The Investment Function Revisited: Disciplining Capital in Korea

Seguino, Stephanie

University of Vermont

1999

The Investment Function Revisited: Disciplining Capital in Korea

Stephanie Seguino
University of Vermont
Department of Economics
Old Mill
PO Box 54160
Burlington, VT 05405-4160
Tel. 802 656-0187
email sseguino@uvm.edu

This article is the preprint (not final) version of "The Investment Function Revisted: Disciplining Capital in Korea," *Journal of Post-Keynesian Economics* 22(2): 313-38. For access to the published version, go to http:// www.mesharpe.com/journals.asp.

The author wishes to acknowledge helpful discussions with Bill Gibson, Robert Blecker, and Jane Knodell on the ideas presented in this paper.

The Investment Function Revisited: Disciplining Capital in Korea

Abstract

Post-Keynesian and Marxian macro models assume that wage increases that lower profits have an adverse impact on investment spending. The experience of Korea during the period 1975-1993 contradicts this assumption. This paper reports results obtained from estimating a modified neo-Kaleckian investment function that examines the impact of increases in the wage share on business spending. Results of the Granger tests that assess the direction of causality between wages, investment, and productivity are also given. Tests indicate that lagged values of the wage share of income have a positive impact on investment. There are several explanations for this, most of which stem from restrictions on foreign direct investment, and the government's ability to discipline capital through its control over loanable funds coupled with the use of measurable benchmarks in export sales in return for access to subsidized credit and other "carrots." Firms appear to be constrained by these factors to respond to wages hikes by adopting technological upgrades, thereby raising productivity and maintaining export competitiveness.

JEL Codes: E22, D33, O3.

The Investment Function Revisited: Disciplining Capital in Korea

I. Introduction

The growing body of research that investigates the relationship between wages, output and employment from a heterodox perspective highlights the dual and conflicting role of wages which are both a cost of production but also a source of aggregate demand. Extending these ideas, Bowles and Boyer (1990) have incorporated a third role for wages, that of influencing worker motivation and thereby labor productivity. Recent work along this trajectory suggests that while a "stagnationist" outcome (a redistribution to wages stimulates employment and growth) is possible in a closed economy, economic openness creates the conditions for an "exhilarationsist" or profit-led regime to flourish.[1]

Briefly, a stagnationist outcome is more likely to occur in a closed economy, especially if capitalist saving propensities are greater than those of workers, with a redistribution to workers stimulating consumption. The redistribution has an "accelerator effect" on investment demand that may outweigh the negative effect of higher wages on profits, with the result that output and employment may rise. The potential for this happy outcome may not hold in an open economy, however, since the effect of higher wages on aggregate demand is more ambiguous. This is because while higher wages may stimulate domestic consumption, export demand is likely to fall by a proportionately larger amount. Higher wages then negatively affect profitability *and* demand, both determinants of investment. As a result, business spending, output, and employment will fall. More structurally sensitive macro models point out, however, that the relationship between wages and growth in an open economy is mediated by structural features of the economy such as the price elasticity of exports and the rigidity of imports (Blecker 1989,

[1] See for example the work of Blecker (1989), Dutt (1984, 1990), Lavoie (1995), Kurz (1990),

Taylor 1991, Seguino 1994).

Whatever the variation in the fully developed macro models, central to the analysis of how wages interact with output, employment, and growth is the relationship between wages, profitability, and investment. While many aspects of investment functions have been debated, there seems to be broad agreement in the heterodox camp that investment spending responds positively to profitability, whether measured as the rate of profit or the profit share. It is this basic tenet of these models that this paper calls into question, using the case of Korea as an example of a economy in which increases in the wage share of income have stimulated rather than depressed investment spending.

To present this research, the paper is organized as follows. Section II briefly discusses the theoretical and empirical literature on the factors that influence business spending. Section III provides an analysis of the institutional environment that shapes business spending decisions. Section IV presents results of statistical analyses that test the relationship between investment and wages, and between wages and productivity growth. Finally, Section V concludes with summary comments.

II. Investment, Profits, and Wages: The Literature

This section briefly considers the theoretical and empirical literature on the determinants of business spending or investment demand. Although our focus is primarily on heterodox approaches which explicitly examine the interrelationship between income distribution and investment, a brief reference to neoclassical approaches is useful.

Pared down benchmark neoclassical models of investment demand are based on the firm's assessment of the marginal costs and benefits of additions to its capital stock, which are

---

Marglin and Bhaduri (1990), Rowthorn (1982), Taylor (1991), and You (1991).

determined by price variables and output variables (the so-called "accelerator" effect).[2] Later models came to incorporate the assumption that adjustment of capacity takes time with firms only partially adjusting their capital stock in the short run to attain a longer run desired level of the capital stock. Wages, if they are included in these models, enter only indirectly, via the effect on the relative price of inputs. Higher wages may induce a substitution to capital in the short run, thereby stimulating investment spending. But the demand-side effect of higher wages is not considered, and even the potential for the cost effect of higher wages to stimulate businesses to substitute away from labor inputs gets very little attention. Profitability, measured as the profit share, is not considered to be a significant factor affecting investment behavior while the profit rate is only tangentially included as a measure of the cost of capital.

Kalecki (1971) and Keynes (1936) differed from neoclassicals in emphasizing that financial conditions are primary determinants of investment. The effect of liquidity or internal financing is incorporated because, it is argued, large firms with sufficient internal funds may invest despite external constraints in financial markets. Since profits are an important source of internal financing for firms, they are posited to have a positive effect on investment spending---the so-called "profitability effect." Other non-exclusive explanations for the role of profitability in influencing business spending can be advanced. Profits are a primary motivation for firm investment behavior, with current measures of profitability providing the information for firms to form expectations about future profitability. Profits may also induce firms to undertake new investment in the face of uncertain product demand. You (1991) has highlighted the relationship between capital mobility and the profitability effect (which measures the sensitivity of investment to changes in measures of profitability), arguing that in a closed economy with

[2] For a review of this group of models, see Chirinko (1993).

restrictions on capital mobility, the size of the profitability effect will be smaller than in more open economies in which there are a broader array of "substitutes" for investment in the domestic economy.

Steindl (1976) and others have further noted that changes in the rate of capacity utilization affect investment behavior because firms desire to maintain some excess capacity in order to meet surges in demand. Relative costs--wages and interest rates--enter heterodox models via their effect on measures of profitability.

In general, there is remarkable similarity in the specification of neo-Kaleckian investment functions, with one exception. Just how profitability should be measured has been the subject of extensive debate (Marglin and Bhaduri 1990, Lavoie 1992, 1995). Numerous authors have argued that the rate of profit is the preferred indicator, with the rate of profit defined

$$r = (R/Y)\,(Y/K) = Bu \qquad (1)$$

where R is gross profits, Y is actual output, K is the capital stock, B = R/Y is the profit share of income, u = Y/K is the output/capital ratio and serves as a measure of capacity utilization. The investment function is simply written (with expected comparative static signs above the independent variables):

$$I/K = h^K = h(\underset{+}{r}, \underset{+}{u},) \qquad (2)$$

or, in linearized form and using (1),

$$I/K = h^K = a_o + a_1 r + a_2 u = a_o + (a_1 B + a_2)u, \qquad (2')$$

where h^K is the desired rate of capital accumulation and a_0 is an exogenously determined constant reflecting the state of "animal spirits."

