatic fiscal stabilisers "*** , Economic Research Journal, volume 29, (2016) available online: http://www.tandfonline.com/doi/full/10.1080/1331677X.2015.1106330

Baldacci, Emanuele,; Gupta, Sanjeev and Mulas, Granados, ***"How Effective is Fiscal Policy Response in Systemic Banking Crises?"***, IMF working paper, Fiscal affair department Wp/09/160, 2009

C. Williams , John , "***Monetary Policy at the Zero Lower Bound***", Hutchins Center on fiscal &monetary policy at brookings, (2014), available online: https://www.brookings.edu**.**

Courtois, Renee ,"**what we do and do not know about discretionary fiscal policy**", EB09-04 - The FEDERAL Reserve Bank of Richmond, (2009).

*Coase , Ronald ; Wang, ning ,"****China's Road to Capitalism How China Became Capitalist ",*** *(PANOECONOMICUS, 2013, 6, pp. 837-845, Received: (03 November 2013).*

C. Chow , Gregory; H. Perkins Dwight , "***The Centrally Planned Command Economy (1949–84) from: Routledge Handbook of the Chinese Economy Routledge***", (Routledge, 2014). Available online: https://www.routledgehandbooks.com/doi/10.4324/9781315767475.ch3.

Chen, Zhuo ; He , Zhiguo and others, ***"The Financing of Local Government in China: Stimulus Loan Wanes and Shadow Banking Waxes*** ", (2017), available on the Chicago faculty web: http://faculty.chicagobooth.edu/zhiguo.he/research/StimulusloanMCB.pdf

China statistical yearbook (2014), available online :http://www.stats.gov.cn/tjsj/ndsj/2014/indexeh.htm

Depczyk Jac ,"***Much ado about multipliers-Why do economists disagree so much on whether fiscal stimulus works"***, published in Sep 24th 2009, available online: http://www.economist.com/node/14505361

Dorrucci , Ettore ; Gabor, Pula ; and Santa, bárbara , "**China's economic growth and imbalances** ", Euroepan central bank, occasional series paper, No 142, (2013)

Depczyk , Jac, ***"Much ado about multipliers-Why do economists disagree so much on whether fiscal stimulus works"*** , Economist E journal, (Sep 24th 2009). Available online http://www.economist.com/node/14505361**.**

En , BAI ; CHONG , TAI HSIEH AND CHANG SONG , ZHENG , ***"The Long Shadow of China's Fiscal Expansion***", (2016), available online on: https://www.brookings.edu/wp-content/uploads/2017/02/baitextfall16bpea.pdf.

Elliott , Douglas; Kroeber, Arthur; Qiao, YU, "Shadow banking in China: A primer ", economic studies at Brookings, (2015), available online : https://www.brookings.edu/wp-content/uploads/2016/06/shadow_banking_China_elliott_kroeber_yu.pdf

Furman , Jason, ***" The New View of fiscal policy and its application ",*** (2016), available online: http://voxeu.org/article/new-view-fiscal-policy-and-its-application

Fitch: China Local Gov't Bond Law to Improve Budget Transparency", (Reuters, Sep 2014), available online: http://www.reuters.com/article/fitch-China-local-govt-bond-law-to-impro-idUSFit74121920140904

GÖNDÖR, Mihaela ; NEAG , Romano," ***DISCRETIONARY FISCAL POLICY AND GOING CONCERN PRINCIPLE FOR SMES IN CRITICAL ECONOMIC ENVIRONMENT ",*** JEL Classification: E62, H32, Q56, (2011), available online: http://revecon.ro/articles/2011-2%28bis%29/2011-2%28bis%29-4.pdf.

