My Selected Published Journal Papers

1. “Economic Openness and Income Inequality: Chinese Provincial Evidence in the 1990s”, *China Economic Policy Review*, (joint with H. Yao), 1(2), 1-21 (2012)

Abstract

China in the 1990s was a large labor-abundant country at its early phase of global integration. This paper develops a framework that applies a Gini coefficient-related measure of income inequality to the Heckscher-Ohlin model and analyzes the effects on income inequality of economic openness to foreign trade and capital. Our findings from generalized least squares regression of Chinese provincial data suggest that increased openness tends to lower income inequality in China of the 1990s. Ignoring provincial differentials, China’s income inequality decreases as the trade-to-GDP ratio and the interaction between FDI and fiscal deficit increases respectively, though income inequality increases with the deficit-to-GDP ratio and the interaction between trade and financial deepening. In respect to the province-specific effect, however, trade openness and foreign direct investment tend to increase income inequality when they are examined jointly with the interaction of financial deepening and government budget balance.

JEL classification: F16, O16, P45
Key words: income inequality, Heckscher-Ohlin model, economic openness, Chinese provinces

2. “Revisiting the Marshall-Lerner Condition under Processing Trade - Empirical Evidence from China”, *Journal of International and Global Economic Studies*, 5(1), 17-34 (2012)

Abstract

With the real exchange rate elasticity of processing net exports being positively related to the processing trade intensity, the modified Marshall-Lerner condition states that a real exchange rate appreciation tends to increase rather than reduce net exports, as long as the composite export elasticity with respect to import via the real exchange rate is sufficiently large. The estimated cointegration relationship of China’s data suggests a robust channel of processing trade through which processing exports increase more than processing imports in response to a real appreciation of Chinese currency vis-à-vis the U.S. dollar.

JEL Classification: F10, F49, P50
Keywords: exchange rate, processing trade, cointegration

3. “Exchange Rates and Prices under Processing Trade: A Macroeconomic Analysis”, <u>*Atlantic Economic Journal*</u>, 38(3), 345-357 (2010)

Abstract

In an economy dominated by labor-intensive processing trade (such as China), real exchange rate appreciation can possibly increase rather than decrease net exports. As the import content of processed exports (a proxy for dependence on processing trade) increases in its continuum, the stable equilibrium for the exchange rate and price level eventually yields to a saddle-point equilibrium: for a given exchange rate, unless the initial inflation (or deflation) rate is uniquely moderate, either the depreciation-inflation spiral or the appreciation-deflation spiral could dominate. Monetary and fiscal policies can help a processing-trade dependent country in its structural transition from excessive engagement in processing trade (the saddle-point equilibrium) to a more sustainable and balanced trade structure.

JEL Classification: F41, E40, F10
Key words: processing trade, exchange rate, prices, dynamic equilibrium

4. “Measuring China’s Monetary Sterilization and Autonomy in the Era of Globalization: 1995-2005”, <u>*Journal of Asian Economics*</u>, 20(3), 336-347 (2009)

Abstract

This paper provides a cointegration analysis of incomplete monetary sterilization and autonomy in China when both financial controls and the exchange rate peg exist. According to an estimated long-run equilibrium relation, only thirty-five cents are sterilized for a yuan of foreign-exchange reserve that flows into China. In response to the movement in foreign-exchange reserves, M2 proves more endogenous than M1; and in the M2 elasticity model, as the forecast horizon extends, the domestic-credit component of the monetary base exhibits its significant endogeneity with respect to the foreign-asset component, whereas the endogeneity of the foreign-asset component also rises with respect to M2.

JEL classification: E51, F41, P50
Key words: money endogeneity, monetary sterilization, cointegration, foreign exchange reserves

5. “The Impact of Past Growth on Poverty in Chinese Provinces,” *Journal of Asian Economics*, 19(4), 348-357 (joint with D. Chambers and H. Yao, 2008) (one of “Top 25 Hottest Articles” in the category of economics, econometrics and finance published in *Journal of Asian Economics*)

Abstract

The impact of prior economic growth on current poverty rates within provincial-level China is examined using panel data and semiparametric techniques. Results reveal that prior short-run growth raises poverty levels; prior long-run growth increases poverty in slow-growing provinces, while reducing poverty in faster growing provinces. Additionally, there is an inverted-U shaped relationship between poverty and income; i.e. at lower income levels, the poverty rate increases with income, while the opposite holds at higher income levels. However, higher savings rates or higher income inequality makes this tradeoff less favorable. Interestingly, many traditional poverty explanatory variables lack explanatory power after taking into account the impact of prior growth.