Marglin and Bhaduri (1990) have pointed out that (2') leads to double counting of the

effect of utilization on I/K since r = Bu, with a_2u capturing the direct effect and a_1r the indirect effect.[3] Further, they argue that $a_2 = Mh^K/Mu$, which is the change in h^K as a result of a change in u, holding r constant. But holding r constant as u rises implies that B must fall by a proportionate amount. Thus if a_2 is positive, the implication is that when u rises, despite the fall in B, firms unequivocally desire to invest more, which is a strong assumption. Marglin and Bhaduri make the claim that (2') is a special case of the investment function, and opt for the profit share as the profitability variable so as to avoid the problems noted above. Adopting the profit share as the measure of profitability then, the investment function is

$$I/K = g^K = g(B, u) \qquad (3)$$
$$(+\ +)$$

or, for estimation purposes,

$$I/K = g^K = b_o + b_1B + b_2u. \qquad (3')$$

Results of empirical tests of the neo-Kaleckian investment function do not appear to turn on the profitability measure. Both the profit rate and the profit share have been found to be significant in explaining investment spending and growth of the capital stock in OECD countries over the last twenty five years, with profits exerting a positive effect on business spending and capital stock growth (Bhaskar and Glyn 1995, Bowles and Boyer 1995, Glyn 1997, Henley and Tskalatos 1991).[4]

---

[3] Lavoie (1995) points out that double counting is not necessarily problematic since the firm's profit rate is a signal to lenders of the firm's creditworthiness, and thus has a positive effect on investment, independent of any effect a high rate of utilization may have on firms' desire to invest.

[4] Fazzari and Mott (1982) and Fazzari (1992) estimate investment functions for the US,

An interesting exception to the positive relationship between profitability and investment is noted by Bhaskar and Glyn (1995). For Japan, they found that, although the growth rate of the capital stock was negatively affected by declining profitability in the 1960s and 1970s as would be anticipated, that relationship subsequently changed. Despite continued declines in profitability in the 1980s, manufacturing investment was strong in contrast to the presumed positive relationship between profits and investment. While they do not advance reasons for this outcome, it is useful to note that the result may be in part due to the fact that internal finance plays a lesser role in funding new investment in the non-financial corporate sector in Japan than in other OECD countries (Corbett and Jenkinson 1996). Pointing to the example of Japan, Bhaskar and Glyn (1995) argue that the benchmark neo-Kaleckian investment model cannot fully capture the complexity of expectation formation amongst capitalists, suggesting the importance of understanding more fully the institutional environment in which these decisions are made. That argument is relevant to the case of Korea to which we now turn our attention.

III. Business Investment Determinants in Korea: The Institutional Context

A. The State and the Institutional Determinants of Investment

The investment climate in Korea has been strongly affected by the state in its self-declared role as coordinator of economic activity in efforts to promote an export-led growth model. Much ink has been spilled in describing the ways the state has disciplined labor as part of this strategy, with a number of authors arguing that low wages are a stimulus to both export demand and profits. Labor repression has indeed been omnipresent for most of the past thirty

---

explicitly using internal finance as an independent variable in place of a proxy profitability measure. Their results point to the positive role of internal finance on investment behavior, and the insignificance of the interest rate as an explanatory variable.

years, making possible low wage payments and thus cheap exports (Deyo 1989, Ogle 1990, Hart-Landsberg 1993, You 1995). Gender discrimination has also been named as suspect, with gender norms and stereotypes as well as state- and firm-level practices serving to "crowd" women into jobs in the labor-intensive export goods sector. These various practices have limited women's bargaining power vis-à-vis employers, thereby contributing to low wage payments to women and strong export growth (Nam 1994, Seguino 1997).

Amsden (1989) was one of the first to point out the importance of the state's efforts to discipline not only labor but also capital as a part of the export-led growth strategy. While her work is widely cited, few have taken Amsden's propositions further by intensively examining the implications of her claims for our understanding of the relationship between income distribution and growth. As Amsden has noted, real wages rose rapidly in spite of labor repression, but this did not seem to slow investment or growth, "exhilarationist" expectations of open economies notwithstanding. It would appear that Korean firms have responded to a much more complex set of economic stimuli than envisioned in theoretical models, with these stimuli mediating between income distribution and macroeconomic performance in ways that are perhaps unexpected in an export-reliant and semi-open economy. We explore these stimuli as a first step in deciphering the relationship between wages and investment.

The state has played a central role in shaping the business investment climate, using a variety of carrots and sticks to achieve their goals. The Korean state's efforts to discipline capital coincided with the assumption of power by General Park Chung Hee and the subsequent adoption of the export-led growth strategy in the early 1960s. Almost immediately after the military coup, business leaders who had profited (often illegally) under the previous import

substitution regime were rounded up. Using the Law on Illicit Accumulation of Wealth, Park threatened the businessmen with confiscation of assets unless they agreed to establish new industrial firms in basic industries and donate shares to the government (Jones and Sakong, 1980, Amsden 1989, Kim 1997). This was but a first measure taken by the state to discipline business as a means to ensure fulfillment of its development goals.

As a further tool of industrial policy and in efforts to provide a context in which it could shape business investment, the state severely restricted foreign direct investment in Korea, except in industries where it wished to develop technical capacity, in particular the electronics sector. Restrictions on foreign exchange conversion, relaxed slightly in the mid-1980s, also limited the options of domestic firms by reducing their flexibility to move offshore in response to changing economic conditions at home (Lindner 1994).

The centerpiece of the state's economic growth strategy, however, was policy-based lending which was made possible by nationalizing the banking sector in 1961. Subsidized and targeted credit, sometimes available at a negative real cost due to inflation, was an important carrot that helped to shape firm investment behavior in a way that fit with the state's goal of first ensuring Korea's export success, and second, of moving the economy up the industrial ladder to the production of capital- and skill- intensive goods first for the domestic and then for foreign markets. State-allocated cheap credit provided firms with an attractive alternative to curb financing where nominal interest rates approached 40-70 percent per annum compared to 17-25 percent from formal sector banks (Kim 1997, Bank of Korea 1994). Although firms might theoretically tap external sources of commercial credit which would have afforded greater flexibility in making investment decisions, this avenue was also heavily influenced by state

intervention. The Korean government provided guarantees of loan repayment on external loans, thereby eliminating risks of default and exchange rate variability to borrowers and inducing large capital inflows from foreign lenders. The state further directed this source of financing to targeted industries.[5]

The government required growth of output, exports, and investment in return for the carrots it offered firms which, in addition to cheap credit, included subsidies and tax breaks that varied over time with the changes in industrial policy (Chang 1994, Chung 1994). Protection of domestic industries from imports further induced firms to move into new economic activities. Import restrictions, which were frequently time-limited and performance-based, provided the opportunity for windfall profits since those firms that met export goals and investment targets could obtain permission to import restricted goods to be sold at windfall profits on the domestic market. Further, firms that produced for export were able to benefit from discriminatory pricing, selling export goods in the domestic market at sometimes more than double the price they could fetch on international markets (Cho 1985). While the forgoing may suggest a partnership between the state and business similar to that which exists in Japan, the Korean state has clearly been the senior partner and has not hesitated to discipline junior. The collective of policies outlined here allowed the state to effectively build a wall around private corporations, placing boundaries on the ability of this captive audience to respond to changes in the economic environment.

