

On financial agglomeration and International financial Center: Theoretical research on construction -- perspective based on dynamic stochastic general equilibrium system and message impact

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Abstract: based on the characteristics of China's financial market and the construction of Shanghai International Financial Center National Strategy , Building a dynamic stochastic general equilibrium model for financial agglomeration . through Calibration and Bayesian estimates for model structure parameters , Policy experimental analysis found :a) Lower gold Rong employee Income tax , Investor's financial assets income tax and financial sales tax Benefit Financial gathering ,Permanent tax change policy is strongest ; a) Implementation encourage financial innovation main strategy , effectively promote financial agglomeration ; a)Financial Center construction " message Impact Shadows Ring expected , Whether the international financial centre can be built as scheduled will significantly affect the scale and speed of financial agglomeration.

Keywords: financial gathering , International Financial Center , dynamic random general balance

1. Bow I say

with the intensification of financial globalization and the rapid development of China's economy , Promote international financial Center construction The urgency of the is increasingly highlighted . China plans 2020 year Shanghai built with power , RMB International Phase Adaptive International Financial Center , Achieving financial agglomeration is an important part of building an international financial center . however , How to accurately evaluate the dynamic influence of international financial center construction Strategy , presenting a pragmatic measure Apply , face two challenges . One is an international experience that is not directly available in practice ; Two is missing have effect theoretical framework for policy experiments . This article constructs a theoretical model of financial agglomeration , take value Simulate policy evaluation , Get a general application of international Financial centre construction and financial agglomeration to the conclusion .

currently , Dynamic Stochastic general equilibrium model (Dynamic stochastic General equilibrium, DSGE) is heavily used for policy evaluation and prediction , but traditionalDSGE model generally assumes economy Policy is an unforeseen shock to the participants in the economy . an economic system can only be made in the current period of policy implementation reaction without advance , policy effect comes from Unexpected actual policy impact of . apparently , this ignores a fact , that the public can before the government enforces policy , get policy through various channels will execute or not messages , These messages about future policy are likely to affect the public's expectations and accordinglychange behavior , affects the entire economy . in Shanghai as an example , Even if Shanghai International Financial Center to 2020 year was not built as scheduled , But the strategy itself will have a role in Shanghai's financial agglomeration . according to The author known , This is the first time DSGE model and message impact (News shock)The research method , apply To the International

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financial Center for the construction of this area .

beaudry and portier to Message as a signal the economy has observed , this signal to the current economy one Impact . on forward expectations (looking Forward) best , any signal or message impact on future economic conditions will affect the current economic Behavior , causing economic fluctuations . The specificity of the message impact is the : Although the impact in the current period on the Economic impact , But the impact is not caused by the actual impact . , thus not changing economy Fundamentals . in other words , message Shock is a preview of the actual impact of the future . for Shanghai International Gold Financial Center construction , Research International Financial Center strategy from Message Impact angle , no doubt have good pertinence and Applicability , , through policy effects, and before the government implements relevant policies Prediction . This article attempts to explore the : How limited to promote financial gathering ? as " message impact " 's country Inter-financial center construction strategy itself is important ? What are the actual effects of if important , ? What is the economic conduction mechanism behind the?

The main conclusions of this article are three . One is to reduce financial workers income tax , Investors ' financial assets Income tax and financial sales tax facilitate financial gathering , where the policy of permanent tax reform is most effective strong . Two is the implementation of strategic measures to encourage financial innovation , can effectively promote financial agglomeration , and , affect persistent . These two points mean , Building an international financial centre should start with financial agglomeration , focus on strengthening the institutional incentives for financial innovation . Three is as " message impact " International Financial Center construction of strategy will affect the scale and speed of financial agglomeration , enforce strategic process expected management is Important . the conduction mechanism is : How the rational investors and financial institutions influence gold through the impact of the message respond to expectations of products and their prices .

This article attempts to build the from a microscopic foundation DSGE Model , To estimate parameters by Bayesian method , is used for analysis " International Financial Center construction strategy The importance of this message impact and its conduction mechanism . Wu Hua , etc (2011) 1 When studying the news impact of fiscal policy , The also takes a similar approach to .

2. A literature review of financial agglomeration and message impact

Is based on the DSGE A large number of references to the model , Focuses on the discussion of fiscal and monetary policy , to ship it Research on the construction of an international financial centre there are also gaps . necessary for financial gathering , message impact etc.