Heather , Kirkham; Julie, Tam,"***Automatic Fiscal Stabilisers implication for New Zealand ",*** Department of economic, Stanford university, Treasury working paper 01/10,(2000), available online: http://www.treasury.govt.nz/publications/research-policy/wp/2001/01-10/twp01-10.pdf

Huang , Zhenqian, "***Enhancing responsibility of local government borrowings in China***", Master thesis, John F. Kennedy School of Government Harvard University, (2016), available online : https://ash.harvard.edu/files/ash/files/sypa_final_zhenqian_huang.pdf

Huange , Xiaowei; Seng , Chen and David Wang , Yi," ***Does China's Debt-for-Bond Swap Reduce Banks' Risk?"*** School of Banking and Finance University of International Business and Economics, available online: https://editorialexpress.com/cgibin/conference/download.cgi?db_name=CICF2017&paper_id=329

Hatzvi, Eden; Meredith, Jessica, Nixon, William- 2015" Chinese Capital Flows and Capital Account Liberalisation, available online: "https://www.rba.gov.au/publications/bulletin/2015/dec/pdf/bu-1215-5.pdf

IMF staff, "The people 's republic of China , ARTICLE IV CONSULTATION—PRESS RELEASE; STAFF REPORT; AND STATEMENT BY THE EXECUTIVE DIRECTOR FOR THE PEOPLE'S REPUBLIC OF CHINA", IMF Country Report No. 16/270, (August 2016).

IMF staff, "PEOPLE'S REPUBLIC OF CHINA 2013 ARTICLE IV CONSULTATION", IMF Country Report No. 13/211, (July 2013), available online: https://www.imf.org/external/pubs/ft/scr/2013/cr13211.pdf

Jillson , Cal, "***American Government: Political Development and Institutional Change"***, Routledge, Tylor & Francis group, New York and London, 8th edition, (2016).

Jeremy L , Wallace, "Cities and Stability: Urbanization, Redistribution, and Regime Survival in China", Oxford university press, (2014).

Koch-Weser , Iacob***," China Fiscal Policy Revamp Faces Hurdles ",*** USCC Economic Issue Brief, No. 6, (2014), available online: https://www.uscc.gov/sites/default/files/Research/Issue%20brief_China%20Fiscal%20Policy%20Revamp%20Faces%20Hurdles.pdf.

Krugman, Paul, "***Keynes In Asia***", published on New York time, column of the conscience of a liberal, 24 July 2010, available online: https://krugman.blogs.nytimes.com/2010/07/24/keynes-in-asia/

Luiz , Fernando; de castro pires, Manoel,"***The effects of fiscal policy after the global recession: assessing the evidences***", Brazilian Journal of Political Economy, vol. 33, nº 2 (131), pp. 315-321, April-June/(2013).

M.Leeper , Eric, "Fiscal analysis is darned hard", working paper presented in the "***Rethinking Fiscal Policy After the Crisis,"*** conference sponsored by the Slovakian Council for Budget Responsibility, Bratislava, the paper available on Indiana University and NBER; (2015) , eleeper@indiana.edu.

M. Morrison, Wayne, ***"China's Economic Conditions",*** CRS Report for Congress , Prepared for Members and Committees of Congress, (2017).

Mankiw , Gerg, "***spending and tax multiplier***", article published in (11Dec 2008), available online: http://gregmankiw.blogspot.hu/2008/12/spending-and-tax-multipliers.html

Molnar, Margit; Westmore, Ben and others, ”OECD Economic survey China, 2015 overview”, (2015) http://www.oecd.org/eco/surveys/China-2015-overview.pdf

Naughton, Barry, “***The Chinese Economy, Transition And Growth***”, (The MIT press, Cambridge , Massachusetts, London, England, (2006).

Ódor, Ľudovít , “Another Quiet Revolution? Future role of independent fiscal institutions in Europe”, Discussion Paper for the Council of Budget Responsibility No. 5/2014, (2014), available online: http://www.rozpoctovarada.sk

Shuli, Shu, “***How China's 13th five-year plan can make consumption a real driver of growth*”**; (south China morning March 2015) , available online: http://www.scmp.com/comment/insight-opinion/article/1746949/how-Chinas-13th-five-year-plan-can-make-consumption-real

Shen , Chunli ; Heng , Fu Zou, ”***Fiscal Decentralization in China: History, Impact, Challenges and Next Steps ”,*** ANNALS OF ECONOMICS AND FINANCE 13-1, 1–51 , JEL Classification Numbers: H1, H2, H3, H5, H7, R5, (2012). Available online: http://aeconf.com/articles/may2012/aef130101.pdf.

SEN, Hüseyin,”***The Role of Taxes as an Automatic Stabilizer: Evidence From Turkey***”, North Anatolian Development Agency, Yıldırım Beyazıt University, Faculty of Political Sciences, Department of Public Finance, Ankara, Turkey, (date not available).