A discussion of the institutional context would not be complete without reference to the recent changes in the rules of the accumulation game. The state-*chaebol* power dynamic has

[5] Rationing credit in a sophisticated economy may seem to be a difficult task for government, but that job was made much less complex in South Korea by the extreme concentration of the manufacturing sector. As early as 1981, the top three *chaebol* produced 62 percent of output, a

shifted in recent years, due to market liberalization and the increased size and breadth of *chaebol* activities coupled with moral hazard problems associated with the indebtedness of *chaebol.* But while much has been made of the move toward financial and trade liberalization in the 1980s (World Bank 1993, Chung 1994) at least up to 1989, the changes were more superficial than real. In 1981, for example, the government sold off its bank shares to the private sector and relaxed restrictions on private ownership of banks.[6] Nevertheless, the Ministry of Finance (MOF) continued to exert influence over the costs of capital and the allocation of capital. Further, the MOF influences appointments of bank officers and has intervened at high levels in banks to offer "advice" on loan and deposit rates. Financial institutions are also supposed to set aside a portion of their loanable funds for small- and medium-size firms, and the government still targets industries for preferential credit, though in a less overt way than in the past. The significance of these controls in influencing business financing and investment has really only decreased recently with the more complete liberalization of financial markets, including reduced restrictions on ownership of domestic banks by foreign firms.

With regard to trade liberalization, while some restrictions have been relaxed, the state has not hesitated to ban or place high tariffs on imported goods that jeopardized domestic industries when it has deemed necessary. Further, rules that limit inward and outward foreign direct investment have been reduced to some extent. Even so, by 1992 total inward and outward investment accounted for less than two percent of gross fixed private capital formation (compared to, for example, 13 percent in Taiwan and 19 percent in Singapore) (Seguino 1997).

Pang and Lim (1989), Amsden and Euh (1993) and Amsden (1994) argue that since the

---

figure than is higher even than that of Japan (in 1980) at 56.3 percent (Amsden 1989).

[6] New regulations permitted firms to buy no more than 8 percent of banks' stock, though this has not prevented instances in which *chaebol* virtually controlled some commercial banks.

early 1980s, industrial policy has been carried out not so much by lowering the cost of capital for targeted industries as by providing tax breaks for R&D, financing joint ventures in R&D between business and government, and by acting as a procurement agent for foreign technology. The fact remains that the state continues to possess the ability to affect investment decisions, though in a different manner than in earlier years, and with the caveat that some firms have greater autonomy than previously.[7]

B. Wages, Investment and Growth in Korea

In addition to using trade, industrial, and financial market policies to circumscribe business behavior, the state has intervened to place boundary conditions on the distribution of income in a way that did not disrupt the growth process. As noted earlier, repressive labor laws permitted only very limited labor union activity and gender discrimination has been condoned and even practiced extensively by the state. Further, the state has set maximum wage guidelines with firms paying wages in excess of the guidelines ineligible for subsidized credit and other carrots. And yet, the government has also encouraged firms to raise workers' wages within bounds. It is likely that part of the state's interest in resolving the distributional conflict in Korea through moderate and predictable wage increases is that this might serve to attenuate resistance to what otherwise would be considered an illegitimate and undemocratic regime. As a result, and contrary to some perceptions of the Korean case, wage increases were not banned. Rather, manufacturing wages in Korea increased five-fold in real terms from 1975 to 1990. Although wages rose from a low base, sustained real wage growth in an export-oriented economy is rare.

[7] More recent changes, such as the more complete financial market liberalization in 1997 and the proposed IMF conditionality associated with the $50 billion bail out of the financial sector, however, may spell the end to this era of state-led and -guided growth.

What *has* been the relationship between wages, investment, and growth in the Korean economy? Shapiro and Taylor (1994) suggest that real wage growth may be central to the industrialization process, and argue that aiming for low wages alone is not viable or sustainable. They note that "South Korea would never have shifted exports from human hair to autos and electronics had wages stayed at 1955 levels" (1994: 872). You (1994) has argued that suppression of labor disputes combined with orderly wage increases kept "animal spirits" buoyant, and it is this aspect of labor repression, not keeping wages low, that has been important to Korean growth. Amsden (1989) has advanced an efficiency wage argument for the compatibility of rising wages with growth in an export-oriented economy, contending that wage increases have induced workers to exercise their intelligence on the job in industries which require significant learning on the shop floor in order for the firm to successfully adapt unfamiliar borrowed technologies. Without formally modelling this relationship, she implies that higher wages that raise labor productivity lower unit labor costs, making exports more competitive, producing a demand-side effect that stimulates investment spending.

These combined perspectives lead to the observation that there are boundary conditions on wage payments which, in order to promote growth, should be neither be too high nor too low. On the one hand, it can be argued that wage growth that exceeds productivity growth raises unit labor costs, and results in declining demand for exports and thus investment spending. Further, slack demand for exports results in a shortage of foreign exchange necessary for the purchase of imported capital goods that raise productivity. On the other hand, wages that are too low may alleviate any pressure on firms to upgrade technologically, with the economy's productivity growth stagnating due to reliance on labor-intensive low-wage production methods. In either

case, an important question is how wages affect investment spending, both because business spending has a demand-side effect and because investment in equipment that is labor-saving can lower unit labor costs, thereby stimulating export demand in a virtuous cycle of wage growth!> investment !> productivity growth!> export growth.

The trick, of course, is to ensure that business responds to wage shifts in the desired way--by investing in equipment and processes that lower unit labor costs. In an open economy with liberalized markets, it may be difficult to induce firms to technologically upgrade when there is an option to respond to the declining profitability that real wage increases bring by running to lower wage sites.

But in Korea, the state effectively fashioned an incentive structure that allowed and indeed *forced* firms to take the desired path, thereby maintaining Korea's export competitiveness while moving the economy up the industrial ladder *and* facilitating import substitution. Higher wages put a squeeze on profits, since competition in global markets forced firms to absorb some of the wage increases. By holding out the carrot of subsidies and import allowances that would boost profits, however, the state encouraged firms to respond to unit labor cost increases by raising productivity. Had this challenge been left unaddressed, firms would have been inclined to pass on a large portion of the higher costs, resulting in fewer export sales and loss of access to the designated rewards.

