wiiw

Wiener Institut für Internationale Wirtschaftsvergleiche

The Vienna Institute for International Economic Studies

Working Papers | 62 | February 2010

Amit Bhaduri

The Implications of Financial Asset and Housing Markets on Profit- and Wage-led Growth: Some Results in Comparative Statics

wiiw Working Papers published since 2005:

No. 62 A. Bhaduri: The Implications of Financial Asset and Housing Markets on Profit- and Wage-led Growth: Some Results in Comparative Statics. February 2010

No. 61 N. Foster and R. Stehrer: Preferential Trade Agreements and the Structure of International Trade. January 2010

No. 60 J. Francois and B. Hoekman: Services Trade and Policy. December 2009

No. 59 C. Lennon: Trade in Services: Cross-Border Trade vs. Commercial Presence. Evidence of Complementarity. November 2009

No. 58 N. Foster and J. Pöschl: The Importance of Labour Mobility for Spillovers across Industries. October 2009

No. 57 J. Crespo-Cuaresma, G. Doppelhofer and M. Feldkircher: The Determinants of Economic Growth in European Regions. September 2009

No. 56 W. Koller and R. Stehrer: Trade Integration, Outsourcing and Employment in Austria: A Decomposition Approach. July 2009

No. 55 U. Schneider and M. Wagner: Catching Growth Determinants with the Adaptive Lasso. June 2009

No. 54 J. Crespo-Cuaresma, N. Foster and R. Stehrer: The Determinants of Regional Economic Growth by Quantile. May 2009

No. 53 C. Lennon: Trade in Services and Trade in Goods: Differences and Complementarities. April 2009

No. 52 J. F. Francois and C. R. Shiells: Dynamic Factor Price Equalization and International Convergence. March 2009

No. 51 P. Esposito and R. Stehrer: Effects of High-Tech Capital, FDI and Outsourcing on Demand for Skills in West and East. March 2009

No. 50 C. Fillat-Castejón, J. F. Francois and J. Wörz: Cross-Border Trade and FDI in Services. February 2009

No. 49 L. Podkaminer: Real Convergence and Inflation: Long-Term Tendency vs. Short-Term Performance. December 2008

No. 48 C. Bellak, M. Leibrecht and R. Stehrer: The Role of Public Policy in Closing Foreign Direct Investment Gaps: An Empirical Analysis. October 2008

No. 47 N. Foster and R. Stehrer: Sectoral Productivity, Density and Agglomeration in the Wider Europe. September 2008

No. 46 A. Iara: Skill Diffusion by Temporary Migration? Returns to Western European Work Experience in Central and East European Countries. July 2008

No. 45 K. Laski: Do Increased Private Saving Rates Spur Economic Growth? September 2007

No. 44 R. C. Feenstra: Globalization and Its Impact on Labour. July 2007

No. 43 P. Esposito and R. Stehrer: The Sector Bias of Skill-biased Technical Change and the Rising Skill Premium in Transition Economies. May 2007

No. 42 A. Bhaduri: On the Dynamics of Profit- and Wage-led Growth. March 2007

No. 41 M. Landesmann and R. Stehrer: Goodwin's Structural Economic Dynamics: Modelling Schumpeterian and Keynesian Insights. October 2006

No. 40 E. Christie and M. Holzner: What Explains Tax Evasion? An Empirical Assessment based on European Data. June 2006

No. 39 R. Römisch and M. Leibrecht: An Alternative Formulation of the Devereux-Griffith Effective Average Tax Rates for International Investment. May 2006

No. 38 C. F. Castejón and J. Wörz: Good or Bad? The Influence of FDI on Output Growth. An industry-level analysis. April 2006

No. 37 J. Francois and J. Wörz: Rags in the High Rent District: The Evolution of Quota Rents in Textiles and Clothing. January 2006

No. 36 N. Foster and R. Stehrer: Modelling GDP in CEECs Using Smooth Transitions. December 2005

No. 35 R. Stehrer: The Effects of Factor- and Sector-biased Technical Change Revisited. September 2005

No. 34 V. Astrov, Sectoral Productivity, Demand, and Terms of Trade: What Drives the Real Appreciation of the East European Currencies? April 2005

Amit Bhaduri

The Implications of Financial Asset and Housing Markets on Profit- and Wage-led Growth: Some Results in Comparative Statics

Amit Bhaduri is Professor Emeritus, Jawaharlal Nehru University and Visiting Professor, Council for Social Development, New Delhi, India.

Financial support from Fonds zur Förderung der wissenschaftlichen Forschung (FWF), Vienna for this project (No. P18419-G05) at the Vienna Institute for International Economic Studies (wiiw) is gratefully acknowledged.

Contents

Abstract

This paper presents a number of extensions to the theory of profit- and wage-led growth by integrating selected aspects of asset markets and housing markets. Theoretical results from comparative statics are then presented and discussed, notably with reference to recent housing market bubbles. The exposition incorporates distributional aspects relating to different classes of economic agents and how those differences relate to wage income versus profit income.

