Imported capital goods and the income adjustment process in small open economies

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Abstract

The principle of effective demand states that given endogenous expenditure patterns, the level of exogenous expenditure determines the level of employment. If investment represents the sole form of exogenous expenditure, employment adjusts to the level of investment. If exogenous expenditure changes, equilibrium is restored via the equilibrating variable, employment. If employment is linked in a unique way to income, we have what is referred to as the income adjustment process.

The income adjustment process is investigated in a closed and a small open economy (SOE) which imports consumption and capital goods. If a SOE imports its capital goods, the causal link between investment and employment is weakened. When capital goods are imported, investment adjusts to the balance of payments and animal spirits are constrained. Certain South African data are analysed within the framework of the income adjustment process.

Key terms:

Income adjustment; principle of effective demand; small open economy; exogenous expenditure; imported capital goods; employment; investment; animal spirits; balance of payments; South Africa.

Contents

Introduction

Keynesian theory allows for the possibility of unemployment equilibrium. The determination of the level of employment is the major focus of attention. In the Keynesian model, the level of employment emerges as a result of the operation of the principle of effective demand. The principle of effective demand states that given the level of consumption demand, the level of exogenous expenditure determines the level of employment. Employment adjusts to the level of exogenous expenditure until equilibrium is obtained. Employment is thus the equilibrating variable. If employment is linked in a unique way to income, it can also be regarded as the equilibrating variable, and we have what is referred to as the income adjustment process.

If investment represents the sole form of exogenous expenditure, then by means of income adjustment, the level of employment is determined by the level of investment. The role of the investment sector in the principle of effective demand is to provide demand for the products of the consumption sector, over and above what those earning in the consumption goods sector spend. Expenditure on consumption goods by those working in the investment sector provides the means by which the consumption goods entrepreneurs make a profit and offer employment.

Investment may stem from importing capital goods. Since the production of capital

goods is usually associated with relatively large scale production, highly skilled labour and long production runs, inability to produce capital goods is associated with small open economies. The suggestion is that investment plays a different role in an SOE which imports capital goods from that suggested by the explanation of the principle of effective demand above. The causal link between investment and employment may be affected. This seems to suggest that an investigation into the income adjustment process in small open economies when imports are capital goods may be a valid pursuit.

The income adjustment process in a small open economy which imports capital goods will be examined in a number of stages. The income adjustment process will initially be examined in a closed economy. Thereafter, the process will be examined in a SOE which imports consumption goods only, and finally in a SOE which imports both consumption and capital goods. The aim is to establish the Keynesian rules of the game in a closed economy, and then apply them to open economies.

The theory which prescribes the rules for the income adjustment process is the principle of effective demand. The principle of effective demand is put through its paces in a model of the economy where employment and output vary and the equilibrium attained may be at a level of less than full employment. Hence the income adjustment process differs in two respects from the process described by conventional price adjustment theory: Firstly, income adjusts and secondly, unemployment equilibrium is a possibility. In the Keynesian view, the level of

employment is no longer determined by the potential productive capacity of the economy, but by the degree of utilisation of that capacity, which is determined by the level of expenditure or demand.

Crucial to the model in which the principle of effective demand operates is the distinction between endogenous and exogenous expenditure. Endogenous expenditure is that which is generated within the model. A large part of consumption expenditure is endogenous - as it is induced by income. Exogenous expenditure, however, is determined outside the model. Exogenous expenditure in an open economy model, includes that part of consumption expenditure which is not induced by income - autonomous consumption expenditure, investment expenditure, government expenditure and export expenditure. A change in exogenous expenditure induces a change in income and employment. Exogeneity is linked to causality in a model.

Keynes, who examined the principle of effective demand in a closed economy, took investment to represent exogenous expenditure. Investment is unstable, and fluctuations in investment lead to changes in the level of employment. The instability of investment is linked to its causal role in the determination of employment. The focus in this study is the on the causal role of investment, and how it may be affected, in a small open economy which imports its capital goods. Hence the exogeneity of investment, and the influence of investment on the income adjustment process is a dominant theme in the chapters which follow.

Investment may refer to the purchase of financial assets or physical assets. In macroeconomics, investment is usually associated with the demand for physical assets, like plant and equipment, i.e. investment is *real* investment. Unless otherwise stated, investment in this study refers to real investment. Capital goods are seen as durable or productive, although there is ambiguity with these criteria: For example, coal for an industrial furnace is a capital good, coal for a household is a consumption good. In this study, capital goods are seen as those goods which are purchased by businesses which add to their capital stock. Investment is the purchase of newly produced capital goods by firms.

Investment demand involves the ordering of new capital goods: If the demand price for a capital good exceeds the supply price (or the replacement cost), then firms will have an incentive to order the capital good. The demand price of a capital good depends on the estimated prospective yield from the employment of the capital good in the production process, and on the future interest rate at which the future yield is capitalised. Decisions to invest depend on the long term expectations of the rate of return relative to the expected rate of interest. This explanation of investment decisions is only part of the story, though. There is a degree to which an entrepreneur's decision to invest is attributable only to animal spirits (Keynes, 1936:161). These animal spirits represent some force which stimulates action rather than inaction. Animal spirits influence investment in a spontaneous and unpredictable way. Hence, there is a sense in which animal spirits always ensure that investment is exogenous. This is the focus of chapter three.

Examination of the role of investment in the income adjustment process begins in chapter one, in which a simple closed economy model is employed. This simple model allows for the clear exposition of the principle of effective demand. The principle of effective demand operates in a monetary entrepreneurial economy. Power in this model rests with those who have access to the means of production, the entrepreneurs. Equilibrium in such an economy occurs where those who have power in the model have no incentive to change their decisions. The entrepreneurs base their production and employment decisions on expectations of the level of expenditure. For entrepreneurs to engage in production and offer employment, expenditure on goods produced must be great enough to ensure that entrepreneurs cover the cost of production and make a profit. Exogenous expenditure, such as investment, which adds to the demand for current production without adding to its supply, is necessary to ensure that profits are made.

In a closed economy, if investment increases, then there will be an increase in domestic demand for goods and services. This will cause the level of stocks to run down and entrepreneurs will expand production and employment. The increased employment and income will encourage further consumption on goods and services, and hence further employment and consumption. Hence the initial increase in exogenous expenditure results in an expansion of successively diminishing waves of employment and consumption until the changes in income become negligible, and equilibrium is restored at a higher level of income and employment. The change in the level of income will be a multiple of the initial change in exogenous expenditure. Throughout this process, income is the adjustment variable that

translates positive expectations to higher offers of employment and consumption. The level of employment is determined by the level of effective demand.

The notion that it is the level of effective demand that determines the level of employment, contrasts with conventional price adjustment theory in which automatic forces ensure full employment. This latter theory assumes that the potential productive capacity of the economy is always fully utilised; the only limitation to the level of production is the resource endowment of the country. At issue in Keynesian theory is not the potential productive capacity of the economy, but the degree of utilisation of this capacity, which is dependent on the level of effective demand.

Once an economic model is open to foreign trade, exports contribute to the level of exogenous expenditure, and imports comprise a leakage of expenditure to trading nations. In the past, open economy models have been based on large economies where foreign trade makes up a small part of domestic activity. However, recently, small open economies have come into vogue. In chapter two, an attempt will be made to define a small open economy. The definition which emerges as most useful for our purposes, is openness. The validity of open macroeconomic theory based on large, relatively closed, economies for small open economies which import only consumption goods, is then examined. If investment increases in a SOE, the resulting expansion of domestic employment and income will benefit other nations, as part of the increase in income and consumption will go towards imports. Part of the multiplier effects of the increase in investment are lost to the domestic economy, while stimulating expansion in the economies of trading partners. Hence

the impact of a change in investment on the income adjustment process in an open economy which imports consumption goods, will depend on the marginal propensity to import from increased income.

If an economy is unable to produce capital goods, then investment requires importing capital goods. The act of investment in such an economy means that effective demand for domestic goods and services is translated into effective demand for goods and services of the trading nation. Hence if capital goods are imported, it is not only the multiplier which is affected by the openness of the economy, the multiplicand is affected too. The degree to which investment involves imported capital goods is the degree to which the stimulus to the income adjustment process is exported. In the model of Casar and Ros (1983), when a country imports capital goods, productive capacity of the economy is enhanced, even though importing capital goods may mean that effective demand is insufficient to ensure the utilisation of existing productive capacity.

A second issue arises in an economy which imports capital goods: as investment expenditure increases, demand for imported capital goods increases. If capital goods make up a significant portion of import expenditure, balance of payments pressures will emerge (associated with an increase in investment). Pressure on the balance of payments may arise if the value of imports exceeds the value of exports (so that there is a deficit on the current account) and this is not met by an inflow of capital. Although a deficit on the current account may be funded by reserves, if an inflow of capital is not forthcoming, this is not regarded as a long term solution - as

reserves are finite. Pressure on the balance of payments can be dealt with by expenditure-switching and expenditure-absorbing policies. Expenditure-switching involves a devaluation of the domestic currency so that home produce is cheap relative to foreign produce. This should encourage consumption away from foreign consumption goods. The success of the policy depends on the degree of substitutability of domestic for foreign goods. When imports are capital goods, and the domestic economy has limited capacity to produce its own capital goods, this policy is unlikely to be successful. For this reason, fiscal and monetary policies may be used to dampen economic expansion. Of course the response of the authorities will depend on whether the economy has a fixed or flexible exchange rate regime, but the result will be to restrict the ability to import capital goods.

Investment in a small open economy which relies on imported capital goods differs from investment in a closed economy in two ways: When investment is associated with imported capital goods, the stimulus to the income adjustment process is lost, as imports increase. If an increase in investment is associated with pressure on the balance of payments, as imports of capital goods increase, then investment may be forced to adjust downwards. In this view, animal spirits may be constrained because effective demand for domestic goods and services is not forthcoming when investment increases, or because of the influence of the balance of payments on investment.

In chapter five, there is an attempt to examine investment in a small open economy. South Africa is the subject. Although at first glance, this may appear to be an

unlikely candidate, discussions on the South African economy point to its openness to foreign trade and its reliance on imported capital goods. It is also referred to as a small open economy in the literature. The chapter will examine data with regard to openness, the reliance on imported capital goods, and the mutual influence of investment and the current account. The discussion will also refer to animal spirits - and how they may be constrained in the South African economy.