JEL Classifications: H52, I30, O40, R00
Keywords: China, economic growth, poverty rates, income inequality

6. “A Macroeconomic Analysis of Foreign Assets and Foreign Liabilities,” *Journal of Economics and Finance*, 32(2), 119-135 (2008)

Abstract

Although an increase in foreign assets and a decrease in foreign liabilities both increase a nation’s net foreign assets (NFA), they have alternative macroeconomic transmission mechanisms: while an increase in foreign assets is expansionary, the effect of a decrease in foreign liabilities is mixed due to the asymmetry between its income effect and wealth effect on aggregate demand. It is the relative strengths of the NFA’s wealth effect and income effect that determine the existence and natures of saddle-point equilibrium in the NFA-real balance space as well as its comparative statics. The cointegration analysis suggests that in the 1990s, foreign liabilities bear more weight than foreign assets in the U.S. NFA movement whereas the opposite holds for the case of Japan; therefore, correcting NFA imbalances calls for accelerated money growth and fiscal expenditure pruning in the U.S. but for the opposite policy responses in Japan.

JEL classifications: F41, E31, E50
Key words: net foreign assets, real balances, steady state, vector error correction

7. “A Tale of Two Provinces: How Growth Can Help or Hinder Equality in China?” _International Research Journal of Finance and Economics_, Issue 12, 214-219 (joint with D. Chambers and H. Yao, 2007)

Abstract

The relationship between current income inequality and past economic growth is examined within a panel of Chinese provinces using semiparametric techniques. Prior short-run growth (over a 3-year horizon) raises inequality levels. By contrast, prior longrun growth (over a 7-year horizon) gives rise to an inverted U-shaped relationship, whereby inequality increases with growth in slow-growing provinces, and declines with growth in fast-growing provinces. Finally, no evidence of a Kuznets Curve relationship between current output and inequality is found.

JELClassification: O40, C14, R00
Keywords: economic growth, inequality, Kuznets curve, semiparametric panel

8. “Labor Leasing, Direct Hiring, and Efficiency Wages,” _International Journal of Applied Economics_, 4(2), 46-61 (joint with H. Yao, 2007)

Abstract

Labor leasing, a variant of outsourcing, has an economies-of-scale advantage over direct hiring in lowering nonwage acquisition costs. Particularly, if economies of scale reduce the leasing rate more than a leasing firm’s monoposony power raises it, the leasing rate exhibits a descending scale and thus makes expanded leasing employment non-inflationary. It is shown in an optimization framework that the efficiency wages paid to directly hired workers are negatively related to the leasing employment in the same firm but positively related to nonwage acquisition costs, and therefore producing firms tend to substitute leased workers for directly hired workers.

JEL Classification: J30, J32, and J41
Key words: labor leasing, economies of scale, efficiency wage

9. “Entrepreneurs and Professionals: Their Relative Supplies and Returns - A Perspective from Economic Growth,” *International Journal of Applied Economics*, 3(2), 21-39 (joint with H. Yao, 2007)

Abstract

This paper analyzes a growth model in which the ratio of professional human capital return to entrepreneurial human capital return changes with the level of economic development. Empirically, few economies in today’s world are near the ratio’s optimal steady-state level though developed economies register a higher ratio on average than less developed economies. With the entrepreneur shortage, the required adjustment includes a transition of some professionals to entrepreneurs, and a decrease in the existing entrepreneurs’ compensation relative to professionals’. In this process, entrepreneurs’ average consumption rises in less developed economies whereas it falls in developed economies. Furthermore, it is shown that a decelerating growth is compatible with the optimal adjustment process and an accelerating growth isn’t.

JEL Classification: J24, O11, O40
Key words: entrepreneurs, professionals, human capital, economic growth

10. “Pay, Training, and Quitting: A Contract Model,” *China Industrial Economy*, 23(12), 113-119 (in Chinese, 2006)

11. “The RMB Exchange Rate and Monetary Sterilization in China,” *China: An International Journal*, 4(1), 32-59 (2006)

Abstract

In contrast to previous economy-overheating episodes, the foreign capital inflow among other factors constitutes one of the fundamental causes for the recent investment boom and economic overheating in China. The foreign reserves component in the monetary base has overtaken the domestic credit component in exerting a dominant influence on the money supply. Nevertheless, the conventional course of sterilization implemented by the monetary authority has not been sufficiently effective in mopping up extra credit that foreign capital inflow brings in; sterilization in China is only partial and incomplete.