***Keywords**: profit-led growth; wage-led growth; asset market; housing market, stability, forced saving, profit squeeze, distribution and growth theories, effective demand*

***JEL classification:** G12, G61, E 21, E25, E 22*

Amit Bhaduri[*]

The implications of financial asset and housing markets on profit- and wage-led growth: some results in comparative statics

The purpose of this paper is to examine the implications of integrating explicitly certain aspects of the assets market and the housing market into the framework of profit- and wage-led growth. It will be recalled that the Keynesian multiplier analysis has usually focused almost exclusively on the product market disequilibrium to determine either the adjustment in output through changes in capacity utilization, or in the distribution of income between profits and wages, as envisaged originally by Keynes (1930; 1936). Kalecki (1971) more clearly isolated the capacity utilization effect at constant distribution through constant mark-up pricing.

To recapture the essential formalism (Bhaduri and Marglin, 1990; Bhaduri 2008), the commodity market clearing IS curve is defined from the equality between investment and saving as,

$$I= I(h,z)= S= shz \,, \qquad (1)$$

where h = the share of profit in income, z = degree of capacity utilization defined as the ratio of actual to potential output, (Y/Y*), and s= a constant propensity to save out of profit, while for expositional simplicity we assume that no wage is saved.

On total differentiation, equation (1) for the IS curve has the slope,

$$dz/dh = (I_h - sz) / (sh - I_z) \qquad (2)$$

A positive slope or association between h and z implies that in equilibrium the system is profit-led, while a negative slope or association implies it is wage-led.

The Keynesian quantity-adjustment equation governed by the investment (I) and saving (S) gap, using the potential level of output, Y* =1 for normalization, is given in (3).

$$dz/dt = \alpha\,[\, I(h,z) - shz \,]\,, \quad \alpha>0 \qquad (3)$$

where α is some arbitrary positive speed of adjustment.

The adjustment process in (3) is stable under the usual condition that saving is more responsive than investment to changes in capacity utilization, provided the distributional parameter h is treated as exogenously given. However, it might not remain stable if income distribution h is also allowed to adjust endogenously in response to investment saving

[*] This paper has benefited from comments by Peter Skott, Duncan Foley, Anwar Shaikh, Lance Taylor, Tom Michl and Korkut Erturk, as well as from comments by several participants in the Vienna project, especially Dieter Gstach, Michael Landesmann, Kazimierz Laski, Oslem Onaran, Martin Riese and Engelbert Stockhammer.

disequilibrium, because adjustment in z may be counteracted by adjustments in h. Assuming constant productivity of labour, the change in the wage (or profit) share depends solely on the adjustment in the real wage rate (Kaldor, 1955; Pasinetti, 1962). In the case of the endogenous adjustment in response to excess demand in the product market, both the price level and the money wage rate would rise, but usually at different rates. In general this price-money wage dynamic can lead either to a depression in the real wage rate resulting in 'forced saving' by the workers, or higher real wage and 'profit squeeze' on the firms, the two regimes being separated by an 'inflationary barrier' (Robinson, 1956) at which the price level and the money wage rate rise at the same percentage rate. The price-wage dynamics would be influenced by a range of factors such as the state of demand in the product market, the inventory positions of firms, the extent of unemployment, the degree of centralization in wage settlement, and the bargaining power of the contending parties in the labour market (see Chiarella and Flaschel, 2000). However, focusing only on the multiplier mechanism as determining the state of demand in the product market in the Keynesian partial equilibrium framework, we postulate that both z and h adjust in response to an investment saving disequilibrium. Therefore, in addition to equation (1) we have a further adjustment equation (4).

$$dh/dt = \beta \, [\, I(h,z) - shz \,], \quad \beta > 0, or \beta < 0. \tag{4}$$

One should note that when β >0, excess demand in the product market raises the profit share and depresses the real wage rate, resulting in forced saving on the part of the workers, e.g. due to money illusion (Keynes, 1936; Trevithick, 1975) or unanticipated inflation on the part of the workers (Friedman, 1968). On the other hand, β <0 depicts a situation of profit squeeze imposed on the firms by the workers (see e.g. Goodwin, 1967). The magnitude and sign of β would be influenced by conditions in the labour market and the nature of wage bargain in inter-class distributional conflict captured for example by the Phillips' curve or the 'wage curve' (Blanchflower and Oswald, 1994). At the same time the parameter β would also be influenced by intra-class competition among rival firms contesting market shares under different market structures (see Bhaduri, 2006; Bhaduri 2007). However, as postulated in equation (4) the impact would ultimately be felt in the class distribution of income, h.

Formally, equations (3) and (4) are the same except for the multiplicative factors of speeds of adjustment α and β respectively. In other words, in equilibrium the investment saving equality provides only one equation in this underdetermined system for determining two endogenous variables h and z. Consequently, the dynamic system defined by them is under-determined accommodating a continuum of equilibria with both h and z simultaneously attaining their stationary values on each point of investment saving equality on the IS curve. One should note here that, in equilibrium, the adjustment speeds play no role, though they do have a role to play in out-of-equilibrium dynamics. The slope of the integral curve obtained from dividing (1) by (2) at non-zero (i.e. out-of-equilibrium) values shows how the adjustment speeds influence the direction of the out-of-equilibrium behaviour of the system on the h-z plane as shown in (5).

$$dz/dh = \alpha / \beta \ (\alpha>0) \tag{5}$$

When $\alpha > 0$ and $\beta>0$, and in view of (3) and (4), both z and h rise endogenously in response to excess demand in the product market, and the out-of equilibrium dynamics would be profit-led with forced saving by the workers. On the other hand, if $\alpha>0$, but $\beta<0$, an excess of investment over saving would drive h and z in opposite directions, and the out-of-equilibrium dynamics would in this case be wage-led and characterized by profit squeeze.