Chapter one

An introduction to the income adjustment process

Keynesian theory tells us that the level of exogenous expenditure determines the level of employment. If investment represents the sole form of exogenous expenditure, employment adjusts to the level of investment. Employment is the equilibrating variable. If employment is linked in a unique way to income, then income can be regarded as the equilibrating variable, and we have what is referred to as the income adjustment process. Income adjustment is the process by which equilibrium is restored after a change in investment or other exogenous expenditure has disturbed the system.

This chapter examines the income adjustment process in a closed economy. This will serve to provide definitions of key concepts so as to avoid semantic problems in the discussion which follows. The chapter will examine the concept of equilibrium, the principle of effective demand and exogeneity.

In the income adjustment process, income acts as the equilibrating variable. As income adjusts, other variables of the system, such as saving, are influenced until equilibrium is induced. The theory which prescribes the rules for the income

adjustment process is the principle of effective demand.

The achievement of full employment equilibrium is not automatic in the income-adjusting model. Hence the income adjustment process differs in two respects from the process described by conventional price adjustment theory: Firstly, *income* adjusts and secondly, *unemployment equilibrium* is a possibility. In the price adjustment model the economy automatically returns to full employment after a disturbance if there are no spanners in the works.

The principle of effective demand states that given the level of consumption in an economy, the level of exogenous expenditure determines the level of employment. In order to understand the principle of effective demand, it is necessary to understand what is meant by exogenous expenditure. The notion of exogeneity will be examined in this chapter since it is a recurrent theme throughout.

Analysis of the income adjustment process will proceed in three parts. In section 1.1, the different notions of equilibrium integral to the principle of effective demand and the price adjustment theory will be briefly explored by examining two issues. The first issue concerns how equilibrium is achieved, and discussion centres around the role of certainty and decision-making, and the second concerns the possible positions where equilibrium may be achieved. The discussion of equilibrium will pave the way for the principle of effective demand, which is the topic of section 1.2. Finally, in section 1.3, the notion of exogeneity will be explored. These three elements, the concept of equilibrium, the principle of effective demand and

exogeneity will provide the basic elements for understanding the income adjustment process.

1.1 The concept of equilibrium

Equilibrium can be regarded as a state of rest where there are no forces stimulating change. Conventionally, the state of rest is associated with a market-clearing position where demand equals supply. Market-clearing can be of the Marshallian or flow equilibrium type, where flow demand equals flow supply, or the Hicksian stock-flow type. Stock-flow equilibrium occurs at that price where excess market demand (or the sum of excess stock and flow demand) is zero (Harrison, 1987:507). The achievement of equilibrium relies not only on the existence of a particular set of outcomes, but also on their co-existence with a particular set of beliefs (Richardson, 1959:226). In conventional economics, equilibrium is associated with the belief that there is general satisfaction of the market participants, so at the market-clearing price, market participants are satisfied with the market outcome. Machlup (1963:45) suggests that equilibrium implies harmony, so that the expectations of all the economic players are fulfilled and no-one feels inclined to revise his expectations (Davidson, 1982:61). Hence, in a price-adjusting model, equilibrium occurs at that price where demand is equal to supply and satisfaction of preferences is achieved. Equilibrium in the labour market of a price-adjusting model occurs at that real wage where demand for labour equals the supply of labour. The type of system which produces this kind of market-clearing equilibrium

can be seen as self-adjusting (Torr, 1988:16).

The notion of equilibrium employed in the principle of effective demand is *not* equivalent to market-clearing equilibrium (Davidson, 1967:563). Equilibrium is seen as a state of rest, but it may not coincide with market equilibrium: the economy may be in equilibrium where there is excess flow supply of labour, for example. In the Keynesian world, it is the entrepreneurs who make offers of employment, since they have access to the means of production. It is assumed that offers of employment are made at the going wage - which may not clear the labour market. The unemployed do not have the power to recontract (Chick, 1983:21), so the excess flow supply of labour continues to exist until the entrepreneurs reconsider their employment decisions. The employment decisions may be reconsidered if the sales expectations of the entrepreneurs are not realised. Equilibrium is a state of rest in which the expectations of those with power to effect change are realised (Torr, 1988:21). In Keynes's approach, the entrepreneurs have the power. In this system, equilibrium implies *selective* harmony - if the *entrepreneurs's* expectations are realised, there is no incentive for change.

If the principle of effective demand operates, equilibrium in the labour market occurs where aggregate supply equals aggregate demand. But this is not necessarily a market-clearing equilibrium. In the income adjustment model, the *aggregate supply* function can be seen as a relation between the number of workers entrepreneurs want to hire and the total sales necessary for the hire of these workers under

conditions of profit maximization (Wells, 1962: 585). Hence, the aggregate supply function shows the proceeds necessary for entrepreneurs to offer each level of employment. Each level of employment will generate a flow of income, and hence spending. The *aggregate demand* function represents how much buyers would want to spend, based on the income flow at each level of employment (Davidson and Smolensky, 1964: 6). Aggregate demand is the sum of all the spending in the economy. The equilibrium level of employment will be determined where aggregate supply equals aggregate demand. At equilibrium, the flow of expenditure from all sectors in the economy will justify the employment of the factors of production which generated the income from which expenditure flows. Equality of aggregate supply and demand, or equilibrium, depends on entrepreneurs' expectations being realised rather than on market-clearing. Equilibrium occurs where there is no incentive for entrepreneurs to change their decisions.

If the concept of equilibrium depends on the realisations of expectations or beliefs, it cannot be divorced from the context in which the expectations were made. In the conventional price adjustment theory, expectations are made under conditions of perfect knowledge. Perfect knowledge is embodied by the notion of the Walrasian auctioneer. The auctioneer ascertains full employment equilibrium by the declaration of market clearing prices *before* trading commences. The security of knowledge that the market will clear, removes uncertainty, and with it meaningful decision-making. While there is certainty, the consequences of any action are known completely. In a world of perfect foresight, decisions are empty (Shackle, 1969:4) By assuming a "calculable future", the classicists provide an interpretation of the behaviour of

individuals which ignores the need of individuals to make decisions and act upon them in an uncertain world (Keynes, CW XIV:122). By contrast, in the world in which the principle of effective demand operates, uncertainty is introduced by the exclusion of the auctioneer. Here, trading takes place at prices which may not clear the market, price adjustment is subject to delays, and production decisions are plagued by uncertainty. In an uncertain world, individuals are faced with doubt, hope and fear. In this situation, their decisions are non-empty (Shackle, 1967:267), as they contribute something to fill the gap of uncertainty. Non-empty decisions represent choice in the face of uncertainty (Shackle, 1969:5).

Each of the price adjustment and income adjustment models provides insight as to the *makers* of the decisions (Torr, 1988: 21-26). If the classical theory can be seen as an example of a non-monetary co-operative economy, where both demanders and suppliers in the market have power to influence equilibrium, then the equilibrating forces of demand and supply reflect the (empty) decisions of all players. By contrast, Keynes's *General theory* is set in a monetary, entrepreneurial economy. Here, the power to effect change rests with the entrepreneurs; it is their decision-making which influences the achievement of equilibrium.

The production and employment decisions taken by Keynes's entrepreneurs are non-empty as they are made without complete information and without perfect foresight. Shackle refers to this as bounded uncertainty (1969:5). Keynes was concerned with the production period - the time which elapses between the decision to employ labour and capital, and the production process being complete and output

being finished (Davidson, 1982:30). Offers of employment and the setting of money-wages are made before production can commence and sales of output are realised (Chick, 1985:197). There is a time-delay between payments made and payments received. By contrast, in the classical world, all transactions are made instantaneously, hence avoiding the need for analysis of money and money contracts (Davidson, 1982:33).

Uncertainty in the Keynesian model means that present decisions are influenced by the past and expectations of the future. As the future becomes the present and past, our decisions may change, but we still do not know the future. Certain knowledge of the future is not merely expensive, it is impossible (Shackle, 1974:65). We cannot know the copper price 20 years hence, or how soon a new invention will become obsolete - but we still have to make decisions (Keynes CW XIV:115-6). This is a model with sequential time (Chick, 1983:300) - by the time we have more information about today's decision, the moment will have passed. Our only recourse is to forecast the future - forecasts which we may hold with more or less confidence (Keynes, 1936:147). When uncertainty over the future is too great, or confidence in forecasts is low, individuals may choose to hold money. Holding money is a means for deferring decision-making (Davidson, 1978:144), which implies speculation that money will retain its value where other assets may not (Shackle, 1958:202). In an uncertain world, people seek means by which present assets can be converted into future assets - money is a mechanism to do this. Money is an asset that links the present and future (Keynes, 1936:293) as well as the past and present (Davidson, 1978:367). This contrasts with a world in which full employment

equilibrium is automatically attained and certainty of knowledge exists. In a world of perfect knowledge, money is useful only because it facilitates purchases; there is no need to hold it as a store of spending power (Shackle, 1974:4). Money is simply a convenient accounting language. In Keynes's system, money is no longer merely a lubricant (Shackle, 1974:50), it plays a causal role in the determination of output and employment (Keynes, 1936:173).

In the world of the principle of effective demand, the level of output and employment depends on *current production decisions* (Keynes, 1936: xxxiii). These decisions are the result of expectations made in an uncertain world. In the models in which the principle of effective demand is put through its paces, the assumption of uncertainty is always maintained, but the constancy of expectations may be manipulated. This can be seen in the static, stationary and shifting equilibrium models (Kregel, 1976). In each of these models, a different assumption regarding the constancy of expectations is employed, which in turn affects the determinacy of the equilibrium attained. These models distinguish between long and short run expectations: Long run expectations influence investment decisions, since they represent the entrepreneur's expected returns if he were to add to his capital equipment and expand his productive capacity. Short run expectations concern the returns the entrepreneur expects at the time of starting the production process. Long run expectations (or the state of news) affect the aggregate supply and demand functions themselves (Kregel, 1976:212). Short run expectations represent the position on the curves.

In the *static equilibrium* model, where the long run expectations (of those with power in the model) are constant and their short run expectations are realised, equilibrium is achieved instantaneously. In this model, constant investment decisions (based on long run expectations) and correct production and employment decisions (based on short run expectations) result in the sales expectations of entrepreneurs being realised. Although the point of equilibrium may not coincide with full employment, the expectations of the entrepreneurs are satisfied, and the system is in a state of rest. In spite of the entrepreneurs' decisions being correct, full employment does not necessarily result. Although the system may not adjust automatically to *full* employment equilibrium, the attainment of equilibrium in the *static equilibrium* model is much like that of the price adjustment model, where equilibrium is achieved instantaneously. The equilibrium position is defined, and it is assumed that by the end of the period, this position will be reached (Shackle, 1958:251). This disregard for the transition or the process of equilibration is associated with a static approach (Machlup, 1963:35). Rather than focus on the process, the static approach aims to abstract the general properties of the system (Machlup, 1963:16) and reveal the fundamental forces determining equilibrium (Kregel, 1976:219). This process of abstraction is timeless. The purpose of the *static equilibrium* model is to expose the possibility of involuntary unemployment occurring, even if producers correctly anticipate demand (Kregel, 1976:213).