2.1. Related literature on financial agglomeration

Research on financial agglomeration , has two main views . _ is financial geography perspective , Introduction position , distance and space factors , such as Jinshe Jun and Tian Lin (#)2 etc , Geographical factors to gold The impact of development is mainly reflected in asymmetric information (Clark and Wojcik , 2003) , non-normalized information and geographic dependencies (Pred , 1984) , and so on . Two is the financial regional movement theory , The theory is Research on spatio-temporal law of regional economic development , Comprehensive and systematic explanation of economic region and economic region root cause and underlying mechanism of system formation and development (Dong Yicheng , 1994)3.

Research on the causes of financial agglomeration , the focuses on three aspects . The first is the intrinsic motivation of financial agglomeration connect to. The theory of information flow in financial geography is the mainstream school of the current field . Amin and Thrift (1994) View information flow as a prerequisite for financial center development , and the financial industry can also be interpreted as High Value-added Information Services for . Two is the study of regional financial growth . Zhang Fengxu and Wang Yavan (off) 4, Zhang Fengxu (????)5 The regional financial growth is embedded in the regional economic formation and development changes procedure , to provide space and conditions for regional economic growth . Third, industry agglomeration motivation to finance Cluster Reference research . such as Marshall's theory on the externality of spatial

agglomeration mainly for the industrial space set get together , But for financial gathering there are also the _ explanatory powers of the _ . These theories from different sides , different view Corner Analysis of the causes of financial agglomeration , Strong explanation for this problem . deficiencies in the lack of Its growth process , Dynamic Review of speed changes , difficult to reveal the intrinsic motivation and dynamics of financial agglomeration feature .

Research on financial centers , has four main aspects . One is the cause of the financial center's formation .. some Scholars Use aggregation effect and external economies of scale to explain the causes of financial centers . kindlebergerand Charles (1974) the agglomeration effect of financial center is mainly reflected in the improvement of cross region payment efficiency and increase the efficiency of financial resources across regions . Pan Yingli (2003)) 6 i think the financial agglomeration has increased Market Liquidity , reduces financing costs and investment risk , This external scale economic effect accelerates the gold Merge Center form . The second is the determining factor for financial location selection . Davis (1988) First apply the Enterprise selection site theory to research in the financial center . Pan Yingli (2003)) Using the theory of Enterprise location selection analyzes the important determinants of financial location decisions . Three is the government in the financial center in the formation of the process of thewith . Pan Yingli (2003)) Think the government provides a stable political and economic environment , Advanced communication set and a good regulatory environment is the basic condition for the formation of financial centres . Four is for International financial Center form History Review . Many scholars from different perspectives on the construction of Shanghai International Financial Center have carried out.

2.2. about message Impact related literature

currently , Research on message impact has three . One is to discuss the possibility and the necessary conditions for the generation of ancient weeks under the impact of a message (. due to message impact and actual impact there is an essential difference , on standard under RBC model frame , The message impact on technology is not able to generate a total of all economic variables move (Co-movement) , = consumption , Investment , Total output increases at the same time , Therefore, we cannot produce the ancient week period . beaudry and Portier (on) for the first time proposed a three-door economic week under expected impetus period (Newsdrivenbusinesscycle,ndbc) The model resolves the problem . after the main document is on their basis , the analyzes the possibility of a message shock producing the ancient period and its role from a theoretical perspective mechanism . The second is an attempt to find evidence in macro data from a TFP perspective , as beaudryand Portier (2006) using structural vector autoregressive model (SVAR) Analyzing stock market data and TFP the off Department , found evidence that the message shock caused the ancient period of Kota Kinabalu . haertelandlucke (2(8) 8) uses a similar The method finds evidence in German patent data . Three is to discuss the effect of the actual economic policy under the impact of news , such as kobayashiandnutahara (a) On the basis of the theoretical model analysis of viscous price settings to create a shelter ancient cycle probability based on ,Explore the implications of message impact on monetary policy for U.S. data .

about International Financial Center Strategy The actual policy impact of and its message impact on financial agglomeration research , basic blank stage . This article tries under the new Keynes framework , build can reflect financial agglomeration model characterized by financial markets , Research on the dynamic influence of international financial center on Strategy . article with Kobayashiandnutahara The difference between is , The first time ndbc theory op A strategic study of international Financial Centre construction , Combined with the actual situation of Shanghai financial development , estimate and discussion International Financial Center Strategy The impact of on financial agglomeration and its importance .