The local stability of the dynamic system given by (3) and (4) is examined through routine calculation of the relevant trace and the determinant of the partial derivatives evaluated at an arbitrary equilibrium point on the IS-curve. The condition of a negative trace for stability is given in (6).

$$T= \alpha(I_z - sh) + \beta(I_h - sz) < 0. \tag{6}$$

However, because equations (3) and (4), which are both linearised around the equilibrium value, are linearly dependent, the determinant is zero, as illustrated in (7).

$$D= \begin{pmatrix} \alpha(I_z - sh) & \alpha(I_h - sz) \\ \beta(I_z - sh) & \beta(I_h - sz) \end{pmatrix} =0 \tag{7}$$

This results in a continuum of equilibria along the IS curve with a stable segment if condition (6) is satisfied. On the other hand, it gives rise to an unstable segment on the IS curve if (6) is violated. Thus, when condition (6) is satisfied, the zero determinant condition in (7) implies that one characteristic root is negative and the other zero, so that the system is locally stable.

The local stability analysis can be extended to a 'sink' around an equilibrium segment of the IS curve equilibrium by considering the function (LaSalle and Lefschetz, 1961).

$$V = (1/2)\left[I(z,h) - shz\right]^2 \tag{8}$$

In that domain all the partial derivatives exist and are continuous by assumption. If V is positive definite, stability within the domain is guaranteed by the second method of Liapunov as long as dV/dt <0 (Arrowsmith and Place, 1982: 198; Gandolfo, 1996). Differentiating (8) with respect to time, and substituting from (1) and (2), we get the required condition for stability as,

$$dV/dt = (I-S)^2\left[\alpha(I_z - sh) + \beta(I_h - sz)\right] <0,$$

reducing to the same trace condition (6) for stability, $\alpha(I_z - sh) + \beta(I_h - sz) < 0.$

To make use of the above stability condition for various comparative static results related to the asset and the housing market, we note at the outset that the comparative static exercises relate not to any particular equilibrium position, but to a continuum of stable equilibria along a segment of the IS curve satisfying (6). Note also that, in contrast to the equilibrium slope of the IS curve (when I=S) in (2), its disequilibrium slope (when I $\neq$ S) is given from (5) along the integral curve as, dz /dh= α / β. From a geometric point of view, satisfaction of stability condition (6) ensures that the direction of the disequilibrium movement on the h-z phase plane is such as to end up on, rather than deviating from, the equilibrium IS curve – see Bhaduri (2008) for details of phase diagram analysis). Aided by this geometric view linking the equilibrium slope of IS in (2) with the out- of-equilibrium slope of the integral curve in (5), different comparative static exercises can be carried out by considering parametric perturbations of the system.

Some results in comparative statics: the market for money

Consider first the money market and the consequence of a higher rate of interest. Using the rate of interest i as a parameter in the investment and in saving function in our formulation, we have as an extension of the investment saving equality equation (1) as shown in (9).

I (h,z,i) = s(i)hz. (9)

We assume the usual specifications that investment is negatively impacted, I_i <0 and saving is positively impacted $s'(i)$ >0 by a higher rate of interest, i.

Totally differentiating (9) and collecting terms leads to (10).

$(I_h - sz)\,dh + (I_z - sh)\,dz = (hzs'(i) - I_i)\,di$ (10)

Factoring out dz and using (3) for (dh/dz), we obtain after simplification (11).

$(dz/di) = \alpha\left[hzs'(i) - I_i\right] / \left[\alpha(I_h - sz) + \beta(I_z - sh)\right].$ (11)

Since the numerator on the right hand side of (11) is unambiguously positive by assumption, and the denominator is simply the trace T which is negative when the stability condition (6) is satisfied, it follows from (11) that dz/di < 0 in all stable cases. This means capacity utilization is lower at a higher rate of interest.

Following the same route of calculation for h leads to (12).

$(dh/di) = \beta\left[hzs'(i) - I_i\right] / T$ (12)

Since the square bracketed term in the numerator is positive by specification and the denominator T is negative by stability condition (6), the comparative static result follows that the sign of (12) is the opposite of the sign of β. This comparative static result brings out the difference between the impact of forced saving and of profit squeeze on equilibrium profit share h. Thus (dh/di) <0, and the equilibrium profit share is lower at a higher interest rate if there is forced saving by the workers (β >0). However, the opposite holds and (dh/di) >0, i.e. the equilibrium profit share is higher at a higher rate of interest if there is profit squeeze on the firms (β <0). In this way, the sign of the speed of adjustment parameter β is seen to play a critical role in determining whether the equilibrium profit share goes up or down at a higher interest rate.