Shi , Yingxin; Fukushinge , Mototsugu, “***Long-Run Fiscal Multipliers for Autonomous Prefectures in China,*** pacific economic review journal, Volume 20, Issue 5, (December 2015), Pages 687–695, Abstract.

Soviani , Radu “***Could the Recession have Been Shortened in Romania after the 2009 Crisis? A Short Answer Given by Fiscal Multipliers during Recessions***”, The Academy of Economic Studies from Bucharest, Bucharest, Romania , International Journal of Economics and Finance; Vol. 7, No. 11; (2015).

Semon, Tylor, “China’s balance of payments: current and capital accounts now pulling in different directions”, (2012)”http://www.simontaylorsblog.com/2012/09/18/chinas-balance-of-payments-current-and-capital-accounts-now-pulling-in-different-directions/”

S. Blinder, Alan, “***The Case Against the Case Against Discretionary Fiscal Policy***”, Federal Reserve Bank of Boston conference, “***The Macroeconomics of Fiscal Policy***,” Working Paper No. 100, (2004).

*Shichor , Yitzhak ,“**China and the Middle East**”,* Testimony before the U.S.-China Economic and Security Review Commission”,(2013), available online: https://www.uscc.gov/sites/default/files/SHICHOR_testimony.pdf

Schwab , Klaus, ”***The Globl Competitiveness Report 2016-2017”,*** (World Economic Forum, 2017) http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf.

Virmani , Arvind , "*CHINA'S SOCIALIST MARKET ECONOMY: Lessons for Democratic Developing Countries!"*, planning commission", (Working Paper No. 5/2006-PC, June 2006)

Wong , Christine , "***THE FISCAL STIMULUS PROGRAM AND PROBLEMS OF MACROECONOMIC MANAGEMENT IN CHINA*** ", School of Interdisciplinary Area Studies University of Oxford, PUBLIC GOVERNANCE AND TERRITORIAL DEVELOPMENT DIRECTORATE PUBLIC GOVERNANCE COMMITTEE , Working Party of Senior Budget Officials, OECD, (2011).

Wildau, Gabriel, "***China local governments revive off-budget fiscal stimulus***", financial times, (20 SEP 2016), available online: https://www.ft.com/content/b303f280-7f14-11e6-8e50-8ec15fb462f4

World bank official website, China, US Data Profiles, World bank websitehttps://data.worldbank.org/indicator/FR.INR.LEND?locations=CN

Yifu lin, Justin," ***China and global economy***", Remarks at the 20 Anniversary of the University of Science and Technology, (2011), available online: http://siteresources.worldbank.org/DEC/Resources/UST-Justin-Lin-Hongkong.pdf

Yang, Dennis Tao and Zhang, Junsen and Zhou, Shaojie, Why are Saving Rates so High in China? (February 2011). NBER Working Paper Series, Vol. w16771, (2011). Available at SSRN: https://ssrn.com/abstract=1759843

Zhang, longemi," Rebalancing in China—Progress and Prospects ", IMF Working Paper, (2016) , Asia and Pacific Department.