In the *stationary equilibrium* model, long run expectations are constant, but short run expectations may be disappointed. There will be movement along the aggregate demand and supply curves as entrepreneurs grapple to find the point of equilibrium

which is determined by the point of effective demand. In this model, one can begin to see how disappointed expectations may result in changed decisions. Offers of employment and production decisions may change as expectations are disappointed, however, since long run expectations are constant, investment decisions are not affected by the disappointment of short run expectations. Historical time plays a role in this model: it influences the initial conditions of the system - as seen in the wage unit. Chick (1985: 198-199) sees the wage unit as the means by which generality is maintained (as its use makes the aggregate demand and supply curves independent of the level of wages) at the same time that it allows historical influence on equilibrium. This historical element distinguishes income adjustment theory from price adjustment theory (Robinson, 1979:48 and Chick, 1985:195). In contrast to the price adjustment theory which always starts from the market-clearing wage, in the income adjustment model, the point of departure in the labour market is based on immediate past history. If at the previous wage-rate, entrepreneurs's expectations were not fulfilled, production and employment decisions will change.

In the *shifting equilibrium* model where long run expectations change over time, and are influenced by disappointed short run expectations, the curves themselves will be shifting at the same time that there is movement along the curves (Kregel, 1976:221). Investment decisions to enhance capacity occur simultaneously with and overlap employment decisions to utilize current capacity. The equilibrium position eludes the entrepreneurs who become aware of the information of the previous equilibrium position as the new equilibrium is being formed. This interplay

of variables produces an indeterminate or shifting equilibrium position. This notion of moving equilibria is associated with a system where uncertainty and expectations affect the fundamental conditions of the model (Machlup, 1963: 13-22).

Keynes (CW XIV:122) regarded the introduction of uncertainty, as distinct from calculated risk, as one of the distinguishing characteristics of his theory. With the introduction of uncertainty, decisions to invest are non-empty, as resources have to be committed without knowledge of the future. The shifting equilibrium model captures the precariousness of the decision-making process. Since equilibrium occurs where expectations are realised, as the realisation of these expectations becomes more complex, achieving equilibrium becomes more elusive. The income adjustment process, or the principle of effective demand, determines the position of equilibrium in each of the models. It is only as the assumptions about the constancy of short term expectations are relaxed, that the method of trial and error by means of which the entrepreneurs discover the position becomes emphasised (Keynes, CW XIV:182). During this higgling process (Keynes, CW XIV:27) entrepreneurs discover, by disappointment and revision of their expectations, the level of demand. The higgling is not the cause of involuntary unemployment. Rather, the principle of effective demand, which determines the level of demand, and hence equilibrium in this uncertain world, determines the level of employment.

In conventional price adjustment theory, if there are no spanners in the works, full employment is achieved automatically. This occurs as prices will adjust until the markets clear. So demand for every commodity supplied will be forthcoming. Since

there is equilibrium in each market, all resources must be utilised, and there is full employment in the aggregate as well as for each market. Full employment equilibrium occurs despite each household and producer facing budget and cost constraints respectively. In spite of these constraints, utility and profit is maximised (Kregel, 1987:100). Each household maximises its utility, given its budget constraint, by purchasing those consumption goods with the highest utility per unit it can afford. In the same way, producers maximise profit in the face of a cost constraint by applying those inputs which are least expensive per unit of output. In this view, the excess supply of a good or resource is due to its price exceeding its marginal utility or productivity. Prices will adjust automatically to eliminate this excess supply, and so no good will remain unsold or resource unemployed. Hence there can be no unemployment : in spite of budget and cost constraints at the individual level, there is no constraint to the achievement of full employment in the aggregate.

In price adjustment theory, since all resources are employed, production can only be expanded if resources increase, so production is resource or supply-constrained (Kaldor, 1975:349). Hence, the only limitation in the aggregate is the resource endowment which restricts production, but not the level of employment. In this view, if there are no spanners in the works, the full productive potential of the economy is exploited. The potential level of production acts as an outer boundary or frontier. However, there may be spanners in the works. Price adjustment theory recognises these as rigidities which prevent the automatic achievement of full employment. But for these spanners, full employment would be achieved at the level of potential productive capacity.

In the Keynesian view, at issue is the *degree of utilisation* of the potential productive capacity. Here, production and employment are a result of expenditure decisions (Kaldor, 1983:2). Expenditure on the products of production, or effective demand, must be great enough to ensure that entrepreneurs cover the cost of production and earn a profit. If entrepreneurs earn a profit, they will undertake production and offer employment. Exogenous expenditure, which adds to the demand for current production without adding to its supply, must be forthcoming to ensure that profits are made. If effective demand, or aggregate demand is deficient, then the equilibrium which results from the income adjustment process will be at a level of less than full employment. Since demand is limited, it constrains the level of production and employment. In this view, deficient demand does not prevent the adjustment taking place, rather, it *determines* the equilibrium level that the adjustment process achieves.

The concepts of equilibrium in the price adjustment and Keynesian theories differ. In the price adjustment theory, equilibrium is a state of rest which can occur only at full employment. This type of equilibrium is associated with perfect certainty - producers engage in production knowing that all goods produced will be sold. The level at which equilibrium is achieved (which is a full employment level) is dependent on the resource constraint. The only possible form of limitation to this is the presence of rigidities which affect the workings of the mechanism. In Keynesian theory, equilibrium is a state of rest where the expectations of those who have power in the model are satisfied. This power, which rests with the entrepreneurs, is reflected in decisions to expand or contract production and employment. As a

result of these decisions, consumer and investment expenditure will result. This expenditure, or effective demand, determines the degree to which products supplied, will be sold. Hence effective demand determines the profits of entrepreneurs and the level of production and employment. The equilibrium which results from the operation of the principle of effective demand may not be at full employment, as there is no automatic mechanism to ensure that demand for all goods supplied is forthcoming. In this view, equilibrium is determined by the level of effective demand.

1.2. The principle of effective demand

In a simplified economy, with only a consumption and an investment sector, the principle states that given the level of consumption in an economy, the level of current investment determines the level of employment (Keynes, 1936:27). In the world in which the principle of effective demand operates, wages paid in the consumption goods sector constitute a cost to entrepreneurs as well as potential demand for their product (Torr, 1988:77). If workers spend all their income on consumer goods, expenditure on the entrepreneurs's products will equal that which was paid out as wages. Expenditure from another sector is necessary for the entrepreneurs to make a profit. If those working in the consumption goods sector (including the entrepreneurs) do not spend all their income on consumer goods, there must be expenditure from elsewhere if the entrepreneurs in the consumption

sector are to earn satisfactory profits and offer employment. Expenditure from those working in the investment sector provides such additional spending for the consumption good entrepreneurs. This spending from the investment goods sector cannot be seen independently from the prosperity of the consumption goods sector, as investment demand originates largely as a result of production requirements in the consumption goods sector. Hence it is the placing of orders for capital goods (investment demand) that stimulates the investment goods sector, which in turn stimulates demand for consumption good sector products.

Only if entrepreneurs have positive expectations for their future sales, will they want to expand productive capacity and place orders for investment goods. If entrepreneurs have negative expectations, investment demand will fall. If investment demand fails to generate sufficient consumption demand, then unemployment will result. Employment cannot increase without investment increasing (Keynes, 1936:30), and the level of investment determines the level of employment. Keynes writes: "Thus to justify any given amount of employment there must be an amount of current investment sufficient to absorb the excess of total output over what the community chooses to consume when employment is at the given level" (1936:27). This is the essence of the principle of effective demand.

The principle of effective demand can be demonstrated in a more complex economy - which includes government and the foreign sector, in which case, the principle of effective demand can be rephrased : Given the level of consumption expenditure in an economy, *exogenous expenditure* determines the level of employment (Torr,

1985:83). Although exogenous expenditure can comprise investment, government and foreign sector expenditure, this discussion will proceed with the primary focus on investment expenditure, in keeping with Keynes's simple economy where investment represents exogenous expenditure.

The principle of effective demand describes how equilibrium is achieved in a monetary non-cooperative economy where there is uncertainty. The achievement of equilibrium may occur at a position of less than full employment, hence the principle of effective demand determines the degree to which potential capacity is utilised. Two different explanations as to how equilibrium is achieved are offered below. These describe the workings of the principle of effective demand from different perspectives. In the first instance, an explanation of the three functions described in chapter three of the *General theory,* is provided. Thereafter, what may be considered the dominant interpretation of equilibrium in Keynes's simple model, planned S = planned I, will be discussed.

Before making offers of employment, the entrepreneur needs to consider the minimum sales revenue necessary to maintain each level of potential employment as well as the expected sales revenue resulting from the employment. The schedule of the proceeds *necessary* to induce entrepreneurs to offer different levels of employment is the aggregate supply curve (Dillard, 1948:31). The *expected* proceeds function, represents the proceeds which entrepreneurs expect to receive from each level of employment (Keynes, 1936:25; Wells, 1962:585). It is assumed that in the minds of the entrepreneurs, increments in employment will

produce increasing proceeds, but at a decreasing rate (Wells, 1962: 587). An entrepreneur will maximize his expectations of profit by making offers of employment at that level where his expected sale proceeds from output equals his necessary proceeds; i.e. where the expected proceeds function and the aggregate supply function intersect. This is the point of effective demand. The two functions stress the importance of entrepreneurs' decisions to the determination of the level of production and employment. At the point of effective demand, the expected price will equal the marginal cost of production (Wells, 1962:587), and the associated level of employment and output is that which maximises short run expected profits (Wells, 1973:91).

However, there is another function which must be taken into account - the aggregate demand function. Aggregate demand represents the *actual* flow of proceeds to the producers (Wells, 1973:91). In a closed economy, aggregate demand will come from those employed in the consumption sector, those employed in the investment sector and public sector employees. Aggregate demand represents the sum of consumption, investment and government expenditure (Keynes, 1936:29). Each level of employment implies certain necessary proceeds to maintain it, and will generate a certain amount of income. Aggregate demand may not coincide with expected proceeds. If the consumption expenditure from this level of income, together with exogenous investment and government expenditure on output, exceed the expected proceeds, then inventories will run down, causing an upward revision of entrepreneurs' expectations, as well as their production and employment plans. The entrepreneurs will have an incentive to raise employment.