The market for other financial assets

A similar analysis would also hold for **financial assets** traded in the **stock exchange,** provided that within the framework of this model we postulate how a more buoyant stock market through, say, a higher index of composite stock prices, influences either investment or saving or both. Let the composite index for stock prices be represented by a parameter λ. A higher value of λ might be postulated to stimulate both real investment and consumption. The former variable, i.e. investment, is said to be influenced through Tobin's q (Tobin, 1969) or Minsky's 'two price arbitrage theory' (Minsky, 1975; Minsky, 1986). Elaborating on a suggestion of Keynes (1936: chap. 12), these authors argued that undertaking real investment becomes cheaper than acquisition of existing firms through the stock market at higher stock prices, i.e. at higher λ. It should be added that the empirical evidence in favour of this theory has been controversial. However, a wealth effect on consumption has been reported widely in the recent U.S stock market boom (see e.g. Maki and Palumbo, 2001). Thus consumption might be stimulated at higher stock prices implying a depressive effect on saving. This happens usually because the stock-owning households become more credit-worthy in the eyes of banks and other financial institutions, while those financial institutions themselves might also feel more wealthy due to the higher prices of the stocks they own. It should be noted, however, that this wealth effect takes place in the virtual rather than in the real economy because the capital gains from higher stock prices cannot be realized macro-economically by a large number of participants at any given point in time without causing a crash in the market. Indeed, the notional capital gains would evaporate almost instantaneously if a sufficiently large number of market participants tried to cash in on capital gains simultaneously. Thus an accommodative system of credit becomes an essential prerequisite for the wealth effect to be sustained through the bullishness of the stock market (Bhaduri, Laski and Riese, 2006).

The IS equilibrium involving the stock price index λ is written as,
$I(h,z,\lambda) = s(\lambda)hz$.

Proceeding as before, we obtain,

$(dz/d\lambda) = \alpha\left[s'(\lambda)hz - I_\lambda\right] / T$ (13)

$(dh/d\lambda) = \beta\left[s'(\lambda)hz - I_\lambda\right] / T$ (14)

If by assumptions $s'(\lambda) < 0$ and $I_\lambda > o$ for reasons discussed above, the square bracketed term in the numerator is negative, while the denominator, which is nothing but the trace T in (6) is also negative for stable systems. Thus, the comparative static results for capacity utilization and profit share follow easily. Note that, as before, the sign of β plays a critical role in determining whether the profit share would be higher or lower due to a boom in the stock market, i.e. $(dh/d\lambda) > 0$ if $\beta > 0$ (forced saving), but $(dh/d\lambda) < 0$ if $\beta < 0$ (profit squeeze). The economic interpretation of these results is straightforward. An increase in investment and a decrease in savings due to higher stock prices stimulate aggregate demand unambiguously to raise capacity utilization z in (13). However, this raises the profit share h under forced saving ($\beta > 0$), while the same increase in capacity utilization decreases profit share in a regime of profit squeeze ($\beta < 0$).

It can also be seen that more ambiguous results would follow if the boom in the stock market reduces savings as before, i.e. $s'(\lambda) < 0$, but diverts investment sufficiently from the real to the financial sphere to make $I_\lambda < 0$. This might happen as a consequence of strong bullishness and expectations of capital gains from rising stock prices turning Keynesian 'entrepreneurs' into 'speculators' (Keynes, 1936: chap. 12). This possibility is underplayed in the formulation of Tobin's q, which also probably accounts for its relatively weak empirical performance. If this happens, total aggregate demand might go up or down depending on the relative strength of the two opposite effects. Consequently, the square bracketed term in the numerator of (13) and (14) i.e. $\left[s'(\lambda)hz - I_\lambda\right]$ can be positive or negative, resulting in more ambiguous comparative static results in a highly speculative stock market. If $I_\lambda < 0$ and sufficiently large in absolute value in such a speculative stock market, the square bracketed term in the numerator in (13) and (14) will be positive, while for stable systems the denominator T is negative. This means that with $\alpha > 0$, capacity utilization as the proxy for the real economy declines, but rising stock prices drives the virtual economy in the opposite direction, with the profit share also rising for $\beta > 0$ due to forced saving by workers under falling capacity utilization, and providing further impetus for stock prices to rise. Such a configuration illustrates how a Keynesian bubble might occur within the framework of this model.

Link between the market for money and that for assets

The links between the market for financial assets and the market for money are varied and complex. In the real world, neither the definition of 'money' nor that of financial assets is unambiguous. Money can be defined and measured in a narrow or in a broad way (e.g. M_1

to M_5), and similarly, the volume of financial assets and the extent of capitalization of a financial market can be measured in a narrow or in a broad way. For example, the measure might exclude financial instruments like derivatives and non-freely marketable preferential shares in a narrower measure, but include them in a broader measure analogous to broader and narrower measures of money. The greater the depth of the capital market, the greater the scope for such ambiguity in general. The definitions and measurements of these concepts are not to be misunderstood simply as problems of legal definitions; they are related intrinsically to theory depending on the theoretical purpose they are supposed to serve. No measurement would be meaningful without the underpinning of the corresponding theory.