JEL classification: E51, F41, P50
Key words: monetary authority, monetary sterilization, cointegration, foreign exchange reserves

12. “Determining A Modified Currency Board’s Two-Period Exchange Rate Strategy,” *International Advances in Economic Research*, 11(4), 347-357 (2005)

Abstract

Is it preferable for a modified currency board (MCB) to disguise its true characteristics and preferences and renege later? This paper analyzes a model in which a MCB determines its first-period exchange rate strategy to maximize a two-period welfare function. The inflation rate anchored by a classical currency board (CCB) is always a benchmark to the MCB in its first period decision. If the benchmark inflation rate is either sufficiently low or sufficiently high, the MCB chooses the optimal exchange rate in both periods without playing a credibility game over time; but if the benchmark is at a moderate level, a strategy of overtly deceiving the public by pretending to be a CCB is shown to be superior to a strategy of concealing through policy randomization.

JEL classification codes: E42, F32, F41
Keywords: currency board, exchange rate strategy, two-period model

13. “A Modified Currency Board System: Theory and Evidence,” *Journal of International Financial Markets, Institutions and Money*, 15(4), 353-367 (2005)

Abstract

The modified currency board (MCB) with a preference for both its credibility and economic growth can exercise limited discretionary power to maintain a substitution relationship between the credit instrument and exchange-rate instrument. Under the assumption that money demand is more sensitive to credit expansion than money supply, the MCB’s response function takes the credit instrument for growth as the world interest rate falls but the exchange-rate instrument instead as the world interest rate rises. The survival of a MCB depends both on the nature of a shock and on its preference for credibility vs. growth. This paper’s finding suggests that the recent collapse of Argentina’s currency board system as well as macroeconomic hardship in Hong Kong may stem from a combination of the falling world interest rate and a rigid credibility-oriented currency board.

JEL classification codes: E42, F32, F41
Keywords: Currency board; Interest rate; Exchange rate

14. “Multiple Equilibria and Interfirm Macro-Externality: An Analysis of Sluggish Real Adjustment,” *Annals of Economics and Finance*, 5(1), 61-77 (joint with Y.K. Ng, 2004)

Abstract

In an imperfectly competitive economy, a continuum of equilibria at the firm level exists under certain analytical conditions (Ng 1986). Extending the earlier analysis of a representative firm, this paper shows that even if the condition for a continuum of equilibria is not exactly satisfied, the factors of price-adjustment costs, interfirm heterogeneity, and macro-externality can cause the economy to be stuck at the quasi macroequilibria after aggregate demand experiences a contractionary shock. Although adjustment costs are small and gains from adjustment are potentially large, the adjustment tends to be sluggish due to the existence of interfirm macro-externality.

JEL Classification: E32, E31, D62, D43.
Key words: imperfect competition; externality; adjustment cost; aggregate demand

15. “Singapore’s Collective Bargaining in a Game of Wage and Exchange Rate Policies,” *Open Economies Review*, 15(3), 273-289 (2004)

Abstract

In Singapore’s system of tripartite collective bargaining, does the wage-policy maker consistently react optimally to the best move made by the exchange rate-policy maker (Nash-rule) or only to the state of economy (non-Nash rule)? This paper finds that the Nash-rule equilibrium is unstable and thus the non-Nash rule becomes more meaningful. Under the non-Nash rule, the simulated wage growth exhibits a counter-cyclical pattern and increases with the union of workers’ bargaining power. The government’s role appears to strike a balance between the employers’ interests and the employees’. Consistent with actual observations, the simulated exchange-rate appreciation has acted as a complement to wage growth from 1987 to 1995.