This process of revising expectations will continue until expected proceeds, aggregate supply and aggregate demand are equal (Wells, 1973:92). This represents the point of short term equilibrium, a new point of effective demand. The principle of effective demand appears to describe the rising and falling of income and employment as entrepreneurs revise their plans in response to the disappointment of the previous period (Shackle, 1958:251).

Equilibrium may also be expressed as the position where the supply of national output equals its demand - where aggregate income equals aggregate demand (Chick, 1983:19). In the simple two-sector model, where aggregate income can be consumed or saved and aggregate demand comprises consumption and investment, equilibrium can be expressed as the equality between current planned saving and current planned investment. This is the explanation of the principle of effective demand commonly known as the leakages-injections approach. It describes the principle of effective demand as the notion that the adjustment of saving to investment is through changes in income (Park, 1994:63).

The adjustment of saving to investment through changes in income contrasts with the price adjustment approach where investment adjusts to saving by adjustment of the relevant price : the interest rate. In price adjustment theory, saving is regarded as an act of future consumption, or investment. This view is based on the assumption that all current saving will be made available as funds for loan (Hagen, 1966:8), since savers will earn interest from the financial institutions, which in turn will earn interest from the investors. If there is short term disequilibrium on the

finance market, so that saving exceeds investment, the interest rate will fall, hence encouraging investors to take up the surplus available funds. In the full-employment equilibrium model, the level of saving and investment is determined at the equilibrating rate of interest. In this view, an act of saving would generate an act of investment (Keynes, 1936:19), since whether income was consumed or saved, it was regarded as *spent* - hence ensuring adequate demand for output.

In the Keynesian model, saving implies forgoing consumption out of current income, without commitment as to when the deferred purchasing power will be spent (Keynes, 1936:210). For this reason, saving is not the simultaneous demand for durable producible capital goods, so saving is not investment. The motives of savers and investors are distinct (Keynes, 1936:21). If income earners choose to defer consumption decisions (i.e. save), then they will seek the best means to transfer their purchasing power to the future. Savers will choose a store of wealth which offers stability or growth in value and most importantly, which can be made liquid with minimum cost and effort (Davidson, 1978:65). Since savers do not commit themselves to using their deferred purchasing power at any particular time, it is assumed that liquidity is of prime importance and since fixed capital goods are regarded as illiquid, they are regarded as unlikely candidates for storing value for the saver. Ownership of a capital good for the prospective return from selling its output over its useful life, is a motive reserved for the investor (Keynes, 1936:135). For Keynes, an act of saving will not stimulate investment if it does not improve the prospective yield for the investor (Keynes, 1936:212). On the contrary, a substantial increase in saving may negatively influence expectations, and investment may fall.

Separate motives for saving and investment means that the interest rate no longer acts as an equilibrator between them. For Keynes, changes in income and employment equilibrate saving and investment.

The process by which income results in the adjustment of saving to investment can be seen as an intellectual shift from a system where a dog called saving wagged his tail called investment, to a system where a dog called investment wagged his tail called saving (Meade, 1988a:343). The novelty of the Keynes's system is not, then, in the maintenance of this aggregate equality - but in the direction of causality and the way in which the equality is ensured. In an entrepreneurial economy, where entrepreneurs have the power to make investment decisions, the direction of causality flows from investment to saving. The equality between intended investment and saving is brought about by *adjustment in income* rather than changes in the interest rate (Keynes, CW XIV:211).

In a two-sector model, income is equal to consumption expenditure and investment expenditure. Saving is defined as the excess of income over consumption expenditure (Keynes, 1936:61), so actual saving is, by definition, equal to actual investment. Our interest is with the equality of current planned saving and current planned investment - which is the requirement for equilibrium. This equality can also be described in terms of *ex ante* and *ex post* concepts: *Ex post* saving will always be equal to *ex post* investment, but equilibrium will only be achieved if *ex post* saving and investment equal *ex ante* investment (Shackle, 1958:251). Hence, if expectations of entrepreneurs are realised, so that actual saving and investment

at the end of the period justify the decisions made at the beginning of the period, there will be no need to change plans for the next production period, and the economy will be in a state of rest.

If intended investment is less than the amount that income earners plan to save, then expenditure on output will not fulfil the expectations of entrepreneurs, and at the end of the period, inventories will have accumulated. Intended investment, which represents exogenous expenditure is, deficient. The inventories that have accumulated are regarded as unintended investment. At the end of the period, intended and unintended investment (*actual* investment) will be equal to actual savings. Although the *ex post* values are equal, equilibrium will not necessarily have been achieved. The consequences of unintended inventory accumulation are revised production and employment decisions. If intended investment is less than intended saving, realised purchases will fall short of expected purchases. Planned output will fall, and with it, offers of employment. Less income will be generated and saving will fall.

Meade (1988b:403) provides an explanation of how saving adjusts to a given amount of investment if planned investment initially exceeds planned saving. He identifies two lags which facilitate the adjustment to an increase in investment expenditure: the consumption adjustment lag and the wage adjustment lag. In both cases, the behaviour of the players in the model results in greater actual saving than planned. In the first case, it is assumed that individuals plan their consumption as a proportion of money income. If planned investment exceeds planned saving,

there will be a running down of inventories, and as Meade assumes, inflation of total demand (1988b: 399). If money incomes inflate, there will be lag during which consumption plans are adjusted to the inflated money incomes, and actual saving will be higher than planned saving. In the second case, if it is assumed that the proportion of saving out of profits is greater than saving out of wage-incomes, then as inflation shifts the distribution of income from wage to non-wage incomes, actual saving will exceed planned saving. Hence, inflation in income contributes to the adjustment of *ex post* saving to *ex ante* investment. Throughout Meade's analysis, it is apparent that saving is the residual which adjusts to investment (Pasinetti, 1974:45). Saving depends on income, investment determines income.

Meade's examination of price and income distribution changes in response to an increase in investment expenditure reminds one that these effects also occur during the adjustment process. Chick (1983:255) warns the reader that exclusive focus on the adjustment of income is a creation of interpreters of the *General theory,* rather than of the *General theory* itself. Although the *General theory* did not ignore the possibility of price inflation following a change in exogenous expenditure, the principle of effective demand emphasises the response of income and employment to changes in effective demand rather than the response of prices. This contrasts with the classical theory, where fluctuations in demand result in prices changes until equilibrium is restored. In Keynes's model, the link between demand and price is of secondary importance, changes in demand result in *production* responses (Pasinetti, 1974:33). This has much to do with the time-frame of the model: Each production period is influenced by expectations which are informed by past

experience and future forecasts. Offers of employment are made, and production commences. At the end of the period, output is put up for sale. If, during this market period, the entrepreneur's expectations are proven incorrect - so that the quantity demanded exceeds the quantity supplied, or what is the same thing, the demand price exceeds the supply price; the entrepreneur may respond in different ways (Davidson, 1978:47). He may sell at the supply price, and allow a reduction in inventories to meet the excessive demand; he may sell at the market clearing price; or he may take orders at the supply price - effectively extending the delivery period. His choice may vary with the durability of the product, institutional arrangements and the legal and customary views of the market. As a result of the market disequilibrium, in the static and shifting equilibrium models, the production decisions of the next production period will be revised (Keynes, 1936:47). Output and income will adjust until equilibrium is restored. Here, the short run expectations may or may not affect the forces which determine demand, i.e. long run expectations may not be affected.

From the above, it becomes apparent that the equilibrium which the principle of effective demand determines, may be seen as the intersection of the aggregate supply and expected proceeds functions or the aggregate supply and aggregate demand functions; or the equality between planned saving and planned investment. The leakages-injections approach places emphasis on the role of unintended investment as an adjustment mechanism. Chick (1983:54-55) objects to this, preferring the definition of investment which exists in chapter six of the *General theory*. The unintended investment clouds the definition of investment on two

counts: Firstly, capital goods are defined as such, based on who purchases them (see chapter three). Unintended investment includes goods which have not yet been sold - the producing firm retains them involuntarily. Secondly, in chapter six of the *General theory*, investment is volitional in character, here it becomes partly involuntary. Hawtrey's (1937:176-180) presentation of unintended investment is far more sympathetic. He refers to unintended investment as passive investment which is a balancing factor between active, or intended investment, and saving (1937:177). Passive investment is a source of disequilibrium - as changes in the stock of unsold goods influence the decisions of entrepreneurs (Hawtrey, 1937:178). It is in this way that passive investment becomes a significant stimulant to the operation of the multiplier: An initial increase in investment generates income and consumption, which depletes stocks, and reduces passive investment. This stimulates production, which generates additional incomes, and consumption, until sufficient saving to match the initial active investment has been generated out of income, and passive investment no longer occurs.

In the world in which the principle of effective demand operates, income is generated by decisions to consume and decisions to invest. As investment increases (demand for capital goods increases), offers of employment will be forthcoming - generating wages, rent, interest and profit in the investment goods sector. The income earners in this sector will spend most of their new income on consumption goods; however, not all of it will be spent since the marginal propensity to consume is less than one. Hence, the initial increase in income from the investment sector will be followed by successive waves of consumption expenditure,

each of which will stimulate further expenditure and income, and each of which will be smaller than its precursor. Eventually, the increments in income become insignificant and the process works itself out, resulting in a new equilibrium level of income (Davidson and Smolensky, 1964:29). This process is expressed in the principle of effective demand by the concept of the multiplier.

The multiplier represents the expansion of income (and by implication, employment) which results from the initial change in exogenous expenditure. The size of the multiplier will be greater, the greater the degree to which consumption is induced from the initial increase in investment. Hence, a large propensity to consume out of new income, will result in a greater cumulative change in income than will a small propensity to consume. For this reason, non-consumption, or saving, determines the extent to which the flow in investment can bring about changes in income and employment (Shackle, 1958:244).

Throughout the discussion of the principle of effective demand above, exogenous expenditure remains the cause behind income adjustment. It is time to investigate the notion of exogeneity.

1.3 Exogeneity

Endogeneity and exogeneity can be defined only in the context of a model (Chick, 1973:85). A variable is *endogenous* if its values are determined within the model.