In the simplest textbook theory, there is an unambiguous definition of money (similar to M_1 in practical measurement) which is perfectly liquid and non-interest bearing. The only financial asset is the government bond which is assumed for simplicity to have a given yield in perpetuity. In this simple case, there is a well-specified inverse relation between the bond price and the rate of interest in the money market, as in (15).

$$d\lambda/di < 0 \ . \qquad (15)$$

In this simple case, the two markets are linked in an unambiguous way, and we are able to predict how capacity utilization (z) or profit share(h) is affected by the bond or asset market provided we know the impact of the money market on these variables, and vice versa from the chain rule of differentiation, as shown in (16).

$$dz/d\lambda = (dz/di)(di/d\lambda) \text{ , and } dh/d\lambda = (dh/di)(di/d\lambda) \qquad (16)$$

So long as (15) is assumed to be valid, we can analyse either the impact of the money market on z and h (i.e. equations 9-12), or the impact of the asset market (i.e. equations 13-14). With minor modifications this line of analysis can be extended as long as the prices of other financial assets move in sympathy with bond price. However, in more complex asset markets with several financial instruments competing or complementing temporally and inter-temporally in various arrangements of risk sharing, relation (15) might fail to hold, thereby limiting the scope of this line of argument.

Comparative static results related to the market for housing

The market for housing as a physical rather than financial asset illustrates the preceding discussion, both by analogy and by contrast. Under normal circumstances, there is an analogy between the bond price and the housing price in relation to variations in the rate of interest. The lower is the interest and resulting mortgage rate, the higher the demand for housing is expected to be, thus establishing an inverse relation between the housing price and the rate of interest. This is indeed the direct analogy with the bond price (cf.

equation 15). However this relation can get vitiated, like the price of any financial asset, due to expectations of capital gains or losses. For instance, if the interest and mortgage rates are widely expected to rise in the near future (say due to central bank policy), the impending fear of capital loss on the future selling price of houses might depress their demand despite the fact that the current interest rate is low. In other words, in the absence of 'static expectations' or 'business as usual' the demand for assets including housing asset depends not only on the current but also on the expected interest rate influencing the mortgage rate, hence Keynes' emphasis on judging the current rate in relation to the 'long-run normal rate of interest' (see Keynes, 1936: ch.12; see also Friedman, 1968).

There is however an essential difference between housing demanded as a physical asset, and the demand for long-term financial assets like bonds. A significant section of housing demand is not as an income earning asset with possibilities of capital gains and losses, but for its use value, i.e. as a dwelling place and a necessity of life. Therefore, both tenants and house-owners interested in its use value and landlords coexist in the housing market, often with diametrically opposite interests. A higher rent is good news for landlords, especially if it also bears the possibility of capital gains in a booming housing market, and largely irrelevant for other house-owners who are not generally interested in selling their houses. However it is bad news for tenants. Like a higher wage rate, which is a cost to the capitalists but an income to the workers, house rent is also a two-edged weapon, a cost to the tenant but an income for the capitalists. It is this dual character of the real wage rate which underlies the distinction between profit- and wage-led growth (see Bhaduri and Marglin, 1990). Therefore, by an obvious analogy, it would be easy to see that lower housing rent would strengthen wage-led growth on the further assumption that most of the workers are tenants, while higher house rent could also lead to profit-led growth by raising housing investment by landlords sufficiently to overcompensate for its depressing effect on aggregate consumption through redistribution against the tenant- workers.

In some respects there are obvious similarities between a boom in the housing market and in the stock market, especially through the positive wealth effect they might generate on aggregate consumption, as has indeed been widely commented upon in recent housing booms both in the UK and in the US (Baker, 2006; Campbell and Cocco, 2006). Moreover, as we indicated in the preceding discussion, the impact of a housing boom can be integrated into the framework of profit- and wage-led growth. However it is not wise to push this analogy too far without further empirical investigation for at least three reasons. First, for the analogy to hold, it is necessary to ascertain whether house-owners belong mostly to the landlord class, and the tenants to the working class, in modern industrial democracies (recall Mrs. Thatcher's programme to make every working-class family an owner of one of the council houses in the UK!); and also, whether there is a significant difference in the consumption propensities of the two groups. While considerable evidence exists in some OECD countries to suggest that there is a significant difference in consumption propensities out of wage and self-employment income, and out of profit and property income (Naastpad, 2006; Hein 2007), one would need to investigate whether the former group with high consumption propensity is mostly composed of tenants, and whether the latter group is mostly composed of landlords in modern ‘property owning’ industrial democracies.

Second, for the housing boom to affect investment as a condition for profit-led growth, it was assumed above that a systematic positive relation exists between house price and house rent, so that even if higher rent reduces aggregate consumption by redistributing income against the tenants with relatively higher consumption propensity, it would stimulate investment sufficiently in new housing to overcome this depressing effect on consumption. However, recent available data relating to the housing boom in the UK and in the US suggest that there is a very weak relation between house price and house rent, the former often rising quite sharply without the latter showing any corresponding increase (Baker, 2006). A possible hypothesis explaining at least part of the phenomenon is that the house price is driven up in a speculative boom, but the market for house rent is less subject to speculation. It might also be that a more regulated market for rent accounts partly for this in at least some OECD countries.