2.3. related references to Bayesian estimates

because of the specificity of the message impact , The source and accuracy of participants in financial markets are very complex , Recognizing and extracting message shock sequences from economic data many

difficulties are encountered . in particular , finance risk preferences for investors on the market , Financial System innovation Parameters , structure parameters such as financial development Strategy parameter number , hard to calibrate with microdata .

for the above problem , The emphasizes that the Bayes estimation method of ex post correction mechanism is widely concerned . the Bay Dean estimates emphasize the use of prior information from the researcher , infers the subsequent distribution of parameters with observable data , to handle limited data availability . the method obtains a state space model for estimation directly from the equilibrium path of the theoretical model the , derive maximum likelihood of pending parameters function , to organically combine observational data with economic models . The study of is based primarily on the DeJong to AZ. (Watts) and On and schorfheide (2007) established profiling mode . smetsandwouters (2003) The uses the Bayesian method to estimate the based on EU data DSGE type . then smetsandwouters (2007) uses this method to estimate a large of the American economy Macro Model . The results of the study are now based on theDSGE framework estimate macro model and on this basis to analyze the important starting point of macroeconomic phenomena .

because the state space model does not require an actual tax system impact , Financial efficiency impact and message impact observations , become the ideal tool for estimating structural shocks . Schmitlrgrohe and Uribe (2008) on introduce custom form in RBC model , adjusting cost and capital utilization friction , find about production technology , Investment know-how and government expenditure message impact can be explained 2/3 above economic fluctuations . fuiwaraciaz. research about total factor growth with Bayesian method Message Impact can be a major driver of economic volatility , Find a message shock to the US economy more important than the economy of Japan .

To summarize , We consider the study of financial agglomeration , It is necessary to build a with a micro base DSGE model . for data availability , Assessing policy impact with Bayesian estimates .

3. setting of the financial agglomeration model

by examining the characteristics of China's financial markets , includes investor trading behavior and how finance works , and Shanghai International Financial Center Construction Strategy , We built a Chinese financial agglomeration DSGE model . with the development of macroeconomics , using DSGE Analysis Framework discussion China economy Questions More and more documents for questions , But research for financial agglomeration , This article is the first . but , finance market differs from entity Economy , has unique features , performance in : () Volatility Comparison of financial asset prices frequent , no price stickiness ; (2) Financial practitioners are highly mobile ,More competition between finance Sub- , No strong wage rigidity and labor adjustment costs ;(3) Adjustment of financial asset portfolio , subject transaction fee , Impact of subscription and redemption fees , Asset adjustment cost apparent , And the larger the size , The more cost high ,-- convex asset adjustment cost .

assumes that the financial market contains investors , Three departments such as finance and government , A representative investment maximize expected utility ;Financial institutions maximize profit ; Government-made financial practitioner , cast Income tax and financial business tax, etc. related tax policies , Implementation "International Financial Center construction Strategy " , and follow the budget balance . The Model Sub-department profile is as follows .

3.1. Investor

investors provide employees or labor for financial institutions in capital markets (where) and funds (Jackson) , under budget constraints , maximize utility , investors including financial practitioners , entity Enterprise Industry etc . due to entity Enterprise , especially public company , also by the shareholder (including financial practitioners) has , Assuming the assumption of utility maximization is justified . The most optimized objective function of the investor is as follows :

$$\text{Max} (C_t, A_t, N_t) . (1)$$

AR 7

here, assumes that the instantaneous utility function is: $U(C, A, N) = 1 - \gamma C + \alpha(1 + \gamma) - A^n$, where, γ represents the degree of risk preference for investors in investing in assets, γ larger, The stronger the risk preference; α , affect the investor's best choice between consumption and work.

investors are subject to the following budget constraints:

$$C + F, < (1 - rr) W + N, + (1 - T) R, A, \bullet (2)$$

here, r , represents financial employee income tax, T represents an investor's asset profits tax, The tax rate is determined by the tax rules, on, The period belongs to an exogenous variable. C Show investor consumption, F , means investors invest in gold Financial institutions of the fund, gradually form the assets of investors. Investor's assets A subject to the following cumulative equation:

$$A, = \text{less} (f/a, -1) A, - 1 + (1 - \delta) A, - 1. (3)$$

here, δ represents the impairment rate of financial assets, is assumed by the investor. Investors hold various assets, including Current assets and fixed assets, assets flowing through capital market to financial institutions, before this asset is folded old, inflation, Asset impairment due to exchange rate fluctuations. $\text{less}(\bullet)$ is asset adjustment cost function, assumes $\text{less}(\text{Magic} = 8, \hat{i}(\text{Magic} = 1, \text{less}()) > 0$, that is, adjust the cost to a strict convex function (Concave Technology), and Bernanke no a . (1999) Setting an entity economic investment in the adjustment cost of convex technology is different.