An example of an endogenous variable could be consumption expenditure. As the level of income rises, consumption expenditure follows suit. In this case, consumption expenditure is endogenous as it is generated by the workings of the model. The value of an *exogenous* variable is not determined or explained within a model, although its value will affect endogenous variables. Investment is often seen as an exogenous variable which influences employment and economic growth. Endo- or exogeneity of a variable is assigned by the model maker. A variable that is exogenous in one model may be endogenous in another. When a model builder regards variables as exogenous, he is employing a technique by which he is absolved of the responsibility of having to explain changes in those variables. The endogenous variables must be explained, or have their variables determined, in terms of the exogenous variables. Exogenous variables are determined outside the structure of the model. Since the model builder is not required to explain exogenous variables, critics may perceive the classification of exogenous variables as an inadequacy of the model (Dow and Dow, 1985:57). However, this was not the intention of Keynes.

In a system which moves along a steady path to equilibrium, the endogenous variables in such a system can be diverted from their steady state path only by changes in the exogenous variables (Dow and Dow, 1985:60). For this reason, identification of exogenous variables has to be made with care, as they alone can influence the system. The fewer the exogenous variables in a model, the fewer the unexplained shocks to the system. Apart from natural constraints, it is common that the exogeneity of a variable may be regarded as a temporary phenomenon, caused

by narrowness of the model's time span (Boland, 1985:183). The capital stock constraint on productive capacity, for example, exists only in the short run. Only in the short run, then, can capital stock be exogenous to the model.

A variable may be strongly or weakly exogenous. If variable X is unaffected by the current value of Y, but is affected by the historical values of Y, then it is weakly exogenous. If no feedback effect exists then X is strongly exogenous with regard to Y (Desai, 1994:763). A notion which relates to the distinction between weak and strong exogeneity, is the degree of endogeneity of a variable: In the same way that exogenous variables may be explained by previous periods of the system making them weakly or partially exogenous, it seems valid to question how *completely* endogenous variables are explained by the system. There may be a degree to which certain variables can never be entirely endogenous. It will be argued that investment is such a variable.

Keynes's framework for creating models and identifying endogenous and exogenous variables does not appear to be as absolute as that of the orthodox approach. Keynes's awareness of the complexity of the subject matter precludes him from accepting universal, objective classification of variables (Carabelli, 1988:156). For him, economics is a moral science, a way of thinking which involves "motives, expectations and psychological uncertainties" (CW XIV, 300). The heterogenous nature of the subject matter makes economics intractable to the method of the natural sciences (CW XIV, 296). For Keynes, the distinction between independent and dependent variables was subject to the main object of study (1936:247). Hence,

the identification of exogenous variables was subordinate to his most important objective : the exposition of the principle of effective demand. Keynes's distinction between consumption and investment was to demonstrate the generality of the principle of effective demand, and that Say's Law was a special case (Davidson, 1994:34). Since it is the model builder's experience that is important in dividing dependent variables from independent variables (Keynes, 1936:247), the strict endogenous/exogenous duality of the orthodox approach appears inappropriate (Dow and Dow, 1985:60). Keynes saw " [e]conomics as a science of thinking in terms of models joined to the art of choosing models which are relevant to the contemporary world" (CW XIV:296). Progress in economics is achieved by choosing progressively more correct models (CW XIV:296). The model-builder's judgement in choosing the correct model can only be guided by his knowledge of the world, and hence his theoretical background.

Where Keynes's notion of exogeneity corresponds to the orthodox approach, is the notion of causality. Causality is the most significant property of exogeneity (Chick, 1973:85). The causality of exogenous variables is potentially important on two levels for Keynes: Firstly, exogenous variables prompt changes in other variables in the system, and cause the system to move from its steady state path. Keynes was preoccupied with the determination of national income and employment. He was aware that the complexity of the subject matter precluded a complete exposition of the determinants of income and employment (1936:247). His aim therefore became to isolate the major determinants of income and employment. Secondly, exogenous variables may be subject to control by authorities. In identifying the

major determinants of income and employment, Keynes also wanted to identify factors which were potentially controllable by the authorities. He writes: " Our final task might be to select those variables which can be deliberately controlled by central authority in the kind of system in which we actually live" (1936:247).

In his exposition of the principle of effective demand, Keynes divided aggregate demand into consumption and investment expenditure. This division reflects the fact that different factors govern consumption and investment decisions (1936:90). Keynes identified a stable ratio of consumption expenditure to income called the propensity to consume (1936:28). The stability of consumption implies that variation in aggregate demand is a result of fluctuations in investment. This points to investment as the necessary object of study. Keynes (1936,121) writes: "The theory can be summed up by saying that, given the psychology of the public, the level of output and employment as a whole depends on the amount of investment. I put it this way not because this is the only factor on which aggregate output depends, but because it is usual in a complex system to regard as *causa causans* the factor which is most prone to sudden and wide fluctuation." Keynes's notion of causality seems strongly related to instability. For this reason, a model ought to distinguish between relatively constant variables and those which fluctuate (CW XIV: 297).

Decisions to invest arise from the inducement to invest which depends on the schedule of the marginal efficiency of investment, and its relation to the market interest rates (Keynes, 1936:27). The schedule of the marginal efficiency of investment (or the investment demand schedule) is the prospective yield of the

investment good, which depends on expectations of the future, which depend on the state of confidence (Keynes, 1936:149). Keynes stressed the importance of the marginal efficiency of investment, as "it is mainly through this factor that the expectation of the future influences the present" (1936:145). The long term expectations on which the marginal efficiency of investment depends, are uncertain, as they are formed both by societal conventional wisdom and by the entrepreneur's "animal spirits" (Carabelli, 1988:214). The animal spirits are characterised as spontaneous urges (Keynes, 1936:161) which cause investment to fluctuate; hence the instability of investment may be associated with the animal spirits. The role of the animal spirits on the decision to invest will be examined in more detail in chapter three.

The presence of animal spirits means that for Keynes, investment is a variable which is always at least partly exogenous. The presence of animal spirits implies that there will always be some aspect of investment which the system cannot explain - spontaneous urges are by their nature exogenous. It will be come apparent in chapter two that it is our aim to make investment more endogenous, and hence provide a better explanation for investment within the system. However, it is acknowledged, in advance, that investment will never be fully endogenous - because of the presence of animal spirits. The challenge to Keynes's simple model is a question of degree. In the simple model examined above, investment is essentially exogenous. Investment is largely unexplained by the model and since it provides demand for current production without adding to current supply, it determines the level of income and employment. It will be argued in the chapters

that follow, that in a SOE, investment is largely endogenous.

This chapter has provided some points of comparison between the conventional price adjustment model of the economy and that of the Keynesian income adjustment model. Immediately apparent is the difference in equilibrium concepts: achievement of equilibrium in the income adjustment model is not automatic, and it may occur at an output level of less that full employment. Effective demand determines the point of equilibrium - and hence the degree to which productive capacity is utilised. The chapter has also explained the principle of effective demand in a closed economy and how it is that a change in exogenous expenditure influences the adjustment of the system to a new level of income and employment. The discussion of exogeneity points to the fact that exogeneity is a matter of choice of the model builder, but the classification of a variable as exogenous requires that it is a primary stimulus of the endogenous variables in the model. Throughout the discussion, investment has been used to represent exogenous expenditure, in keeping with Keynes's simple model where investment is the *causa causans* in the system. Analysis of investment and the investment decision will continue in chapter three. Chapter two will examine the principle of effective demand in a small open economy.

Chapter two

Small open economies and the income adjustment process if imports are consumption goods

This chapter examines the income adjustment process, or the principle of effective demand, in a small open economy (SOE) if all imports are consumption goods. The concept of SOEs can be examined from two perspectives: Firstly, it is a concept used to identify small countries. In section 2.1, the approaches used to classify SOEs are examined. Of the classification processes identified, the analytic approach emerges as the most satisfactory for our purposes. Secondly, the SOE is a device used in the construction of theory. The theory of open economies has been neglected in the past, but it is now in vogue. Macroeconomic theory of open economies provides us with insight into the income adjustment process when economies engage in the trade of consumption goods. This will be the focus of the second part of the chapter, in which the income adjustment process of small open economies which import consumption goods is compared to that of large economies. When countries engage in trade, the balance of payments influences the domestic economy. This influence is more apparent, the more open a country. Section 2.3 examines the influence of the balance of payments on the income adjustment process when a SOE imports consumption goods.

As the chapter progresses, it becomes apparent that the concept has primarily been employed in price adjustment, rather than income adjustment models. For this reason, there is an attempt to identify those concepts associated with the SOE which will be further employed in this study.

2.1 The classification of small open economies

2.1.1 The significance of size

Country size has been attributed with playing a significant role in the performance of the economy. Small nations have been considered relatively handicapped in achieving growth (Kuznets, 1963:27); and for this reason growth theories ought to take cogniscence of size (Taylor, 1969:239). Size affects the management of the economy and human resources, and influences foreign relations (Lewis, 1991:368).

Exploration of the statistical relationship between country size and various economic variables has lead to inconclusive and at times ambiguous results. No simple association between size and economic growth has been established (Khalaf, 1979:67), although there is some evidence that growth may be affected by size.

Since growth appears to depend more on the adoption of appropriate policies

than on size (Blazic-Metzner and Hughes, 1982:88), size may simply be one of a number of factors influencing the economy. Factors other than country size contribute to the difference in income distribution between countries (Pearson, 1964:478). The weak inverse relationship between size and commodity and geographic concentration (Khalaf, 1974:84) may itself be influenced as much by the level of the country's development as its size (Michaely, 1958:731).

The lack of empirical verification of various propositions regarding the effect of country size on the economy reflects the difficulty of isolating these effects. This difficulty has been compounded by lack of consensus concerning the appropriate proxies for size. Since empirical classification of small and open remains elusive, and different studies have employed different definitions, the relevance of the statistical results discussed above is doubtful.

In spite of the inconclusive results, the idea that the SOE is a useful concept in economic analysis persists (Selwyn,1980:946). The primary justification for the relevance of the SOE is that the small country cannot be considered a special case. Since the period of decolonisation, following the Second World War, the number of small countries has mushroomed. By the 1960's, according to Kuznets (1963:15), the small countries accounted for over half of the world's independent countries. These countries are relatively small in terms of population; area and/or productive capacity. (Selwyn, 1975:8). Until

proved otherwise, it is therefore valid to study presumed economic differences between SOEs and large, closed economies. It is the latter which have hitherto dominated conventional economic analysis. Secondly, lack of statistical verification does not disprove the notion that there are specific conditions faced by SOEs which need to be addressed in policy making. The very existence of policy which advances common markets, suggests that the size of a country may not be economically advantageous, and that economies of scale may not be fully exploited by the limits of a nation's size. Since the majority of developing countries are small (Milner and Westaway, 1993:203), analysis of the effects of size on the development process are especially pertinent.