Finally, housing service is by its very nature non-tradable, and even ownership of houses is often less tradable in the international market (although the asset-backed securities in the housing market, prime and sub-prime, have made this line of division less definite). Therefore, for the housing market, the closed economy assumption might be more valid than for the stock market. The econometric literature on profit- and wage-led growth suggests that without international trade some smaller European economies might be wage-led, but when the effect of international trade is controlled for, they tend to assume a profit-led character (for theoretical reasons see Bhaduri and Marglin, 1990; for empirically contesting views see Naastepad and Storm, 2007; Hein, 2007; Onaran and Stockhammer, 2005 and 2006). In the absence of the possibility of controlled experiments in macro-economics, the impact of the housing market becomes especially interesting to study from this point of view, in so far as it allows us to isolate the ‘closed economy’ effect somewhat more parsimoniously.

Bibliography

Arrowsmith, D. K and C. M. Place (1982), *Ordinary Differential Equations*, Clapham and Hall, London, Chapter 5.

Baker, D. (2006), 'The menace of an unchecked housing bubble', Economists' Voice (Berkeley Electronic Press: www.bepress.com/ev), March, pp. 1-5.

Bhaduri, A. (2002), 'Chaotic implications of the natural rate of unemployment', *Structural Change and Economic Dynamics,* Vol. 3, No. 3, pp. 357-365.

Bhaduri, A. (2006), 'Endogenous economic growth: a new approach', *Cambridge Journal of Economics*, Vol. 30, pp. 69-83.

Bhaduri, A. (2007), *Growth, Distribution and Innovations*, Graz Schumpeter Lectures, Routledge, London.

Bhaduri, A. (2008), 'On the dynamics of profit and wage led growth', *Cambridge Journal of Economics*, Vol. 32, pp. 147-160.

Bhaduri, A., K. Laski and M. Riese (2006), 'A model of interaction between the real and virtual economy', *Metroeconomica*, Vol. 57, pp. 412-427.

Bhaduri, A. and S. Marglin (1990), 'Unemployment and real wage: the economic basis for contesting political ideologies', *Cambridge Journal of Economics*, Vol. 14, pp. 375-393.

Blanchflower, D. G. and A. J. Oswald.(1994), The Wage Curve, MIT Press, Cambridge, MA.

Campbell, J. and J. Cocco (2006), 'How do house prices affect consumption? Evidence from micro data', *NBER Working Paper* No. 11534, February.

Dayan, K. E and D. M. Maki (2000), 'Does Stock Market Wealth Matter for Consumption?', mimeo, Board of Governors of the Federal Reserve System.

Friedman, M. (1968), 'The role of monetary policy', *American Economic Review*, March.

Gandolfo, G. (1996), *Economic Dynamics (3rd Edition),* Springer, Berlin, Chapter 23.

Goodwin, R. M. (1967), 'A growth cycle', in: C. H Fienstein (ed.), *Socialism, Capitalism and Economic Growth*, Cambridge University Press, Cambridge UK.

Hein, E. (2007), 'Distribution and growth reconsidered: empirical results for six OECD countries', Macroeconomic Policy Institute (MPI), Hans Boeckler Foundation, Düsseldorf.

Kaldor, N. (1956), 'Alternative theories of distribution', *Review of Economic Studies,* Vol. 23, pp. 83-100.

Kalecki, M. (1971), *Selected Essays on the Dynamics of the Capitalist Economy,* Cambridge University Press, Cambridge UK.

Keynes, J. M. (1930), *A Treatise on Money, Volume 1,* Macmillan, London.

Keynes, J. M. (1936), *The General Theory of Employment, Interest and Money,* Macmillan, London.

LaSalle, J. P. and S. Lefschetz (1961), *Stability of Liapunov's Direct Method with Applications*, Academic Press, New York.

Maki, D. M. and M. G. Palumbo (2001), '*Disentangling the wealth effect: a cohort analysis',* mimeo, Board of Governors of the Federal Reserve System.

Minsky, H. P. (1975), *John Maynard Keynes*, Columbia University Press, New York.

Minsky, H. P. (1986), *Stabilizing an Unstable Economy*, Yale University Press, New Hausen.

Naastepad, C. W.M and S. Storm (2007), 'OECD demand regimes 1960-2000', *Journal of Post Keynesian Economics*, Vol. 29, pp. 211-246.

Onaran, O. and E. Stockhammer (2005), 'Two different export oriented growth strategies: accumulation and distribution in Turkey and South Korea', *Emerging Markets Finance and Trade*, Vol. 41, pp. 65-89.

Onaran, O. and E. Stockhammer (2006), 'Do profits affect investment and employment? An empirical test based on the Bhaduri-Marglin model', in: E. Hein, A. Heise and A. Truger (eds), *Wages, Employment, Distribution and Growth. International Perspectives*, Palgrave, Macmillan, Basingstoke, pp. 206-222.

Pasinetti, L. L. (1962), 'The rate of profit and income distribution in relation to the rate of economic growth', *Review of Economic Studies,* Vol. 29, pp. 267-279.