This strategy might not have worked in an environment with greater physical capital mobility, but restrictions on foreign direct investment and foreign exchange conversion limited, in the aggregate, the options of firms to run from higher wages. It is also likely that this strategy worked in Korea at this semi-industrialized stage of development since there continued to be

potential for manufacturing industries to capital-deepen and the necessary capital goods and technologies were available from industrialized countries.[8]

An important element of this strategy was the state's control over the banking sector which eased the need for firms to rely on internal finance as the source of funds for physical capital investment. Table 1 shows sources of finance for investment in the non-financial corporate sector. On average, internal financing has accounted for only about 50.3 percent of total sources of financing with net bank lending 23.4 percent on average, though this percentage has fallen in recent years. This contrasts sharply with the United States and United Kingdom for the period 1970-89 where internal finance constituted 91.3 percent and 97.3 percent, respectively, of total sources of financing. Internal financing comprises an even smaller share of total net sources of financing in Korea than in Japan where the average for 1970-89 was 69.3 percent (Corbett and Jenkinson 1996).

[Table 1 about here].

The significance of a system in which firms rely more heavily on debt financing can be argued as follows. To assess eligibility in allocating bank credit, the state has relied more heavily on the firms's performance in terms of exports, investment, and output than on the typical measures of creditworthiness used by private banks--the rate of profit or other measures of profitability. As such we would expect profitability to have been less important in explaining

[8] The Korean economy may also be at a turning point in this regard. As Korea becomes an important competitor to industrialized country firms, there is greater reluctance to license or sell technology to Korean firms. Government leverage is attempting to overcome this problem, but it nevertheless has arisen as an important barrier in recent years. Further, Korean firms have virtually caught up with industrialized country firms in terms of automated production processes. Where it remains behind is in design and development of new products (Hobday 1995). Thus higher wages may or may not continue to stimulate investment spending and productivity growth, depending on the adaptability of institutional arrangements between the state and firms to new conditions.

investment behavior.

The institutional arrangements described here appear to mediate between wage increases and investment spending (and by extension output and employment) in Korea. To clarify how these variables are related, Figure 1 provides a sketch of two possible chains of causality with the former likely to occur in an open economy with no state intervention in financial markets, and the latter more indicative of processes in Korea under the institutional and policy relationships described above.

[Figure 1 about here].

Case A describes a classical Marxian business cycle driven by profit squeeze effects.[9] Case B describes what appears to be the Korean case where the profit squeeze effects of higher wages are overcome by institutional and financial arrangements that allow firms to borrow rather than rely fully on retained earnings to realize new investment. Moreover, the system offers additional inducements for firms to do so, thereby offsetting or overcoming some of the profit squeeze generated by higher wages. But the inducements are "carrots" insofar as they can be had only *after* firms upgrade technologically, thereby producing positive effects on productivity growth and effective demand that sustain and perhaps increase the demand for labor. Hypothetically, at least, this process may lead to even further wage hikes. Case B then provides an explanation for why it is at least theoretically possible for wage growth that has outpaced productivity growth, or put differently, a decline in the profit share of income, to have had a positive effect on investment spending.

The positive correlation is confirmed by a look at the descriptive data. Figure 2 provides

[9] Case A assumes that higher wages result in reductions in export and investment demand that are not outweighed by increases in domestic consumption, induced by the redistribution to

time series data on the wage share of manufacturing income and capital accumulation (the growth rate of the capital stock). The wage share data are obtained by creating an index (1975=100) from the difference between changes in real daily manufacturing earnings and labor productivity growth. Increases in real earnings that exceed productivity growth cause the wage share index to rise.[10]

[Figure 2 about here].

These data indicate that, with exception of the early 1990s, capital accumulation and the wage share variables moved in the same direction. (A similar result obtains if we plot lagged values of the wage share against capital accumulation). Interestingly, You's (1994) argument that the state's role in moderating labor-management conflict assuaged "animal spirits" is consistent with these data. The democratization movement that began in 1987 was accompanied not only by rapid wage increases which were not new, but also by widespread labor conflict. This also marked the beginning of more intensive efforts to liberalize financial markets and investment rules which may also have disrupted optimistic "animal spirits" through the introduction of more uncertainty. This turn of events seems to have to had a negative effect on investment spending. As the data in Figure 2 indicate, the early 1990s mark a break in the positive relationship between the wage share and capital accumulation, with the two moving in opposite directions thereafter. Thus at least up to 1990, wages would appear to have had a propelling force on investment spending.

Figure 3 is a scatter diagram in which quarterly data of the wage share (calculated as described above) are plotted against the natural logarithm of investment spending relative to the capital stock for the period 1975.1 to 1993.4. Here again we observe a positive relationship

---

wages.

between the two variables.

[Figure 3 about here].

A stronger test of whether the wage share has a positive impact on investment spending and thus capital accumulation will be explored in the next section where other plausible influences on investment spending are included in the analysis.

IV. Theoretics and Empirical Test Results

A. Some basic macro relations

Some basic macro equations are set out here to provide the basis for a reduced form estimable investment function. For simplicity, we assume a one-sector economy, with national income given by the following equation

$$PY = wbY + rPK. \quad (4)$$

where P is the price level, Y is output, w is the nominal wage, and b is the labor coefficient. Dividing through by PY and using the definition for the profit rate (1) gives wage and profit shares of income

$$1 = Tb + B \quad (5)$$

where T is the real wage and Tb is the wage share of income. Mark-up pricing (and thus excess capacity) prevails in this economy due to an oligopolistic market structure with prices set as a mark-up over prime unit costs or

[10] A more detailed explanation of how this variable is calculated is provided in Section III.b.

$$P = (1+\vartheta)\,(wb) \tag{6}$$

where ϑ is the mark-up rate ($\vartheta > 0$). Semi-openness to trade and institutional constraints force producers to take into account foreign prices so that the mark-up is flexible, and the size is determined by the degree of monopoly power, external prices, and the exchange rate in the following fashion

$$\vartheta = [:, A(eP^*/P)^P] \tag{7}$$

where : is the degree of monopoly in the domestic market, A is a constant parameter, P* is the price of finished foreign goods, and P measures the mark-up's responsiveness to changes in external price competitiveness.

Using (6), we can obtain a formal expression for the profit share of income

$$B = \vartheta / (1 + \vartheta). \tag{8}$$

Together, equations (7) and (8) indicate that the profit share of income is affected by a variety of variables, including domestic market power, unit labor costs, and external factors such as the price of foreign goods and the nominal exchange rate. In implicit form,

$$B = B\,(:, w, b, P^*, e, P). \tag{9}$$

Equations (8) and (9) imply that a nominal wage hike can induce a profit squeeze on export sales as firms lower their mark-up to remain competitive, thereby inducing a reduction in the profit share--and, obviously, an increase in the wage share.

Based on Kaleckian theory, a modified reduced form investment function can be written in which the desired rate of capital accumulation depends on the wage share of income, the utilization rate, and the real interest rate, or

$$I/K = G^K = G(\underset{?}{Tb}, \underset{+}{u}, \underset{!}{\Phi}) \qquad (10)$$

For estimation purposes, (11) can be written

$$I/K = G^K = b_o + b_1 Tb + b_2 u + b_3 \Phi \qquad (10')$$

where Φ is the real interest rate. Following Marglin and Bhaduri's emphasis on income shares, but replacing the profit share with the wage share, we argue that the wage share affects investment spending. Whether the effect of an increase in the wage share is to stimulate or to depress investment depends on the institutional and policy environment that shapes business decisions. There are several reasons for relying on the wage share instead of the profit share that are related to data availability. These are discussed below. The rate of utilization is included as an indicator of demand while the real rate of interest is added to account for neoclassical cost-of-capital concerns. The question of interest is whether, after controlling for utilization and interest rates, aggregate investment responds positively to increases in the wage share, or, equivalently, declines in the profit share.