Size influences both the policy possibilities and the policy limitations facing countries (Selwyn, 1975:9). Small countries face both supply and demand limitations - their resources are potentially constrained and yet they have diversified needs within a small market (Ward, 1975:116). Specific industries may face technological restrictions as the market may be too small to provide adequate demand for full-capacity output, others may face economic constraints if market conditions fail to provide the competition required to stimulate efficiency (Scitovsky, 1963:283).

Selwyn (1980:945) suggests that an economic categorisation is valid if it is useful predictively, analytically and in guiding policy. From the brief review of

the literature above, it cannot be said that the SOE concept is useful predictively - but perhaps, as analysis improves and consensus regarding classification is reached, the first requirement may be achieved. The concept does appear to have analytic and policy-making merit - could it be that "two out of three ain't bad" ?

2.1.2. Classification criteria for size

The term SOE is widely used in the literature, and is applied to such countries as diverse as Canada, Saudi Arabia, and Malta (Boothe and Reid, 1989; Al-Mabrouk, 1991 and Streeten,1993). Since Canada is the largest country in the world, it is apparent that the term SOE has varying interpretations. The term is not always defined when used, resulting in a concept which at times seems intuitive. Streeten(1993:197), for example, suggests that we know a small country when we see it. A review of the literature reveals that the use and interpretation of the term varies with the context, which suggests that small and open have meaning only in a relative sense. Although authors differ as to which features are appropriate in distinguishing small open economies, there are, however, common themes. The theory will be explored in attempt to identify these themes and come to an understanding of what is meant by SOE.

In what was the first world-wide conference on country size in 1957, authors grappled with the definition and classification of "small" (see Robinson, 1963). The existence of different approaches to classification discussed below reflects continued lack of consensus. Approaches to defining and measuring size can be loosely grouped into those using a single criterion, those applying more than one measure (the composite approach) and the analytic approach. Characteristics used as proxies for country size reveal the complex nature of the term, and include population, area, GNP, investment, population density and remoteness.

The classification of small countries by virtue of a physical resource suggests the implicit acceptance of the notion that production is resource or supply constrained. The single and composite index approaches, discussed below, aim to identify the resource/s which limit production, and hence make the country's productive potential small. The approach of conventional price adjustment theory to the economic problem is thus being employed.

The most common approach to classifying countries by size is the *single criterion* approach, with population size conventionally used to distinguish small countries from large. Population size relates to the human resources constraint and is positively related to other proxies of size (Lloyd and Sundrum, 1982:22). It may also be used to represent the country's measure of inputs (Khalaf, 1974:85), as well as market size (Robinson, 1963:xv). In

identifying small nations, authors offer varying population limits - from as little as 5 million to as much as 20 million (Lloyd and Sundrum, 1982:19 and Harberger, 1988:249). The imposed limits are arbitrary and time-bound. Chenery and Taylor (1968:395) adopt a limit of 15 million, but acknowledge that if they had instead used a limit of 25 million, their results would be largely unaffected. Kuznets (1963:14) proposes a limit of 10 million, but suggests that since size is a relative concept, the limit should increase in the light of future demographic expansion. Streeten (1993:197) nonetheless adopts the same limit 30 years later.

There are problems with the use of population as a global proxy for size. The appropriateness of measures varies with the aims of statistical research; for example, expenditure or per capita income, may be a more suitable measure when market size is being investigated (Robinson, 1963:xv and Lewis, 1991:368). As with use of any proxy, the simple measure may be an inadequately narrow representation of a complex concept. The use of population as the measure of country size has been criticised from this perspective (Downes, 1988:75). Setting a limit as a basis upon which countries are in or out of the sample is arbitrary, and it has been acknowledged that other criteria are needed when judging border-line cases (Chenery and Taylor, 1968:395). The use of a single criterion may at times, exclude a country, or group of countries, which we feel fits a label. Marcy (1963:266) alternatively uses area and population as the criterion for small, but finds that countries like

Canada and Australia, and Switzerland and Belgium fit uneasily together into such a classification. He finally opts for a definition that focuses on foreign trade. It may be that in our search for a definition, we should move beyond an arbitrary empirical limit and examine the behaviour of small countries.

The *composite approach* attempts to incorporate a number of characteristics into a size index, with the aim of addressing the narrow representation inherent in using a single proxy. Ward(1975:132) groups countries based on an evaluation which includes population, cultivable land area, GNP per capita and percentage share of trade in GNP. This, together with an evaluation of whether or not major development possibilities lie in developing internal or external markets, is the basis of his analysis. Attempts at constructing an index of characteristics which include population, area and per capita income have been made by Jalan(1982:42) and Downes(1988:80). Jalan is criticised for the assignment of equal weightings to each component of the index (Lloyd and Sundrum, 1982:20 and Downes, 1988:75). Bhaduri et al. (1982:49) criticise the use of both natural (demographic and geographic) and economic measures in the same index, as they believe this may produce conflicting results. Downes constructs a composite index in which he assigns weights to each of the components based on their relative importance to the index. The resulting weights for each of the components are very close to equal, with area and GNP slightly more significant than population (1988:84). Using these relative weights, Downes then ranks the countries in his sample, however, he

does not provide an index benchmark below which countries are small.

The composite index approach has been criticised for using measures which are not positively related, and for employing statistical weightings which have no theoretical support (Lloyd and Sundrum, 1982:20). Whether a definition should be empirically based or descriptive is not addressed by the composite approach. Although the indices incorporate several measures of size, this does not compensate for the lack of theoretical analysis. The approach appears to make the work of the empiricist more cumbersome, but not necessarily more appropriate.

The *analytic approach* focuses less on identifying the resource or resources which constrain the productive capacity of a small country, and attempts to identify economic features which may be associated with smallness. The analytic approach aims at a workable theoretical definition as a basis for empirical research. The two analyses to be examined have in common that they both identify openness as a significant feature of small economies. Openness refers to the degree to which countries engage in international trade and are affected by the vagaries of world trade i.e. it is the ratio of foreign trade to national income.

The first analytical approach, by Bhaduri et al. (1982:49-68), attempts to provide theoretical support for some of the empirical measures discussed so

far, and stresses that openness and the presence of some scale effect should form the basis for identifying small economies. The scale effect is manifested in the inability of small economies to exploit economies of scale and increasing returns. Bhaduri et al. identify the rate of growth of productivity of labour as an essential factor in influencing both comparative advantage in international trade and economies of scale (1982:50). With the rate of growth of productivity of labour as the subject of their analysis, their model reveals possible constraints to growth. Under conditions of moderate returns to scale, employment levels may form an intrinsic constraint to growth, whereas under conditions of greater returns to scale, deficiencies in investment may retard growth. They identify population and total national income respectively as proxy measures for employment and investment, and ultimately, openness and inability to exploit economies of scale (1982:65). The link between population and openness appears to be somewhat convoluted, and the authors avoid the messy business of identifying size limits to population and income; nonetheless their approach provides insight into the characteristics of the small country. The notion of economies of scale is useful, as it provides cohesion to the disparate measures used to characterise smallness. The economic growth of a SOE is seen to be constrained by its ability to exploit economies of scale and hence is unable to maintain its comparative advantage in world markets.

The second analytical approach does not attempt to provide justification of the

more conventional empirical measures, but asserts that its theoretical definition is sufficient as a selector. The approach is presented by Prachowny (1975), who uses the definition of openness to characterise the small economy. He justifies the use of openness to distinguish small countries from large, since the small country is a theoretical concept, and as such should be described by means of economic rather than physical properties (1975:1). Having defined small economies as open economies, Prachowny thereafter adopts the term SOE.

A SOE must regard the prices of internationally traded commodities and assets as exogenously determined, hence it is a price-taker. The analogy of a SOE to a firm in a perfectly competitive market is made. The SOE faces externally determined prices for its exports and imports, as it is considered to contribute only a negligible proportion to the world demand or supply of any commodity. Although some small countries may exert a degree of monopoly power in the export market for certain goods, they are unlikely to exert monopsony power in the import market, and are thus far more likely to be price-takers than makers (Prachowny, 1973:215). Hence, like the perfectly competitive firm, the SOE is without power to change externally determined constraints, but can operate within them.

The use of openness as the small country identifier is criticised as being of limited usefulness by Lall and Ghosh (1982:144), as they believe that the

definition rests on the external trading relationships of the country rather than its own economic characteristics. However, one could argue that it is the economic characteristics of the country which determine the pattern of its trading relationships (and *vice versa*). Lall and Ghosh maintain that the open definition embraces countries which are not small. Indeed, although Prachowny's definition identifies a number of non-contentious countries such as Austria, Belgium, Canada, the Netherlands and New Zealand as small, it also embraces the old Soviet Union (Prachowny, 1975:1). Prachowny justifies this by noting that in its dealings with the West, the Soviet Union was a price-taker. Prachowny seems to be advocating a pragmatic application of the SOE definition - a country is small and open, if the price-taking model best describes the international conditions facing the country, and the actions of the country leave the rest of the world largely unaffected.

Two persistent themes emerge from the examples of the analytic approach reviewed: An economy is small if it is open and if it is constrained in achieving the benefits of economies of scale. The analytic approach emerges as the most appropriate classification approach for this study, for two reasons: Firstly, it identifies *economic* characteristics of the small economy. Secondly, it permits the classification of South Africa as a small open economy. One of the aims of the study is to examine the income adjustment process in South Africa, where imports are mostly capital goods. On the basis of population size, South Africa is not small. With a population of 40 million in 1992, a limit of four times

that proposed by Streeten (1993:197) would have to be employed. However, South Africa is open, and subject to various constraints; on this basis it is a SOE. The justification of this claim will become more apparent as the SOE is further analysed.

2.1.3 SOEs: Open and constrained

The classifier which emerges most strongly from the analytic approach to size classification is that of openness. Indeed, in each of the approaches to size classification identified above, openness appears to be used by the majority of authors. Among others, Streeten (1993:198), Selwyn (1980:946) and Lloyd and Sundrum (1982:25) incorporate openness as an economic characteristic of small countries. The price-taking behaviour of small countries is emphasized by Ward(1975:126). For the majority of small countries it may be superfluous to add that they are open.

Openness, like size, represents a relative concept. There is no clear cut measure of classifying economies as closed or open, there is simply a continuum of openness (Prachowny, 1985:235). An economy is closed if it does not have external trading partners who sell to or buy from the economy. Weintraub measured the degree of "closedness" of an economy on the basis of the domestic content of the value of the aggregate domestic product in

money terms (Davidson, 1994:204). An economy is perfectly closed if the value of domestic content in GDP is 100%. The general notion of openness, is not however, a measure of the foreign content in domestic production; rather the concept has to do with the foreign product *value* in domestic expenditure. (The value of the domestic product will match the value of domestic expenditure only if the value of exports is matched by the value of imports.)