Pitelis, C. (1997), 'On Kaldor and Pensions'*, Cambridge Journal of Economics*, Vol. 21, pp. 469-482.

Robinson, J. (1956), *The Accumulation of Capital,* Macmillan, London.

Tobin, J. (1969), 'A general equilibrium approach to monetary theory', *Journal of Money, Credit and Banking*, Vol. 1, pp. 15-29.

Trevithick, J. A. (1975), 'Keynes, inflation and money illusion', *Economic Journal*, March.

Short list of the most recent wiiw publications (as of February 2010)

For current updates and summaries see also
wiiw's website at www.wiiw.ac.at

The Implications of Financial Asset and Housing Markets on Profit- and Wage-led Growth: Some Results in Comparative Statics

by **Amit Bhaduri**

wiiw Working Papers, No. 62, February 2010
12 pages
hardcopy: EUR 8.00 (PDF: free download from wiiw's website)

Crisis Is Over, but Problems Loom Ahead

by **Vladimir Gligorov, Peter Havlik, Michael Landesmann, Josef Pöschl, Sándor Richter et al.**

wiiw Current Analyses and Forecasts. Economic Prospects for Central, East and Southeast Europe, No. 5, February 2010
170 pages including 45 Tables and 27 Figures
hardcopy: EUR 80.00 (PDF: EUR 65.00)

---

wiiw Monthly Report 2/10

edited by **Leon Podkaminer**

- China's oil policy: facing the challenge of rising oil demand
- Efficiency improvements in Russian gas-fired heat and power generation
- The Russian labour market: whence stability?
- Statistical Annex: Selected monthly data on the economic situation in Central and Eastern Europe

wiiw, February 2010
32 pages including 11 Tables and 9 Figures
(exclusively for subscribers to the wiiw Service Package)

---

wiiw Monthly Report 1/10

edited by **Leon Podkaminer**

- Twenty years of transition
- Vertical integration of trade with China
- FDI-related profits in the EU: do host countries lose due to FDI?
- Statistical Annex: Selected monthly data on the economic situation in Southeast Europe, Russia and Ukraine

wiiw, January 2010
34 pages including 17 Tables and 8 Figures
(exclusively for subscribers to the wiiw Service Package)

Carbon Capture and Storage: Selected Economic and Institutional Aspects

by **Edward Christie**

wiiw Research Reports, No. 360, December 2009
48 pages including 10 Tables and 10 Figures
hardcopy: EUR 22.00 (PDF: free download from wiiw's website)

Models of BRICs' Economic Development and Challenges for EU Competitiveness

by **Jayati Ghosh, Peter Havlik, Marcos P. Ribeiro and Waltraut Urban**

wiiw Research Reports, No. 359, December 2009
73 pages including 5 Tables, 9 Figures and 1 Box
hardcopy: EUR 8.00 (PDF: free download from wiiw's website)

Foreign Direct Investment Flows between the EU and the BRICs

by **Gábor Hunya and Roman Stöllinger**

wiiw Research Reports, No. 358, December 2009
38 pages including 12 Tables, 13 Figures and 3 Boxes
hardcopy: EUR 8.00 (PDF: free download from wiiw's website)

---

wiiw Monthly Report 12/09

edited by **Leon Podkaminer**

- Albania: good quarters, bad quarters
- Bosnia and Herzegovina: moderately depressed economy in a climate of political uptightness
- Montenegro: foreign investment continues
- Serbia: fiscal doubts
- Kazakhstan: first signs of recovery
- Statistical Annex: Selected monthly data on the economic situation in Southeast Europe, Russia and Ukraine

wiiw, December 2009
28 pages including 13 Tables
(exclusively for subscribers to the wiiw Service Package)

Trade in Goods and Services between the EU and the BRICs

by **Peter Havlik, Olga Pindyuk and Roman Stöllinger**

wiiw Research Reports, No. 357, November 2009
46 pages including 12 Tables and 24 Figures
hardcopy: EUR 8.00 (PDF: free download from wiiw's website)

---

wiiw Monthly Report 11/09

edited by **Leon Podkaminer**

- Russian Federation: signs of fragile recovery
- Ukraine: ongoing credit crunch
- Croatia: debt repayment remains a serious
- Macedonia: elusive recovery
- Turkey: waiting for new take-off after hard but safe landing
- Statistical Annex: Selected monthly data on the economic situation in Southeast Europe, Russia and Ukraine

wiiw, November 2009
28 pages including 13 Tables
(exclusively for subscribers to the wiiw Service Package)

---

wiiw Handbook of Statistics 2009: Central, East and Southeast Europe

covers key economic data on Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia and Ukraine

wiiw, Vienna, November 2009 (ISBN 3-85209-014-8; ISBN 978-3-85209-014-6)