B. Empirical Test of the Investment Function

Turning now to the empirical analysis of the determinants of investment spending, one of the difficulties with estimating (11') is the possibility of collinearity between Tb and u since shifts in the distribution of income are likely to have demand-side effects. If these variables are strongly collinear, then either of the two independent variables may not show up as significant.

While it would be useful to estimate a full macro system to avoid this problem, we will see in the analysis that follows that in the case of Korea both variables have a measurable effect on investment.

Unlike in some previous studies on OECD countries, quarterly data are used in this analysis and cover the period 1976.2 to 1993.4, expanding the degrees of freedom and reliability of estimates. The rate of desired capital accumulation is measured as the ratio of gross fixed private capital formation to the capital stock. The use of quarterly rather than annual data provides another reason to use the wage share in place of the profit share, for which quarterly data are not available. (Another problem with using the profit share is that data were not available to impute a wage for the self-employed). Quarterly wage share data were created, based on the following calculation:

$$) Tb =) w !) X +) b.$$

As this expression implies, nominal wage growth that exceeds inflation and productivity growth (a decrease in the labor coefficient) causes the wage share to rise. Real earnings (T = w/P) are average nominal daily earnings in the manufacturing sector (monthly earnings adjusted for days worked) deflated by the manufacturing producer price index. Productivity data are for production workers in the manufacturing sector. These data were then used to synthetically create a wage share index.[11]

Measurement of the rate of manufacturing utilization is straightforward and this variable is also measured as an index. The real interest rate Φ is the nominal rate of interest on loans extended by the banking sector less the expected rate of inflation or $(i - \hat{p})$. The expected rate of

[11] Converting the quarterly data to annual averages and plotting this against the net and gross profit share shows a roughly mirror image relationship, suggesting that this measure of the wage

inflation ($\hat{p}$) is measured as a weighted average of the GDP deflator for the four previous quarters or

$$\hat{p}_t = (0.4\hat{p}_{t-1} + 0.3\hat{p}_{t-2} + 0.2\hat{p}_{t-3} + 0.1\hat{p}_{t-4}) .$$

Four quarter lags of the independent variables are included in the regressions, along with a time trend and a one quarter lag of the dependent variable to capture the partial adjustment nature of capital investment.

The investment function was first estimated with variables measured as first differences of natural logarithms (i.e.,) ln X) except for the real interest rate which could take on a negative value. The estimated equation took the form:

$$)ln(I/K)_t =$$

$$\forall_o + \forall_1) ln(I/K)_{t-1} + \sum_{t=0}^{i=4} \forall_2) ln(Tb)_{t-i} + \sum_{t=0}^{i=4} \forall_6) ln\, u_{t-i} + \sum_{t=0}^{i=4} \forall_{10}) \Phi_{t-i} + ,_t . \quad (11)$$

The results of estimating (12) are shown as equation 1 in Table 2. The wage share variable is positive and significant, with the sum of the coefficients indicating an elasticity of 0.843--a ten percent increase in the wage share contributes to an 8.4 percent increase in investment relative to the capital stock. The utilization variable is also significant with investment responding positively and elastically (1.533) to an increase in the rate of utilization. The coefficient on the real interest rate is negative but insignificant, not surprising given the factors that influence access to credit and the evidence from other studies that the cost of capital is not a significant determinant of investment.

[Table 2 about here].

---

share is reliable.

To assess robustness, the investment function was also estimated with independent variables untransformed and the dependent variable measured as a simple ratio (i.e., I/K). Those results are reported in equation 2 in Table 2.[12] The results are broadly similar to those obtained in equation 1, with the exception of sum of the coefficients on the real interest rate which shows up in equation 2 as negatively and significantly correlated with investment although the size of the coefficient is extremely small.

Table 2 also gives equation diagnostics. Two tests for serial correlation are reported--the Durbin-Watson test and the Breusch-Godfrey Lagrange multiplier test, the latter using 1 and 2 lags. Results of testing for a structural break in 1989.2 (which correlates roughly with the beginning of the inverse relationship between the wage share and investment in Figure 2) are also given. The diagnostics for serial correlation are reasonably satisfactory although the Breusch-Godfrey test does indicate some evidence of this problem with two lags only in equation 2. For that reason, equation 1 results with variables first differenced may be more reliable. The evidence of a structural break in 1989.4 is weak in equation 1 but stronger in equation 2. While it would be useful to split the sample, re-estimating the investment function for the pre- and post-liberalization phase at the end of the 1990s, there are too few data points in the post-liberalization period to obtain reliable coefficient estimates.

C. Assessing Causality

A possible interpretation of the results in the previous section is that the direction of

[12] Equation 1 was also estimated with variables measured as logs (without first differencing) with similar results, but with some evidence of collinearity. The only major difference is that the sign on $\forall_1$ was positive but insignificant in the latter equation. Numerous alternative specifications were tried, including using seasonally adjusted values of variables. All produced very similar results which are obtainable upon request.

causality is not adequately captured by the model and that, in fact, it may be that investment is driving the wage share. Granger pair-wise causality tests are used to investigate this question. This method uses F-tests to determine whether lagged values of a variable, say investment, has any statistically significant role in explaining lagged values of a second variable, say the wage share in the presence of lagged values of the wage share. The test is then reversed with investment the dependent variable. If the F-statistic on the sum of the coefficients of the lagged values of the independent variable is statistically significant, that variable is said to *Granger-cause* the dependent variable. The pair of test equations used for assessing the direction of causality between the wage share and investment are specified as follows:

$$(a)\ (I/K)_t = \beta_o + \sum_{i=1}^{n} \vartheta_i (I/K)_{t-1} + \sum_{i=1}^{n} \delta_i (\omega b)_{t-i} + \varepsilon_t$$

and

$$(\omega b)_t = \nu_o + \sum_{i=1}^{n} \gamma_i (I/K)_{t-i} + \sum_{i=1}^{n} \zeta_i (\omega b)_{t-i} + \upsilon_t$$

where n is the number of lags.

For equation (a) the null hypothesis being tested is:

$$H_O : \sum_{i=1}^{n} \delta_i = 0, i = 1....n$$

while for equation (b), the null is:

$$H_O : \sum_{i=1}^{n} \gamma_i = 0, i = 1....n$$

Rules of thumb for interpreting test results are as follows. If both null hypotheses are accepted,

there is no evidence of causality in either direction. If the null for equation (a) is accepted but that for (b) is rejected, we can say that the wage share *Granger-causes* investment, but investment does not *Granger-cause* movements in the wage share. Finally, rejection of both null hypotheses implies feedback effects between the wage share and investment.