Measures of openness include the ratio of the value of imports to gross domestic expenditure and the ratio of the value of exports to the gross domestic product. The basic measure of openness is the trade intensity ratio: the sum of exports and imports divided by GNP (Leamer, 1988:148). However, there is a school of thought which sees the trade intensity ratio as tantamount to double counting. For this reason, the average of the ratios of exports to GNP plus imports to GDE is used as an indication of the degree of external trade in the goods market (Mohr and Rogers, 1991). If we use this *average* ratio, we may, as a rule of thumb, regard an economy as open if the foreign trade component of national income is greater than 20 per cent (Prachowny, 1985:235).

The openness of an economy may be a mixed blessing. On the one hand, participation in the world market provides an opportunity for small economies to exploit economies of scale (Streeten, 1993:198). On the other, SOEs are seen as vulnerable and dependent on trade (Lloyd and Sundrum, 1982:27 and

Selwyn, 1980:946). The more open a country, the more susceptible it is to importing inflation (Davidson, 1994:206). Open countries are likely to experience fluctuations in real export earnings and capital receipts, which may exacerbate the difficulties of macroeconomic management and may make the country more vulnerable to short term liquidity crises (Helleinier, 1982:181). The dependency of open countries extends beyond trade to embrace political affiliation, international monetary policies, aid, and the influence of multinational corporations (Selwyn, 1975:13). This dependency is reflected in Swan's definition of a dependent economy as "a small economy which trades in world markets" (Swan, 1960:53).

Scale difficulties affect the ability of small countries to engage in import substitution (Ward, 1975:124 and Selwyn, 1980:946). This means that the policy of import substitution to promote development is largely unavailable to small countries, unless they engage in expensive protection policies. Small countries are less likely to produce intermediate and capital goods, and manufacturing remains a comparatively small share of output in SOEs than for large countries at the same income level (Streeten, 1993:197). Hence it is not unreasonable to assume that SOEs import capital and intermediate goods and export primary goods. This questions the small country assumption that SOEs can export as much as they desire. Demand for primary goods is limited. The inability of SOEs to produce imported capital goods will be examined in chapter four. In this chapter, the assumption is that SOEs import only

consumption goods.

2.2 The income adjustment process in small open economies

Analysis of open economies has come into vogue in the latter half of the twentieth century. Caves et al (1990:339) attributes this growing awareness of the influence of the world economy on domestic balances to the greater worldwide integration of goods and financial markets.

The emergence of a theory concerning *small* open economies is attributed to Swan (1960, 1963) and Salter (1959). Their work concerned the Dependent or Australian economy, the most significant feature of which is that it is a price-taker in world markets. The model emphasizes the need for internal and external balance, the aim is to achieve full employment equilibrium together with a balance of payments equilibrium simultaneously (Swan, 1963:386). Where the small open economy model differs from the other open models, is that the terms of trade are exogenous, so domestic decisions leave the terms of trade unaffected.

The SOE concept is used in open economy analysis in the same way that the perfectly competitive firm is used in the microanalysis of supply and demand.

The "small country" assumption (Dornbusch, 1971:389) was originally associated with the notion of perfect capital mobility, hence domestic interest rate of the SOE would tend to the world interest rate (Mundell, 1963:475).

Mundell used this structure to examine the relative efficacy of monetary and fiscal policy under fixed and flexible exchange rate regimes. Mundell's model showed that under a flexible trade regime, monetary policy is effective in stimulating the level of income and employment as it induces an outflow of capital which results in exchange rate depreciation and an export surplus. Fiscal policy is ineffectual if exchange rates are flexible, but are effective under a fixed rate regime.

Assume a government increases spending; this will result in income increasing, and an associated increase in the demand for money. The private sector would sell bonds to meet this demand for liquidity, which would put pressure on the interest rate. Foreign capital would be attracted, and in order to maintain the pegged exchange rate, the authorities would be forced to buy foreign exchange, and hence increase the money supply. Hence the money supply would increase, by means of exchange rate policy, to meet the demand created by the increase in income (Mundell, 1963:483).

The price-taker concept of small countries was extended to all relative prices, hence small open economies were seen to be price-takers of the world

inflation rate (Prachowny, 1973:229). Hence, the level of inflation in SOEs cannot depart from the world price level for any but a short period of time. The world price level affects the domestic prices through those goods which are tradeable on world markets. Non-tradeables are only traded domestically and initially their prices reflect internal conditions. A good is non-tradeable by virtue of its transport costs, or owing to quotas or prohibitive tariffs. The non-tradeable sector comprises mostly services. This sector represents sheltered industries, whereas the tradeable sector is unsheltered (Salter, 1959:226). The degree to which non-tradeables are sheltered is questionable, as through the labour sector, world prices in the tradeable sector come to affect the non-tradeables.

The small open economy has become synonymous with the inability to change the terms of trade by domestic means (Streeten, 1993:202). Essentially, an economy can be considered a SOE if changes in the domestic economy do not impact on the world economy (Thom, 1976:70). By contrast, a large economy, is not a price-taker. Hence domestic policy in a large economy may not be overwhelmed by international influence. For example, an increase in the money supply in a large economy may impact on the domestic interest rate as well as the interest rate in other economies. This will result in the rise in aggregate demand world wide, including the large country itself. This will result in feedback effects which will support the initial policy of the large country. If a small country were to attempt to reduce the domestic interest rate by the

same means, the feedback effects would be negligible. Hence, there would not be a permanent increase in exports, which is necessary for the interest rate policy to succeed (Thom, 1976:70).

Conventional macroeconomics has largely ignored the peculiarities of small open economies, since the focus has been primarily on developed, largely self-sufficient countries. A review of a number of undergraduate texts reveals that the standard conventional model is of a closed economy, where trade is introduced as an expansion of the model (Dornbusch and Fischer, 1984; Lipsey, Steiner and Purvis, 1987:508; McConnell, 1987:240-266; and Stiglitz, 1993:753). Essentially, this is "large country" theory. Openness, in the sense of reliance on the foreign sector, and the composition of imports are both neglected. The failure to examine the composition of imports leaves the large country theory wanting when imports are investment goods. Where imports are consumption goods, large country theory does provide some insight into the income adjustment process in SOEs. Large country theory will be presented as a basis upon which to compare the income adjustment process in SOEs.

Opening a closed economy has many effects. At the obvious level, it now becomes possible for an economy to invest more than it saves and to consume more than it produces. A new source of demand and supply is now available. Importantly, a new source of exogenous expenditure exists: exports. Aggregate demand will be affected by exports purchased by foreigners and

imports purchased from foreigners. Aggregate supply will be affected if an economy moves from closed to open: production will now be guided by comparative advantage and the composition of industries will be affected. Hence, the shape and position of the aggregate supply function will change (Davidson and Smolensky, 1964:207).

The level of employment will be determined by the level of exogenous expenditure, given the consumption function. Aggregate demand in the open economy refers to the sum of consumption, investment, government expenditure and export expenditure, less import spending. Hence aggregate demand can be seen as the sum of domestic absorption plus the trade balance (Sachs and Larrain, 1993:390). Exports, which are purchases of domestic goods by foreigners are a function of the income of other countries. For this reason, exports are seen as exogenous to the system. Imports do not add to the demand for the nation's output - and so imports for consumption, investment and government spending need to be subtracted from aggregate demand. In this chapter, following orthodox theory, only imports for consumption purposes will be examined. Imports for consumption are dependent on domestic income. As domestic income increases, so too does expenditure on imports. Like saving, import expenditure is seen as an endogenous variable which adjusts in response to income.

An autonomous increase in domestic expenditure will stimulate expenditure on

both domestic and imported goods. The greater the propensity to import from new income, the smaller will be the impact on domestic output. The larger the propensity to import from additional income, the smaller the foreign trade multiplier. The impact of the initial stimulus will come to an end when the increment income for successive rounds of expenditure becomes negligible. The increase in imports will raise income and output abroad, encouraging employment in the foreign trade partners (Keynes, 1936:120). Hence, part of the multiplier effects from the change in domestic exogenous expenditure are exported. This stimulus of foreign employment by our import expenditure may encourage secondary export demand for domestic goods and services. These are referred to as feedback effects.

The opening of the economy to foreign trade is seen as having both a negative and positive effect on the income adjustment process. The negative effect arises since part of the multiplier effects of any increase in exogenous expenditure will dissipate into the economies of trading partners. This results in a smaller multiplier since part of the increase in income is used to buy foreign products. This implies that where imports are for consumption, the balance of payments influences the multiplier effects of exogenous expenditure. The positive effect of foreign trade on income adjustment comes from the injection of exports. Exports are part of exogenous expenditure, and hence affect the multiplicand of the multiplier process. The foreign sector will impact both directly and indirectly on national income. Direct impact will be in

the form of an increase or decrease in exogenous expenditure. The foreign sector will have a net stimulating effect when exports are greater than imports, i.e. when there is a trade surplus (Williamson and Milner, 1991:190). Indirect impact will take place via the effect of the exchange rate and the balance of payments on domestic exogenous expenditure.

The income adjustment process in the SOE which imports only consumption goods is much like that of the large economy. There are two distinctions: Firstly, the foreign sector plays a larger role in the SOE, and the feedback effects from exporting the multiplier effects to trading partners are negligible. In an SOE, the foreign sector represents a significant proportion of GNP (see the next section for details). Although the SOE is unable to influence its terms of trade, if one accepts the implications of the small country assumption, the SOE is able to export any *quantity* of exports it desires, just as a perfectly competitive firm can sell any quantity at the going price. Nonetheless, this does not give the SOE control over its export income, and exports remain exogenous. The feedback effects of importing consumption goods are unlikely to be significant, since the import demand of SOEs are seen to be negligible in the scheme of things. The SOE is also likely to export primary, and hence income-inferior, goods - so the feedback effects from higher world income is likely to be small.

If investment in an SOE increases, and the multiplier effect results in imports

for consumption growing faster than exports, the balance of payments will come under pressure. Pressure on the balance of payments can be dealt with by expenditure-switching and expenditure-absorbing policies. Expenditure switching involves a devaluation of the domestic currency so that home produce is cheap relative to foreign produce. This should encourage a shift of consumption away from foreign goods. The success of the policy will depend on the relative elasticities of import and export demand. For this reason, expenditure-switching is often accompanied by an expenditure-absorbing policy where fiscal and monetary policy are used to dampen economic expansion. These policies are intended to reduce import expenditure and the current account deficit. This seems to suggest that if the current account deficit results from an expansion in the economy, that the balance of payments becomes important in the analysis of income adjustment in SOEs which import consumption goods.