Appendix
Assigning the score of the Automatic fiscal multiplier

Expend/GPP	2005	2006	2007	2008	2009	Automatic stabilizer size	Automatic stabilizer score
Beijing	0.151848334	0.159753036	0.16751618	0.176274404	0.190847527	0.169247896	1
Tianjin	0.113200397	0.121701018	0.12837632	0.129144026	0.149468548	0.128378062	1
Hebei	0.097797665	0.102929994	0.110723656	0.117516238	0.136206666	0.113034844	1
Shanxi	0.15807712	0.187670259	0.17427649	0.179760505	0.212236234	0.182404122	1
Inner Mongolia	0.174615816	0.164257471	0.168500649	0.17120242	0.197822438	0.175279759	1
Liaoning	0.149660878	0.152909554	0.158028717	0.157545762	0.17632802	0.158894586	1
Jilin	0.174329539	0.16803271	0.167230244	0.183644823	0.203223081	0.17929208	1
Heilongjiang	0.142878648	0.155917769	0.167126971	0.18549812	0.218672412	0.174018784	1
Shanghai	0.194164794	0.169838823	0.174618217	0.184359519	0.198694048	0.18433508	1
Jiangsu	0.08997403	0.092596851	0.098150162	0.104818604	0.116589518	0.100425833	1
Zhejiang	0.094317953	0.093638706	0.096343122	0.077967823	0.072786902	0.087010901	1
Anhui	0.133278008	0.153820859	0.168977519	0.186081481	0.212855269	0.171002627	1
Fujian	0.090480252	0.120076215	0.098463215	0.105120577	0.115377763	0.105903604	1
Jiangxi	0.139014879	0.14447374	0.156038102	0.173585041	0.204093176	0.163440988	1
Shandong	0.07983002	0.083717957	0.087747169	0.087435224	0.09640083	0.08702624	1
Henan	0.105412094	0.116485748	0.124603497	0.117122764	0.149162496	0.12255732	1
Hubei	0.118163513	0.13744721	0.136855808	0.145669924	0.161322727	0.139891836	1
Hunan	0.132414609	0.138453074	0.143759269	0.152766768	0.335413698	0.180561484	1
Guangdong	0.101477564	0.096034271	0.099429462	0.102687741	0.65711102	0.211348012	1
Guangxi	0.153480083	0.153707418	0.1693063	0.184747187	0.295015182	0.191251234	1
Hainan	0.164614966	0.163784286	0.195507786	0.238160819	0.36965077	0.226343725	1
Chongqing	0.140539029	0.152089844	0.164321779	0.175365831	1.406356463	0.407734589	1
Sichuan	0.146535592	0.155047502	0.166546429	0.23401184	0.253737819	0.191175836	1
Guizhou	0.259661318	0.261071065	0.275786985	0.295878772	0.350723801	0.288624388	1
Yunnan	0.221302267	0.224059336	0.237865949	0.258293922	0.316437457	0.251591786	1
Tibet	0.804662379	0.947069748	1.114899101	1.190654679	1.248504622	1.061158106	1
Shaanxi	0.16243149	0.173745312	0.183067033	0.195297611	0.225420451	0.187992379	1
Gansu	0.22200333	0.232107493	0.249757764	0.305805193	0.367899019	0.27551456	1
Qinghai	0.31243098	0.331010023	0.353922368	0.356953525	0.251683058	0.321199991	1
Ningxia	0.261585674	0.266166139	0.263134989	0.26962755	0.319483341	0.275999539	1
Xinjiang	0.199301894	0.222795426	0.225692276	0.253240932	0.314915654	0.243189237	1

Assigning the score of Trade openness

Import/GPP	2005	2006	2007	2008	2009	average revenue/GPP	The efficiency of revenue collection
Beijing	0.131890001	0.137617674	0.151586148	0.165300945	0.166774459	15%	0
Tianjin	0.084966868	0.093451557	0.102886863	0.100553504	0.109280297	10%	0
Hebei	0.051507676	0.054111584	0.057992401	0.05917999	0.061914073	6%	0
Shanxi	0.087067105	0.119579142	0.099243914	0.102250048	0.109512918	10%	0
Inner Mongolia	0.071051951	0.069450372	0.07665362	0.076584826	0.087355047	8%	0
Liaoning	0.083914276	0.087878794	0.096977867	0.099211331	0.104599507	9%	0
Jilin	0.057219489	0.057355115	0.06068284	0.065794183	0.066919457	6%	0
Heilongjiang	0.057712607	0.062275025	0.062003097	0.069551872	0.074724584	7%	0
Shanghai	0.153271206	0.149076824	0.166038098	0.167645115	0.16882996	16%	0
Jiangsu	0.071116798	0.076196872	0.086005342	0.08816119	0.093703802	8%	0
Zhejiang	0.079492014	0.082590578	0.087955977	0.090081397	0.093191506	9%	0
Anhui	0.062431661	0.070025358	0.07386305	0.081862611	0.085852844	7%	0
Fujian	0.065998545	0.071358215	0.075629316	0.077002679	0.076200711	7%	0
Jiangxi	0.06234532	0.063378923	0.06721262	0.070097044	0.07593551	7%	0
Shandong	0.058427388	0.061928658	0.064996179	0.063266771	0.064862656	6%	0
Henan	0.050782062	0.054936584	0.057424147	0.051790252	0.057804471	5%	0
Hubei	0.056981665	0.062498441	0.063252405	0.062746604	0.062870435	6%	0
Hunan	0.059924804	0.062160296	0.064255901	0.062545219	0.128618447	8%	0
Guangdong	0.080115616	0.081972183	0.087667181	0.089962415	0.553328482	18%	0
Guangxi	0.071042394	0.072180457	0.071921778	0.073838485	0.080033148	7%	0
Hainan	0.074753741	0.076768606	0.086343957	0.096376725	0.107749318	9%	0
Chongqing	0.074057306	0.081315919	0.094672304	0.099690006	0.713110204	21%	0
Sichuan	0.064949696	0.069916366	0.080555556	0.082663556	0.083002268	8%	0
Guizhou	0.091003381	0.096973895	0.098865855	0.097665068	0.106443665	10%	0
Yunnan	0.090290031	0.09527499	0.101981762	0.107877206	0.113173143	10%	0
Tibet	0.048435209	0.050075664	0.058987201	0.06301127	0.068175639	6%	0
Shaanxi	0.069298973	0.076414376	0.082545781	0.080863153	0.089998531	8%	0
Gansu	0.063857951	0.159167453	0.070603333	0.083670685	0.084600716	9%	0
Qinghai	0.062246926	0.065134927	0.071123095	0.070261727	0.045367584	6%	0
Ningxia	0.077896215	0.08452955	0.087073364	0.078917204	0.082449697	8%	0
Xinjiang	0.069224226	0.072066096	0.081137388	0.086311708	0.090899101	8%	0