In general the results of the Granger tests are sensitive to the specified lag length. There is little theoretical guidance as to the lag lengths to specify in the case of investment and profitability. For that reason and for purposes of robustness, we experiment with lag lengths of 2, 4, 6, 8, and 10 quarters. The variables, measured both as logs and as ratios, were tested for stationarity prior to conducting the Granger tests by regressing each variable on a time trend. The data measured in natural logs showed signs of non-stationarity, and in this case, the time trend was removed by taking first differences. The data measured as ratios did not show a similar problem.

Granger pair-wise test results are presented in Table 3. Measuring the variables as first differences of natural logs, there is evidence of feedback effects between investment and the wage share for 2, 4, and 6 quarter lags. With longer lags, the data indicate that causality runs from investment to the wage share. When measured as ratios, however, the data indicate feedback effects for 4,6, and 10 quarter lags of the independent variable. In no case do the data suggest the causality runs exclusively from the wage share to investment. It is not unusual to have ambiguous results that vary by lag length, yet if we can draw some inferences from these data, it is that there are feedback effects between investment and wage share as we might expect from the schematic described in Figure 1.

[Table 3 about here].

We might further ask whether wages are being driven by productivity growth, or whether it is productivity growth that determines wage growth. Table 4 shows the results of Granger tests that assess the direction of causality between real manufacturing wages and labor productivity growth for the period 1975.1-1990.12. The data are monthly, and variables are measured as first differences of natural logs. Evaluating the manufacturing sector as a whole, there appear to be strong feedback effects between wages and productivity. At the detailed industry level, results are varied. For textiles and machinery, there is quite strong evidence that wages drive productivity growth, whereas feedback effects are more apparent in wearing apparel and electronics. In the iron, steel, and transport sectors, there is very weak evidence that productivity growth affects wages in neoclassical fashion, but no evidence that wages stimulate productivity growth. The results for these two capital-intensive industries which were new in the late 1970s and have relied on borrowed technologies are not surprising since productivity growth there has depended not only on workers learning on-the-job but also on the scale of production with productivity rising more slowly than in other industries.

[Table 4 about here].

To sum the results of this section, the econometric results are consistent with the argument that firms respond to wage growth that exceeds productivity growth by increasing, not decreasing, investment. This stands in contrast to the evidence Bhaskar and Glyn (1995) and Bowles and Boyer (1995) provide for OECD countries, and certainly contrasts with some basic tenets of Kaleckian macro theory. But really the argument made here is not that profitability does not matter, but simply that the policy environment can alter the relationship between profits and investment, in some cases in very salutary ways--salutary ways, that is, insofar as the

relationship between growth and equity is concerned. It is also useful to note what we do not do here. We do not precisely unravel the dynamic between wages, productivity, and investment. We posit that a good deal of the productivity growth arises from firm investments, but Amsden's argument that wage increases improve worker motivation and stimulate productivity growth may be valid as well.[13] Indeed, it is entirely conceivable that both explanations are valid, but we do not have sufficient empirical evidence to definitively make that claim at this juncture.

V. Conclusions and Summary

The question of how to construct a system in which a market economy is capable of coexisting peacefully with equity is one that interests heterodox economists. There is widespread and strong evidence that unrestrained capital produces an environment in which growth and equity are at odds. Macro models show that in open economies with liberalized capital flows when a more equitable distribution of income is attempted, firms respond at times hyper-sensitively to diminutions in profitability, thereby threatening the stability of the system and economic growth. The experience of South Korea since embarking on an export-led growth path would seem to provide one possible way to alter the investment climate so as to make possible a better distribution of income *and* growth, even in an open economy. In spite of Korea's semi-openness to trade in which wages have a potentially strong negative impact on aggregate demand via the effect on export demand, wage growth that exceeds productivity growth does not appear to bring down the system. Rather, firms are corralled by the state's complex set of policies and

[13] Higher wages that improve worker motivation might be expected to produce positive effects on labor productivity sooner rather than later, whereas if wage hikes cause firms to adopt new technologies and production processes, the lagged effect on productivity may take longer to show up. The Granger tests did not, however, provide any clear evidence that one of these possibilities operated to the exclusion of the other.

institutional arrangements to respond to higher wages with productivity advances.

The case of Korea is instructive and it would be interesting to contrast it to other newly industrialized economies that have taken similar or divergent paths to assess the robustness of this argument. It would, for example, be very useful to look at the relationship between the wage share and investment in countries such as Taiwan, Singapore, Thailand, and Indonesia. More generally, we can infer from this analysis that there is an important and beneficial role for the state to play in shaping the investment environment in order to both promote productivity growth and manage the distributional conflict in a way that does not shift all the costs to workers.

Table 1.-Net Sources of Finance for Investment by Non-Financial Corporate Sector, 1975-92
(Percentages)

	Mean	Standard Error
Internal	50.3%	0.005
Bank Finance	23.1	0.024
Bonds	11.6	0.014
Equities	13.3	0.017
Trade credits	!0.3	0.021
Miscellaneous	2.1	0.010

Source: Author's calculations from Bank of Korea *National Income Accounts 1994* data.

Table 2.-OLS Estimates of Investment Function
Dependent Variable: Gross Fixed Private Capital Formation/Capital Stock

	Equation 1 1976.2-1993.4	Equation 2 1976.1-1993.4
Constant	!0.009 (0.23)	0.008 (0.35)
I/K(-1)	!0.775 (7.30)*	0.050 (0.77)
Tb[a]	0.843 (3.01)***	0.062 (13.07)*
u[a]	1.553 (3.33)*	0.0605 (4.23)*
Φ[a]	!0.018 (0.48)	!0.003 (6.57)*
Adjusted R^2	0.84	0.79
SER	0.10	0.01
DW Statistic	2.07	2.06
LM AR(1)	0.64	0.29
LM AR(2)	0.99	7.73*
Chow (split 1989.2)	1.29	1.92**
Overall F	26.99*	19.63*

Notes: T-statistics are in parentheses. Regressions included a time trend variable. Equation 1 is log linear and is estimated in first differences. The dependent variable in Equation 2 is measured as ratios (I/K) and independent variables are the wage share and utilization rate measured and the real interest rate. Single, double, and triple asterisks indicate failure to pass relevant tests with $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.

[a]Sum of 1- 4 quarterly lags.