3.2. Financial Institutions

Assumes that on the financial market, Financial institutions are in $[0, 1]$ uniform distribution on the interval. represents a financial Institution through the management of investor assets (A), employing financial practitioner (N), offering financial services Products (Q), Maximize profit. This means, Financial agglomeration will be mainly in financial products (Q) increased, Financial Asset Management scale (A) expansion of the and financial industry practitioners (N) Increase.

assumes that financial institutions use the following financial asset management functions to provide financial products and services (Q):

$$Q, = E \alpha n 1 - A. (4)$$

here, E , represents asset management efficiency, includes innovations for financial products, means of financial transactions and Technology, financial infrastructure, etc., is largely influenced and controlled by the government.

assumes that financial markets are fully competitive, Pricing of financial products is determined by the market, units to 1. so, on, period, Optimization Issues for financial institutions are as follows:

$$\text{MAX} N, = (1 - r?) E, A N z 1, [], [f] () - A -) a, - T^M, N, . (5)$$

A^n

here, \wedge represents the sales tax that a financial institution pays (or income tax), N represents a financial capital yield return on investment, $\%$ indicates salary levels for employees in financial institutions (or labor income), where n and all are actual variables.

3.3. Government Department

The Government is responsible for developing a financial agglomeration strategy for the country or region, For example my country about Shanghai International Financial Center construction "" Strategic plan, mainly through tax policy, Financial Innovation Arrangements, Promoting financial clustering. Government expenditures (G) Follow the budget balance as follows:

$$G, = z]^{\circ}, w l N l \wedge r t r t A t \wedge t? E i A \wedge N 1 a. (6)$$

Financial Development Strategy refers to the Government through the formulation of financial development strategy, provides for financial markets Wish King", and through this vision directly or indirectly affect financial agglomeration, can be called Strategic Vision effect (= message impact chicken). needs to indicate that, This

strategic vision does not necessarily implement, but not implemented The uncertainty of the affects the financial agglomeration.

First is tax policy, The income tax on financial practitioners (RD, Financial investors' Assets Profits Tax (T) and financial product income tax (r?) etc, to attract financial talents and institutions investor. because of the fixed tax policy, We mainly examine three tax arrangements. _ is government on page a period permanent increase or lower tax rate (T), Permanent change T; Two is the government at some point period ([4, T]) Increase or decrease tax rate (T), To change in the short term T; Three is the government in the period One Minor increase or decrease tax rate (T), To change the first issue T.

There are unexpected tax shocks in three of these cases, This is fixed by tax and ahead of time The system of informing the public the decision of the, at this time model is deterministic model, differs from the random impact model. but, Whatever tax arrangements the government takes, Before you tell the public, There is a tax rate of message impact (Cure).

$$\text{Log}t = (1-p) \log r! + p, \log r:- + V, \text{ and/or } ().. (7)$$

What the financial institutions have observed in the past period about the first z A signal for the construction of an international financial center, is more than one the plus total of the impact of the bonus. where, devices $\sim(0, <,)$ is page, first ^ for the period ^ Post-period international finance Center Construction Tax Message, in advance ^ The period gets about the first, Tax on the financial strategy message. For example, 4 the represents in, a 4 observed in the period 4 period, that is, messages for the period financial strategy.

To organize the, Government's tax policy to promote the construction of international financial centres:

followed by financial innovation arrangements, to promote financial product development, Trading Technology Improvements Schedule, to directly or indirectly improve the operational efficiency of financial institutions (Tile), assumes that its implementation is subject to the following Random procedure:

$$\text{Log}E, \text{ two } (1-\text{Bet}) \text{Log}E + \text{Bet} \text{Log}E \text{ bu } I + e (9)$$

To organize the, The Financial innovation policy that the Government implements the International financial Center strategy shocks as follows:

T

$$\text{Log}f - (1-pf) \log f + Pf \log f - 1 + sF 7 J ^ + ^ p, -p (a)$$

P -1

3.4. Equalization System

Investor Preferences in a given economy, Financial Asset operation mode and government behavior, The given state changes to measure $\{A, -1\}$ and exogenous random variables set $\{, R, , F$, when The economy reaches system equilibrium, each Economic principal implementation constrained optimization: Investors achieve the maximum expected total utility, Financial Implementation tax Profit maximum, Government follows budget balance, Product market, Capital Markets and labor markets Clear. then, by solving this dynamic stochastic general equilibrium system Ten, We can get the following economic variables Optimal equalization path: $\{C, , A, , N, , F, G, Q, a, r, , , \{, , f, \text{Chicken}\}$.