Adjustment to labor market rigidity

		adjusted to initial characteristics								
	Global competitiveness scores out of 7 2010	Average regional wage growth % 2010-2011	average guideline for wage growth	Average efficiency scores of provinces in China, 1978 to 2008	adjusted to average growth of wages(33% of the weight of1 of the total score of the global competiveness index 4)	adjusted to average efficiency scores by dividing the weights to	SEZ and geographic location	Regional labor market efficiency score	Regional labor market efficiency score	Final score for labor market factor in structural fiscal multiplier
Beijing	4.7	11.90%	10.20%	0.7278	3	3	1	2.333333333	5.7	0
Tianjin	4.7	10.50%	10.20%	0.6072	3	3	1	2.333333333	5.7	0
Hebei	4.7	10%	10.20%	0.9387	2	4	3	3	5.7	0
Shanxi	4.7	11%	10.20%	0.2808	3	2	1	2	3.7	1
Inner Mongolia	4.7	11.40%	10.20%	0.3389	3	2	0	1.666666667	3.7	1
Liaoning	4.7	9.30%	10.20%	0.3574	2	2	3	2.333333333	5.7	0
Jilin	4.7	12.20%	10.20%	0.3436	4	2	1	2.333333333	5.7	0
Heilongjiang	4.7	12%	10.20%	0.3639	3	2	1	2	3.7	1
Shanghai	4.7	11.90%	10.20%	0.76	3	4	1	2.666666667	5.7	0
Jiangsu	4.7	11.40%	10.20%	0.2751	3	2	3	2.666666667	5.7	0
Zhejiang	4.7	11.20%	10.20%	0.4478	3	2	3	2.666666667	5.7	0
Anhui	4.7	11.50%	10.20%	0.1951	3	1	0	1.333333333	3.7	1
Fujian	4.7	13.10%	10.20%	0.4357	4	2	3	3	5.7	0
Jiangxi	4.7	13.30%	10.20%	0.2055	4	1	0	1.666666667	3.7	1
Shandong	4.7	12.10%	10.20%	0.2316	4	1	3	2.666666667	5.7	0
Henan	4.7	9.10%	10.20%	0.167	2	1	0	1	3.7	1
Hubei	4.7	13.40%	10.20%	0.3815	4	2	0	2	3.7	1
Hunan	4.7	12%	10.20%	0.1824	3	1	0	1.333333333	3.7	1
Guangdong	4.7	10.20%	10.20%	0.3952	3	2	3	2.666666667	5.7	0
Guangxi	4.7	11.10%	10.20%	0.2096	3	1	2	2	3.7	1
Hainan	4.7	14.90%	10.20%	0.806	4	4	4	4	5.7	0
Chongqing	4.7	12.80%	10.20%	0.2241	4	1	0	1.666666667	3.7	1
Sichuan	4.7	13.20%	10.20%	0.1488	4	1	0	1.666666667	3.7	1
Guizhou	4.7	14.10%	10.20%	0.1569	4	1	0	1.666666667	3.7	1