Table 3.-Granger Causality Test Results: Investment and the Wage Share
F-Statistics on Sum of Coefficients of Lagged Independent Variable

Dependent Variable	Independent Variable	Number of quarterly lags employed				
		2	4	6	8	10
) ln (I/K)	) ln (Tb)	16.60*	1.98***	1.07	1.33	1.35
) ln (Tb)	) ln (I/K)	10.14*	3.70*	2.77**	2.22**	2.20*
I/K	Tb	0.07	10.14*	2.31**	1.45	4.46*
Tb	I/K	12.76*	10.16*	4.21*	3.03*	2.74*

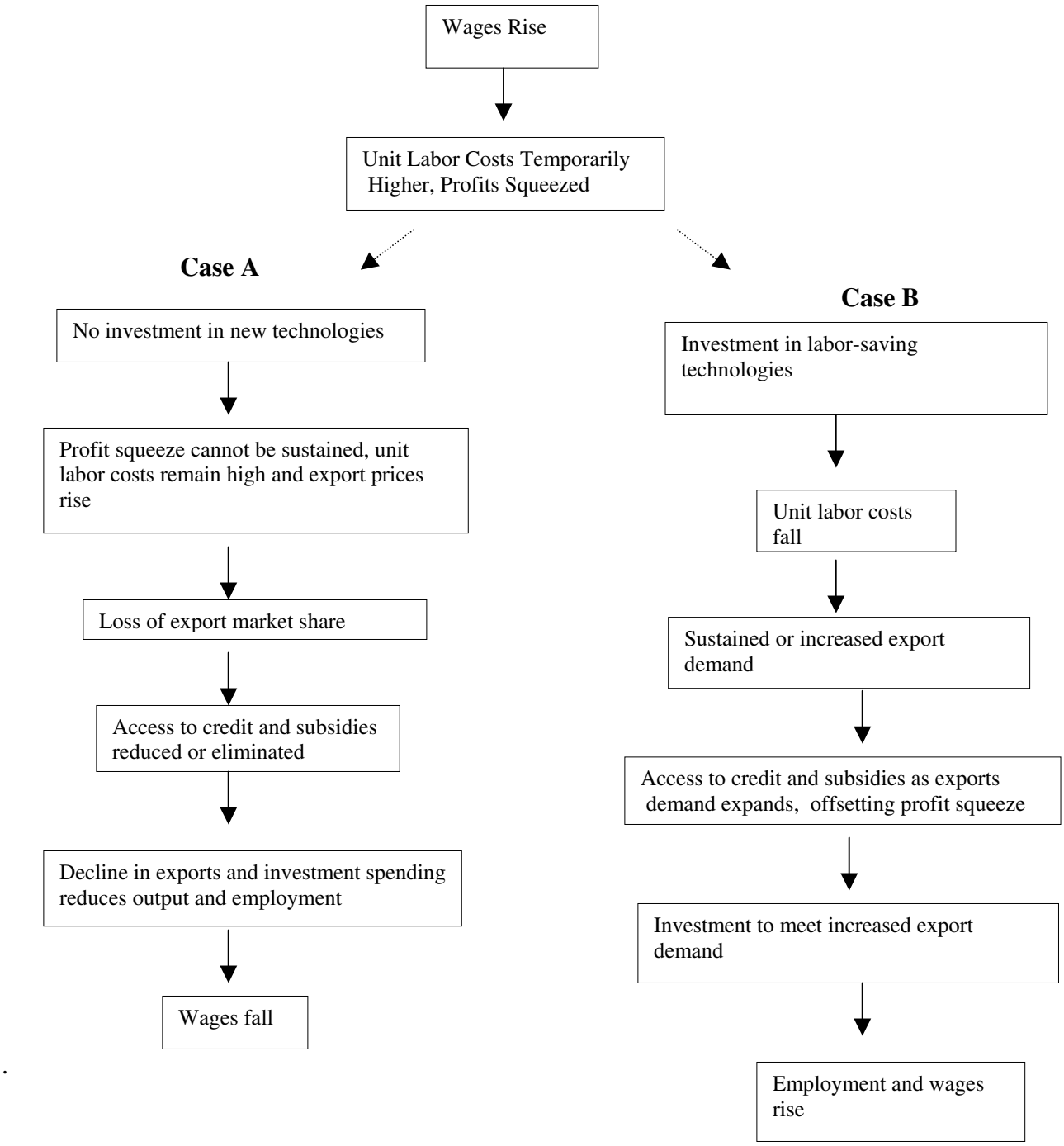
Note: Single, double, and triple asterisks indicate failure to pass relevant tests with $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.

Table 4.-Granger Causality Test Results: Wages and Productivity
F-Statistics on Sum of Coefficients of Lagged Independent Variable

Dependent Variable	Independent Variable	Number of monthly lags employed									
		2	4	6	8	10	12	18	24	30	36
Manufacturing Sector											
) ln (b)	) ln (T)	11.8*	7.2*	3.4*	3.7*	3.6*	2.1**	1.3	1.5***	1.1	0.9
) ln (T)	) ln (b)	2.3***	8.2*	4.1*	3.8*	2.9*	1.8**	1.4	0 .9	0.9	0.8
Textiles											
) ln (b)	) ln (T)	7.9*	4.8*	3.1*	2.3**	2.0**	1.6***	1.4	1.6***	1.3	1.6**
) ln (T)	) ln (b)	0.7	1.9	1.3	1.1	1.5	1.2	0.9	0 .9	0.6	0.6
Wearing Apparel											
) ln (b)	) ln (T)	16.9*	9.2*	8.3*	6.3*	5.2*	3.7*	2.1**	2.2**	2.0**	1.6**
) ln (T)	) ln (b)	4.2*	2.6**	1.6	3.1*	2.5*	2.2**	1.8**	1.2	0.9	0.7
Electronics											
) ln (b)	) ln (T)	4.4*	2.7*	2.7*	1.8***	2.3**	1.8**	1.4	1.3	1.4***	1.6**
) ln (T)	) ln (b)	2.1	2.4**	1.9***	3.4*	1.9**	1.9**	1.7	1.3	1.1	0.7
Iron/Steel											
) ln (b)	) ln (T)	0.5	0.6	1.3	1.5	1.8***	1.4	1.1	0.8	1.0	0.8
) ln (T)	) ln (b)	2.4***	1.2	1.9***	1.6	1.3	1.3	1.0	1 2	1.1	0.9
Transport											
) ln (b)	) ln (T)	0.2	0.4	0.2	0.4	0.7	0.5	0.4	0.5	0.8	0.7
) ln (T)	) ln (b)	2.4***	1.5	1.1	0.9	0.7	0.6	0.5	0 .8	1.0	1.1
Machinery											
) ln (b)	) ln (T)	7.0*	4.1*	3.1*	2.0**	1.7***	1.9**	2.0**	1.5***	1.3	0.9
) ln (T)	) ln (b)	1.7	0.7	0.7	0.6	0.9	0.7	0.8	1 19	1.1	0.6

Note: Real earnings are nominal monthly earnings deflated by the manufacturing producer price index. Labor productivity is for production workers only. Single, double, and triple asterisks indicate failure to pass relevant tests with $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.

Figure 1. The relationship between wages and investment under alternative scenarios



.

REFERENCES

Amsden, Alice. 1989. *Asia's Next Giant: South Korea and Late Industrialization*. Oxford: Oxford University Press.

Amsden, Alice. 1994. "Post Industrial Policies in Korea and Taiwan." Mimeo. New York: Council on Foreign Relations.

Amsden, Alice and Yoon-Dae Euh. 1993. "South Korea's 1980s Financial Reforms: Good-bye Financial Repression (Maybe), Hello New Institutional Restraints." *World Development*, 21 (3): 379-90.

Armstrong, Philip, Andrew Glyn, and John Harrison. 1991. *Capitalism Since 1945.* Basil Blackwell.

Bank of Korea. 1994. *Economic Statistics Yearbook*. Seoul, South Korea: Author.

Armstrong, Philip, Andrew Glyn, and John Harrison. 1991. *Capitalism Since 1945.* Basil Blackwell.