440 pages including 265 Tables and 102 Figures

Hardcopy (data for 2000, 2004-2008), includes CD-ROM with PDF: EUR 92.00

CD-ROM, PDF (data for 2000, 2004-2008): EUR 75.00

CD-ROM, PDF long (data for 1990-2008): EUR 92.00

CD-ROM, MS Excel tables + PDF long (data for 1990-2008) + hardcopy: EUR 250.00

Individual chapters, MS Excel tables: EUR 37.00 per chapter

---

wiiw Monthly Report 10/09

edited by **Leon Podkaminer**

- Bulgaria: from campaign rhetoric to post-election *realpolitik*
- Czech Republic: bottoming out likely
- Hungary: external financing secured, economy in deep
- Poland: recession resisted
- Romania: export demand may ease recession
- Slovakia: hitting bottom in the second quarter
- Slovenia: best performer in deep trouble
- Baltics: in the midst of depression
- Statistical Annex: Selected monthly data on the economic situation in Central and Eastern Europe

wiiw, October 2009

42 pages including 17 Tables

(exclusively for subscribers to the wiiw Service Package)

---

wiiw Monthly Report 8-9/09

edited by **Leon Podkaminer**

- Austria’s economic relations with Ukraine
- NMS grain production in 2009: calm on the market
- Multiplier effects of governmental spending in Central and Eastern Europe: a quantitative assessment
- Statistical Annex: Selected monthly data on the economic situation in Southeast Europe, Russia and Ukraine

wiiw, September-October 2009

32 pages including 18 Tables and 6 Figures

(exclusively for subscribers to the wiiw Service Package)

Skills and Industrial Competitiveness

by **Michael Landesmann, Sebastian Leitner, Robert Stehrer and Terry Ward**

wiiw Research Reports, No. 356, August 2009
99 pages including 39 Tables and 18 Figures

hardcopy: EUR 8.00 (PDF: free download from wiiw's website)

---

wiiw Service Package

The Vienna Institute offers to firms and institutions interested in unbiased and up-to-date information on Central, East and Southeast European markets a package of exclusive services and preferential access to its publications and research findings, on the basis of a subscription at an annual fee of EUR 2,000.

This subscription fee entitles to the following package of **Special Services**:

– A free invitation to the Vienna Institute's **Spring Seminar**, a whole-day event at the end of March, devoted to compelling topics in the economic transformation of the Central and East European region (for subscribers to the wiiw Service Package only).

– Copies of, or online access to, ***The Vienna Institute Monthly Report***, a periodical consisting of timely articles summarizing and interpreting the latest economic developments in Central and Eastern Europe and the former Soviet Union. The statistical annex to each *Monthly Report* contains, alternately, country-specific tables or graphs with monthly key economic indicators, economic forecasts, the latest data from the wiiw Industrial Database and excerpts from the wiiw FDI Database. This periodical is not for sale, it can only be obtained in the framework of the wiiw Service Package.

– Free copies of the Institute's ***Research Reports*** (including ***Reprints***), ***Current Analyses and Forecasts**, **Country Profiles*** and ***Statistical Reports***.

– A free copy of the ***wiiw Handbook of Statistics*** (published in October/November each year and containing more than 400 tables and graphs on the economies of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Russia, Serbia, the Slovak Republic, Slovenia and Ukraine)

– Free online access to the **wiiw Monthly Database**, containing more than 1200 leading indicators monitoring the latest key economic developments in ten Central and East European countries.

– **Consulting**. The Vienna Institute is pleased to advise subscribers on questions concerning the East European economies or East-West economic relations if the required background research has already been undertaken by the Institute. We regret we have to charge extra for *ad hoc* research.

– Free access to the Institute's specialized economics library and documentation facilities.

Subscribers who wish to purchase wiiw data sets **on CD-ROM** or special publications not included in the wiiw Service Package are granted considerable **price reductions**.

For detailed information about the wiiw Service Package
please visit wiiw's website at www.wiiw.ac.at

To
The Vienna Institute
for International Economic Studies
Rahlgasse 3
A-1060 Vienna

- O Please forward more detailed information about the Vienna Institute's Service Package
- O Please forward a complete list of the Vienna Institute's publications to the following address

Please enter me for

- O 1 yearly subscription of *Research Reports* (including *Reprints*) at a price of EUR 120.00 (hardcopy, Austria), EUR 135.00 (hardcopy, Europe), EUR 155.00 (hardcopy, overseas) and EUR 48.00 (PDF download with password) respectively
- O 1 yearly subscription of *Current Analyses and Forecasts* a price of EUR 150.00 (hardcopy, Austria), EUR 155.00 (hardcopy, Europe), EUR 170.00 (hardcopy, overseas) and EUR 120.00 (PDF download with password) respectively

Please forward

- O the following issue of *Research Reports* ....
- O the following issue of *Current Analyses and Forecasts* ....
- O the following issue of *Working Papers* ....
- O the following issue of *Research Papers in German language* ....
- O the following issue of *wiiw Database on Foreign Direct Investment* ....
- O the following issue of *wiiw Handbook of Statistics* ....
- O (other) ....

....

Name

....

Address

....

Telephone Fax E-mail

....

Date Signature

Herausgeber, Verleger, Eigentümer und Hersteller:
Verein „Wiener Institut für Internationale Wirtschaftsvergleiche" (wiiw),
Wien 6, Rahlgasse 3
Postanschrift: A-1060 Wien, Rahlgasse 3, Tel: [+431] 533 66 10, Telefax: [+431] 533 66 10 50
Internet Homepage: www.wiiw.ac.at

P.b.b. Verlagspostamt 1060 Wien