Yunnan	4.7	12%	10.20%	0.2038	2	1	0	1	3.7	1
Tibet	4.7	6.80%	10.20%	0.2	1	1	0	0.666666667	3.7	1
Shaanxi	4.7	11%	10.20%	0.2194	2	1	0	1	3.7	1
Gansu	4.7	12.10%	10.20%	0.1886	3	1	0	1.333333333	3.7	1
Qinghai	4.7	11.90%	10.20%	0.3874	3	2	0	1.666666667	3.7	1
Ningxia	4.7	10.40%	10.20%	0.4463	3	2	0	1.666666667	3.7	1
Xinjiang	4.7	13.60%	10.20%	0.477	4	2	2	2.666666667	5.7	0

FM Adjusted to Economic cycle and Zero lower bound

	Structural factors	Scaled up/down according to business cycle for both bounds of the structural FM	ZLB availability, 0.3 if yes, 0 if no	lower bound	upper bound	Lower	Upper
Beijing	0.1-0.3	0.6	0.2	0.1	0.3	0.192	0.576
Tianjin	0.1-0.3	0.3	0.2	0.1	0.3	0.156	0.468
Hebei	0.4-0.6	0.6	0.2	0.4	0.6	0.768	1.152
Shanxi	0.7-1	0.5	0.2	0.7	1	1.26	1.8
Inner Mongolia	0.7-1	0.1	0.2	0.7	1	0.924	1.32
Liaoning	0.4-0.6	0.2	0.2	0.4	0.6	0.576	0.864
Jilin	0.4-0.6	0.2	0.2	0.4	0.6	0.576	0.864
Heilongjiang	0.7-1	0.6	0.2	0.7	1	1.344	1.92
Shanghai	0.1-0.3	0.1	0.2	0.1	0.3	0.132	0.396
Jiangsu	0.1-0.3	0.2	0.2	0.1	0.3	0.144	0.432
Zhejiang	0.4-0.6	0.6	0.2	0.4	0.6	0.768	1.152
Anhui	0.7-1	0.2	0.2	0.7	1	1.008	1.44
Fujian	0.4-0.6	0.5	0.2	0.4	0.6	0.72	1.08
Jiangxi	0.7-1	0.6	0.2	0.7	1	1.344	1.92
Shandong	0.4-0.6	0.2	0.2	0.4	0.6	0.576	0.864
Henan	0.7-1	0.1	0.2	0.7	1	0.924	1.32
Hubei	0.4-0.6	0.5	0.2	0.4	0.6	0.72	1.08
Hunan	0.7-1	0.6	0.2	0.7	1	1.344	1.92
Guangdong	0.1-0.3	0.6	0.2	0.1	0.3	0.192	0.576
Guangxi	0.4-0.6	0.2	0.2	0.4	0.6	0.576	0.864
Hainan	0.1-0.3	0.5	0.2	0.1	0.3	0.18	0.54
Chongqing	0.1-0.3	0.6	0.2	0.1	0.3	0.192	0.576
Sichuan	0.7-1	0.3	0.2	0.7	1	1.092	1.56

Guizhou	0.4-0.6	0.4	0.2	0.4	0.6	0.672	1.008
Yunnan	0.4-0.6	0.6	0.2	0.4	0.6	0.768	1.152
Tibet	0.4-0.6	0.2	0.2	0.4	0.6	0.576	0.864
Shaanxi	0.7-1	0.2	0.2	0.7	1	1.008	1.44
Gansu	0.4-0.6	0.5	0.2	0.4	0.6	0.72	1.08
Qinghai	0.4-0.6	-0.4	0.2	0.4	0.6	0.288	0.432
Ningxia	0.7-1	0.2	0.2	0.7	1	1.008	1.44
Xiniang	0.4-0.6	0.6	0.2	0.4	0.6	0.768	1.152