4. parameter calibration and Bayesian estimation

because relevant data is limited, to reduce the dimensions of the estimate parameter, We divide the arguments into two Big class: _ class based on existing literature, Combining economic implications and microdata calibration, See table 1; another class is the parameter we are interested in, including the second derivative jealousy of the asset adjustment cost function, impact sequence First-order autoregressive coefficients and standard poor, See table 2.

4.1. Calibration of basic parameters

First, calibrate Investor Preferences. calculate by Zhang (2009), 1992-2011 The average return on financial assets in Shanghai during the year was about 0., because we simulate a Annual data, the rate of return on real

assets per year after inflation is approximately 0.10. hereby , can about equilibrium system equations and derivation procedures , Interested readers can ask the author for a .

to set the investor's discount factor to about 0. . follow Hansen (1985) non-divided labor false set , We set the $\alpha = 1$, is based on the a $N_t = N_{t-1} + \delta V_t (1 + y_t)$ Know , Alternative elasticity of labor at this time, 0 , Its economic implication is that representative financial practitioners provide all when they find work based on certain probabilities available working hours .

Second , Calibrate Financial product operation parameters . about Shanghai financial Asset share , domestic base There is no literature to study on this . We'll follow 1998-2011 announcements for all listed financial companies , estimate count a value 0.8 . other , under inflation , exchange rate fluctuation , Natural Disaster and other reasons Asset value rates that are caused by , No related discussions and estimates at home and abroad . because assets can as capital securitization , so we use the depreciation rate of capital to approximate the asset impairment rate . Chow andli (2002) The estimated capital depreciation rate for is 0.04- 0.056 , takes into account the time value of the asset Properties , We use 0. ' as an asset's annual decrement , set accordingly $\delta = 0.05$.

last , calibrate the relevant tax system parameters of the Shanghai municipal government in the year . based on year Shanghai Financial employee income tax imposed by the city , Investor Capital gains tax and financial sales tax etc off data , we set $\tau_{div} = 0$. , $\tau_{cap} = 0$. ; $\tau_{cor} = 0$. ?.

4.2. Bayesian estimate

The data we use is 1992 - Total Annual actual consumption of C , One , Asset Management for finance size A, and government tax rates $R_t (z = r_t, \tau_t, Q_t)$. through ADF methods and PP the method after the adjusted data is checked for a smooth check of the , The preceding sequence is $I(1)$ Order complete Series , has a long-term trend and non-smooth , but $I(1)$ sequence of order difference , that is, the growth rate of each variable is stable . These growth rates: corresponding to the logarithmic linearization difference sequence in our model.

When the monthly inflation data is obtained , The takes a common X One The method makes seasonal adjustments to eliminate the effects of seasonal features 0. 169, 0. 0154 , inverse Gamma Prior distribution , and $(F = 1, \dots, 9)$ Variance

The same (FFF) , is FfE for $1/9$ wins $\#G = R_t, \tau_t, Q_t$) with the same variance , all $(7. 1/2. i)$ settings Allow message impact cannot be implemented , The message you get in advance may be wrong , This means Shanghai International Financial Center to 2020 There is no possibility of the establishment of the year .

We use the MATLAB Toolkit dynare Complete the estimate process . table 2 give Bayesian estimated results , where the two columns on the left are predefined prior distributions and transcendental mean values , Third The and Fourth columns report a posteriori mean and a standard deviation respectively , last column The confidence interval of is no values are through Metropolis - Hastings Algorithm Impersonation 25 (8) 0 the . overall , we estimates with Kahn and tsoukalas (2010) and schimit-grohe and Uribe (2008) more consistent .

based on the results of the Bayesian estimate , can quantitatively review the implementation of International Financial Center Strategy different The relative importance of measures , Variance decomposition results as table 3 shows . The larger the number in the table , represents the corresponding The greater contribution of the impact to the fluctuations in the table's corresponding variables . from which you can see ,(1) For financial products for, The biggest impact is the financial sales tax of the news impact, Second is to promote financial product innovation, Apply :(2) for financial Asset Management scale , the biggest impact is also the financial business tax message Impact , followed by the Government's actual impact on financial sales tax (3) for financial practitioners , Important for with the exception of the government's information on the levy of financial business taxes , Building an international financial center to improve finance The actual impact of operational efficiencies is greater for financial practitioners.

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