JEL Classification: E64, E61, F41
Key words: wage growth, exchange rate, Nash equilibrium

16. "The Interplay of Wage and Exchange Rate Policies in Singapore: A Case of Collective Bargaining in Macroeconomic Management," *Contemporary Economic Policy*, 22(1), 39-49 (2004)

Abstract

This article analyzes an optimization model of the policy game between Singapore's National Wage Council (NWC) and the Monetary Authority of Singapore (MAS) and further simulates the model over policy rules (Nash game vs. non-Nash game), economic scenarios, and the game players' preference and bargaining power. The results indicate that the exchange rate appreciation and wage growth act as substitutes under the Nash rule of policy responses whereas they act as complements under the non-Nash rule. Under the Nash rule, the exchange rate appreciation tends to be procyclical and wage growth countercyclical; union workers' bargaining power relative to employers' strengthens the procyclical appreciation uniformly but reinforces the countercyclical wage growth only when the economy undergoes a downturn. Both the Nash and non-Nash rules call for more moderate appreciation and more flexible wage adjustments than their actual movements.

JEL Classification: E64, E61, F41
Key words: wage growth, exchange rate, Nash equilibrium

17. "Substitution between Wages and On-the-Job Training in an Optimal Labor Contract," *International Review of Economics and Finance*, 12(3), 369-383 (2003)

Abstract

This paper explores the substitution between wages and on-the-job training in a labor-contracting model in which training investment is negatively related to the specificity of the training. A worker who has acquired general training as a positive externality of on-the-job training suffers from overtraining when quitting causes the worker to pay a quit penalty and the alternative job is not highly dependent upon the previous investment in training; it is the overtraining that can jeopardize the substitution between wages and on-the-job training. Unlike some earlier studies, this study finds that the optimal training/wage profiles are sensitive to who pays the training as well as to the degree of specificity of on-the-job training.

JEL classification: J31, J32
Key words: on-the-job training, externality, wage-training substitutions, labor contract

18. “Monetary Sterilization of Capital Inflows through Compulsory Saving in Singapore,” *Review of Pacific Basin Financial Markets and Policies*, 6(1), 65-86 (joint with R.F. Wang, 2003)

Abstract

This paper examines the monetary sterilization mechanism of the Singapore economy. We argue that, in the absence of a well-developed open financial market, the Central Provident Fund (CPF) has in fact played a role as a quasi-market mechanism in sterilizing the effect of foreign-exchange assets inflow. Using the error-correction-mechanism (ECM) approach, we model the implicit monetary sterilization mechanism and estimate the offset coefficient between the net-domestic-credit component and the net-foreign-asset component of the monetary base. The estimated ECM regression coefficient suggests that monetary sterilization in Singapore is nearly perfect for the 1984-1995 period. The estimates of other macroeconomic relations also support the hypothesis of the quasi-market monetary sterilization mechanism.

JEL classification: E64, F41, P50
Key words: monetary sterilization, Central-Provident-Fund savings, offset coefficient, small open economy

19. “Exchange Rates, Stock Prices, and Money Markets: Evidence from Singapore,” *Journal of Asian Economics*, 12(3), 445-458 (2001)

Abstract

This paper uses a monetary approach to analyze the asymmetric asset-price movements (exchange rates and stock prices) in Singapore, a small open economy with managed exchange rate targeting. The Singapore dollar exchange rates vis-à-vis the developed coutries’ currencies are negatively related to stock prices whereas the relationship between the Singapore dollar-Malaysian ringgit exchange rate and stock prices is positively related. The pattern of asymmetry is explained by the distributed-lag regression and VAR analysis. Furthermore, the distributed-lag regression of monthly data suggests that fiscal revenues as well as fiscal expenditures exert positive influences on stock prices.

JEL classification: E41, F41, F31
Key words: exchange rates, stock prices, interest rates

20. “Stock Prices and Exchange Rates in a VEC Model - The Case of Singapore in the 1990s,” _Journal of Economics and Finance_, 24(3), 260-274. (2000)

Abstract

This paper uses an error correction model to explore 1) asymmetric effects of four different exchange rates on Singapore stock prices and 2) sensitivity of the effects to economic instability. Both currency appreciation against the U.S. dollar and Malaysian ringgit and depreciation against the Japanese yen and Indonesian rupiah lead to a long-run increase in stock prices for most selected periods of the 1990s; however, the effect associated with the U.S. dollar exchange rate has a sign reversal between the 1997-98 crisis period and the 1999-2000 recovery period. The influence of exchange rates on stock prices increases in a chronological order in the 1990s.