Bhaduri, Amit and Stephen Marglin. 1990. "Unemployment and the Real Wage: The Economic Basis for Contesting Political Ideologies." *Cambridge Journal of Economics* 14 (4): 375-93.

Bhaskar, V. and Andrew Glyn. 1995. "Investment and Profitability: The Evidence from the Advanced Capitalist Countries." In Gerald Epstein and Herbert Gintis (Eds.) *Macroeconomic Policy After the Conservative Era*. Cambridge University Press.

Blecker, Robert. 1989. "International Competition, Income Distribution, and Economic Growth." *Cambridge Journal of Economics,* 14: 375-93.

Bowles, Samuel and Robert Boyer. 1990. " A Wage-Led Employment Regime: Income Distribution, Labor Discipline, and Aggregate Demand in Welfare Capitalism." In Stephen Marglin and Juliet Schor (eds.) *The Golden Age of Capitalism*. Oxford: Clarendon.

Bowles, Samuel and Robert Boyer. 1995. "Wages, Aggregate Demand, and Employment in an Open Economy: An Empirical Investigation." In Gerald Epstein and Herbert Gintis (eds.) *Macroeconomic Policy After the Conservative Era*. Cambridge, UK: Cambridge

Chang, Ha-Joon. 1994. The Political Economy of Industrial Policy. London and Baskingstoke: Macmillan.

Chang, Ha-Joon and Robert Rowthorn. 1995. *The Role of the State in Economic Change.* Oxford: Clarendon Press.

Chirinko, Robert. 1993. "Business Fixed Investment Spending: A Critical Survey of Modelling Strategies, Empirical Results, and Policy Implications." Federal Reserve Bank of Kansas City, Research Working Paper 93-01.

Cho, S. K. 1985. " The Dilemmas of Export-Led Industrialization: South Korea and the World Economy." *Berkeley Journal of Sociology*, 30: 65-94.

Chung, Un Chan. 1994. "Is Financial Regulation a Panacea?" In Sung Yeung Kwack (ed.) *The Korean Economy at a Crossroad*. Westport, CN: Praeger..

Corbett, Jenny and Tim Jenkinson. 1996. "The Financing of Industry, 1970-1989: An International Comparison." *Journal of the Japanese and International Economies*, 10: 71-96.

Deyo, Frederic. 1989. *Beneath the Miracle: Labor Subordination in the New Asian Industrialism*. Berkeley, CA: University of California Press.

Dutt, Amitava. 1984. "Stagnation, Income Distribution, and Monopoly Power." *Cambridge Journal of Economics*, 8: 25-40.

Dutt, Amitava. 1990. *Growth, Distribution, and Uneven Development*. Cambridge, UK: Cambridge University Press.

Fazzari, Steven and Tracy Mott. 1986-87. "The investment theories of Kalecki and Keynes: An Empirical Study of Firm Data, 1970-82." *Journal of Post-Keynesian Economics*, 9(2): 171-87.

Fazzari, Steven. 1992. "Keynesian Theories of Investment and Finance: Neo, Post, and New." In Steven Fazzari and Dimitri Papadimitriou (Eds.) *Financial Conditions and Macroeconomic Performance*. M.E. Sharpe, Inc.

Fong, Pang Eng and Linda Lim. 1989. "High Tech and Labour in the Asian NICs." *Labour and Society*, 14: 43-57.

Ford, Robert and Pierre Poret. 1991. "Business Investment: Recent Performance and Some Implications for Policy." *OECD Economic Studies*, 16: 79-130.

Glyn, Andrew. 1997. "Does Aggregate Profitability *Really* Matter?*"* *Cambridge Journal of Economics*, 21: 593-619

Hart-Landsberg, Martin. 1993. The Rush to Development: Economic Change and Political Struggle in Korea. New York: Monthly Review Press.

Henley, Andrew and Euclid Tsakalatos. 1991 "Corporatism, Profit Squeeze, and Investment." *Cambridge Journal of Economics,* 15: 425-450.

Hobday, Michael. 1995. *Innovation in East Asia*. Edward Elgar.

Jones, Leroy and Il Sakong. 1980. Government, Business, and Entrepreneurship in Economic Development: The Korean Case. Cambridge, MA: Harvard University Press.

Kalecki, Michael. 1971. *Selected Essays on the Dynamics of the Capitalist Economy 1933-70.* Cambridge: Cambridge University Press.

Keynes, John M. 1936. *The General Theory of Employment, Interest, and Money*. London: Macmillan.

Kim, Eun Mee. 1997. *Big Business, Strong State: Collusion and Conflict in South Korean Development*, 1960-90. State University of New York Press.

Kurz, H. D. "Effective Demand, Employment and Capital Utilisation in the Short Run." *Cambridge Journal of Economics*, 14: 205-17.

Lavoie, Marc. 1995. "The Kaleckian Model of Growth and Distribution and its Neo-Ricardian Critiques." *Cambridge Journal of Economics*, 19 (6): 789-818.

Lavoie, Marc. 1992. *Foundations of Post-Keynesian Economic Analysis*. Edward Elgar.

Lindner, Deborah. 1994. "Foreign Exchange Policy, Monetary Policy, and Capital Market Liberalization in Korea." In Sung Yeung Kwack (ed.) *The Korean Economy at a Crossroad*. Westport, CN: Praeger.

Marglin, Steve and Amit Bhaduri. 1990. "Profit Squeeze and Keynesian Theory." In Steve Marglin and Juliet Schor (eds.) *The Golden Age of Capitalism*. Oxford: Oxford University Press.

Nam, Jeong Lin. 1994. "Women's Role in Export Dependence and State Control of Labor Unions in South Korea." *Women's Studies International Forum*, 17 (1): 57-67.

Ogle, George. 1990. *South Korea: Dissent Within the Economic Miracle*. London: Zed Books.

Rowthorn, Bob. 1982. "Demand, Real Wages, and Economic Growth." *Studii Economici*, 18: 3-54.

Seguino, Stephanie. 1994. Wages, Income Distribution and Gender in South Korean Growth. Unpublished Ph.D. dissertation, American University.

Seguino, Stephanie. 1997. "Gender Wage Inequality and Export-Led Growth in South Korea." *Journal of Development Studies*, vol. 34(2): 72-102.

Shapiro, Helen and Lance Taylor. 1990. "The State and Industrial Strategy." *World Development*, 18 (6): 861-78.

Singh, Ajit. 1993. "The Stock Market and Economic Development: Should Developing Countries Encourage Stock Markets? UNCTAD Review , 4: 1-28.

Steindl, Josef. 1976. *Maturity and Stagnation in American Capitalism*. New York: Monthly Review Press.

Taylor, Lance. 1991. *Income Distribution, Inflation, and Growth*. Cambridge, MA: MIT Press.

You, Jong-Il. 1991. *Capital-Labor Relations and Economic Development*. Unpublished Ph.D. dissertation, Harvard University.

You, Jong-Il. 1994. "Labour Institutions and Economic Development in the Republic of Korea." In Gerry Rodgers (ed.) *Workers, Institutions, and Economic Growth in Asia.* Geneva: International Institute for Labour Studies.