JEL classification: E44, G15, F31
Key words: stock prices, exchange rates, vector-error correction

21. “How Do Monetary Variation and Non-Neutrality Relate to Credit Availability?” _Advances in Pacific Basin Business, Economics, and Finance_, 4, 47-68. (2000)

Abstract

This paper examines a macro model of a bank-dependent small open economy committed to the fixed exchange rate. The gaps both in instantaneous portfolio adjustments and in perfect substitutability between bonds and bank loans extend to imperfect capital mobility. In contrast to the "money view", credit availability channel makes monetary policy non-neutral; the policy effectiveness directly depends on the size of bank-credit multiplier and the sensitivity of investment to bank credit. Particularly, in the case of credit rationing with aggregate supply more sensitive to credit constraint than investment demand, a policy-efficacy reversal arises: a monetary policy intended to be expansionary ends up being contractionary. In addition, a weak credit channel (small credit multiplier and low sensitivity of investment to bank credit) in this case is associated with less monetary variation than in the cases in which credit is non-rationed or rationed but investment demand is more bank dependent than supply side.

JEL classification: E51 F41
Key words: credit rationing, effectiveness of monetary policy, balance-of-payments

22. “More on Monetary Policy in a Small Open Economy,” *International Review of Economics and Finance*, 8(2), 223-235. (1999)

Abstract

When the representative bank’s backward-bending loan supply curve peaks at the profit-maximizing loan rate, credit rationing could exist as an equilibrium phenomenon and the equilibrium interest rate in the loan market is subject to upward rigidity. With the loan-market setting as a micro-foundation for investment, this paper further develops a macro model of a small open economy under a regime of fixed exchange rates with perfect capital mobility in the bond market and imperfect asset substitutability between bonds and loans. In spite of whether there exists credit rationing, a change in money supply shifts the IS as well as LM curves; the credit-driven adjustment in transaction demand for money lessens the disequilibrium pressure on the money and foreign exchange markets so that the offset coefficient of an open market operation is less than one. The stronger the credit channel is, the more legacy of monetary policy it can preserve as desired. In particular, monetary autonomy tends to be less impaired under the credit-rationing regime than under a market-clearing regime.

JEL classification: E51 F41
Key words: credit rationing, monetary policy, capital flow

23. “Macroeconomic Cooperation of Exchange Rate and Wage Movements under Quasi-Sterilization: Singapore Experience,” *Pacific Economic Review*, 4(2), 195-212. (1999)

Abstract

This paper analyzes Singapore’s two-pronged macroeconomic strategy of low-inflation characterized by the quasi-sterilization mechanism and the coordination of exchange rate and wage movements. The monetary authority’s inflation-averse attitude holds the key to the existence of a stable Nash equilibrium of the exchange rate and wages. During both economic upturns and downturns, the exchange rate moves one for one inversely with the growth of wages in the long run. The required steady monetary growth is underpinned by the quasi-sterilization mechanism whereby every dollar increase in net foreign reserves leads to a decrease of 0.84 dollar in net domestic credit.

JEL classification codes: E61, F41, E51
Keywords: quasi-sterilization, exchange rates, wage growth, Singapore

24. “Credit Availability Channel of Monetary Policy in a Small Open Economy,” *Accounting and Business Review*, 4(2), 201-222 (1997)

Abstract

This paper examines various structures of macroeconomic equilibrium in terms of the cyclical feature of the credit market. In contrast to the traditional "money view" that predicts the impotence of monetary policy in a small open economy with capital mobility and the fixed exchange rate, this paper argues for the relevance of the credit-availability channel of monetary policy. In particular, open market purchases have an unambiguous expansionary real effect if there is no credit rationing at equilibrium or if investment demand is more sensitive than aggregate supply to a change in the credit constraint when equilibrium credit rationing exists. Furthermore, the comparative static analysis provides its predictions of changes in income and interest rate in response to changes in required reserve ratio, credit risk, and foreign interest rate.

25. “On Equilibrium Credit Rationing and Interest Rates,” *Journal of Macroeconomics*, 17(3), 405-420. (joint with Jo Anna Grey, 1995)

Abstract

In many recent studies of equilibrium credit rationing takes the form of restrictions on the number of loans an intermediary makes. These studies conclude that when rationing occurs, interest rates will be invariant with respect to credit supply. We show that if credit is rationed by restricting the size of loans rather than the number of loans, tighter credit can cause interest rates to fall. This finding suggests a role for credit rationing in explaining the difficulty of empirically verifying a negative relationship between interest rates and investment, and points to rationing as a factor that may act to destabilize credit markets.