2.3 The balance of payments and consumption good imports

Analysis of an open economy cannot ignore the balance of payments, as the balance of payments influences domestic policy. As a country becomes more open, or what is the same thing, the foreign content value in domestic expenditure increases, the influence of the balance of payments on the domestic economy becomes increasingly significant. This section will attempt

to examine the influence of the balance of payments on a small open economy which experiences a current account deficit when imports of consumption goods increase.

The balance of payments is the country's flow of international transactions recorded over a specified period (Cumby and Levich, 1992:13). The balance of payments comprises three accounts: the current, capital and reserve accounts. The *current account* contains details of imports and exports on the goods, services, and the unilateral transfers accounts. The service account on the current account includes payments and receipts for insurance, tourism, transportation, communication, financial and business services as well as debt servicing (interest payments) on capital loans (Cumby and Levich, 1992:114). The unilateral transfers account includes gifts from one country to another, and includes foreign aid. A current account deficit (where imports exceed exports) can be financed by a surplus on the *capital* account of the balance of payments. The *capital account* includes details of the long and short term capital flows. This includes direct investment and portfolio investment in stocks, bonds and treasury bills (Caves et al, 1990:344). An inflow of capital may be adequate to finance the amount by which the import expenditure exceeds export receipts. Generally, the balance of payments position is monitored by reference to the current account. Since the overall balance of payments must balance, if the current account deficit is not matched by an inflow of foreign capital, this implies that reserves have been dropping, so the

current account deficit has been financed, to a greater or lesser extent, by reserves. This will be reflected in the *official reserves account.* This reflects the change in the country's holding of foreign assets.

As domestic expenditure expands in a small open economy, there will be a tendency for imports to increase with income. The impact on the balance of payments will depend on the relative growth of imports and exports. If the relative elasticities of the demand for imports and exports are such that for every one per cent growth in domestic income, demand for imports grows two per cent, whereas for every per cent growth in world income, demand for exports grows only one per cent, an increase in domestic income will lead to a current account deficit (Thirlwall, 1980:53).

In this instance, a deficit arises on the current account as expenditure in the economy expands. There is general acceptance that a deficit on the current account cannot be sustained indefinitely, as reserves or borrowing capacity will ultimately be exhausted. However, a current account deficit may be sustained for a substantial time - the U.S. current account deficit over the past 10 years is a case in point. A current account deficit implies that imports exceed exports, an excess which may be met by capital inflows. In this case the domestic requirements are satisfied by borrowing. Few countries, though, enjoy the situation described for the U.S. In most cases, capital inflows are not infinite, and a deficit on the current account acts as a warning signal. Balance

of payments problems may be said to exist even if there is a surplus on the current account. South Africa, for example, is frequently seen as a country whose growth is determined by the balance of payments position. Between the years 1985-1992, South Africa had a surplus on the current account. No one deluded themselves that this meant that the balance of payments no longer influenced the rate of expansion. On the contrary, the surplus that had to be generated to service interest payments as the country experienced unprecedented outflows of capital, was the result of adjustment in the economy. The way in which this adjustment was achieved will be discussed further in chapter five.

The approach that is being adopted here is one where a deficit on the current account will ultimately lead to adjustment in income and employment. This is in sharp contrast with the monetary approach to the balance of payments (MABP), in which imbalances on the balance of payments are automatically eliminated. While the MABP looks at the balance of payments as a whole, it focuses on the international reserves account. The approach embraces Walras's law, which implies that the sum of all excess demands and supplies must sum to zero (Gomes, 1993:253). Given the fact that the balance of payments must balance, this implies that if there is a deficit on the current account, which represents external trade in goods, then there must be a surplus on the capital (bonds) and official reserve (money) accounts. If the bond market is in equilibrium, then the excess demand for goods must be met

by the excess demand for money. In this approach, if the current account deficit is matched by a capital account surplus, i.e. if there is no change in international reserves, the balance of payments is in equilibrium. Hence, the balance of payments is viewed as a purely financial phenomenon, and imbalances are viewed as financial of origin and by solution. There are no real effects of balance of payments imbalances, as these are phenomena which are automatically eliminated by money market movements. The MABP is essentially a long term approach, as it is only in the short term that imbalances may exist.

According to the MABP, surpluses or deficits on the balance of payments are self-correcting (Davidson, 1994:241). Imbalances on the balance of payments reflect the status of the money stock; a balance of payments deficit implies that the stocks of money are excessive, and money will move out of the economy until equilibrium is restored to the money market and to the balance of payments. In this view, if the authorities do not sterilize the money market flows, any balance of payments imbalances will be transitory.

The MABP rests on the adjustment of prices to ensure balance of payments equilibrium. A MABP model generally examines a SOE, in which imbalances in the balance of payments are automatically corrected by the adjustment of prices: In the case of a fixed exchange rate regime, the domestic price level will adjust to ensure equilibrium, and in the flexible exchange rate system, the

exchange rate adjusts to accommodate any changes in demand and supply. In either case, there is no effect on the income or wealth of the trading nations.

The following attempts to describe the MABP approach to a fixed exchange rate system: Make the "small country" assumption, i.e. assume that in our SOE, there is a fixed rate of exchange, which has just been pegged to a lower rate. Assume that capital is perfectly mobile between countries. The devaluation means that domestic prices are temporarily below world prices, and that the long term trend towards equality with the international price level ensures that there is upward pressure on domestic prices. A balance of payments surplus emerges in response to the price advantage, and an excess demand for money. It is assumed that domestic authorities are unresponsive to this demand, and domestic credit creation is not forthcoming. Generally, excessive demand for money would tend to raise the interest rate. However, in the monetary model, perfect capital mobility ensures that the interest rate maintains its international level, so a capital inflow from the rest of the world results. The balance of payments surplus leads to an increase in the inflow of money, international reserves complement the domestic supply of money, until demand and supply of money are in equilibrium. Hence despite the unchanged domestic credit creation level, the money supply increases. This inflow of money will continue until the domestic price level has risen to the world price level, which occurs where the money supply has risen to the

amount of the devaluation (Ball,1977:3). Hence, an excess demand for money results in a short-term balance of payments surplus, however, in the long run, equilibrium will automatically be restored. By contrast, an excess supply of money in the economy which is reflected by an overall balance of payments deficit, will result in the outflow of international reserves until money market equilibrium (Tsiang, 1977:333).

Hence, according to the MABP, in a fixed exchange rate system, a SOE has control neither over its money supply, nor over the domestic price level. In a floating exchange rate system, the exchange rate moves in response to disturbances in the money market. Hence, the floating exchange rate becomes a means of controlling the flow of capital, and in this way control is gained over the money supply and hence the price level (Ball, 1977:3). Once again, full employment is ensured, and the balance of payments will automatically balance. The floating exchange rate allows the authorities to determine the rate of inflation independently of the world rate, however, there is no increase in control over the level of employment and the balance of payments, as these are assumed to be self-correcting.

In the MABP, it is always assumed that domestic and foreign goods/assets are substitutes. It is for this reason, that variable prices can ensure balance of payments equilibrium, and why a persistent balance of payments surplus/deficit cannot exist. Hence, price ridigity can be the only reason a

balance of payments disequilibrium persists. In the case of a floating exchange rate, a persistent balance of payments deficit must indicate the presence of some mechanism which prevents the exchange rate falling to its correct level.

Davidson (1994:217) criticises the validity of the assumption by the MABP of gross substitutability. He also criticises the assumption that equilibrium will prevail in the long run in spite of persistent balance of payments imbalances world-wide. Thirlwall (1980:16) criticises the MABP's lack of recognition of the real effects of balance of payments disequilibria - a failure which results in misleading policy prescriptions. A balance of payments deficit may not have anything to do with the money supply, and so it may neither be self-correcting, nor suitable for correction by monetary policy.

The analysis in this section is based on the notion that the balance of payments is assumed to influence the economy, and this influence can be discerned as taking place via income adjustment. The tenets of the MABP are anathema to this assumption, and will take no further part in the analysis.

If an expansion of income in the domestic economy leads to a deficit on the current account, the current account deficit could be addressed by expenditure-switching (or currency devaluation). If a persistent deficit on the current account deficit can be remedied by a once-off devaluation, then the currency has obviously been overvalued (Lal, 1971:730). Expenditure-switching

results in imports becoming relatively expensive - encouraging switching to domestic substitutes, and making exports relatively attractive. An effective devaluation provides a subsidy for all domestic exports, while imposing a tax on all imports (Gomes, 1993:234). The efficacy of a devaluation has long been recognised as depending on the relative price elasticities of imports and exports. This hinges on the degree of substitution possible between imports and locally produced goods, and the price elasticity of export demand. In a small open economy, the assumption that the quantity of exports is determined exogenously, at the world price, implies that the SOE faces no elasticity constraints, and that a devaluation will improve the trade balance (Gomes, 1993:236). Hence, expenditure-switching should provide an effective remedy to the current account deficit.

A devaluation is an attempt to raise the demand price in domestic currency of tradeables, relative to the supply price of non-tradeables (Pope, 1986:144). A devaluation should improve the profits and wages in the tradeables sector relative to the non-tradeables, encouraging a reallocation of resources to tradeables. Hence, a nominal devaluation should encourage an appreciation of the real exchange rate, which is the price of tradeables relative to the price of non-tradeables (Sachs and Larrain, 1993:662). The exports and import-substitutes are expanded without national income contracting (Gomes, 1993:235). However, if the supply price of non-tradeables is indexed to the price of tradeables and the exchange rate, then the supply price of non-

tradeables will not fall relative to tradeables for any but a short period of time. Hence a devaluation will result in higher inflation without a restoration of equilibrium to the current account (Pope, 1986:144). It appears that the efficacy of expenditure-switching is not guaranteed.

Advocates of the absorption approach attribute the existence of a current account deficit to living beyond one's means. Hence domestic absorption exceeds domestic output. The solution is a reduction in demand. Both monetary and fiscal policies may be employed to dampen domestic demand to the necessary level. The economy's shift from borrower to repayer requires that demand is reduced, and that there is a shift in supply from non-tradeables to tradeables. The fall in domestic demand will encourage export production, and a shift of resources to the tradeables sector, which is growing relative to the non-tradeables sector, since the SOE faces unlimited export demand (Sachs and Larrain, 1993:666). This analysis presumes both unlimited world demand for exports and a fall in the nominal price for tradeables. By means of price adjustment and reallocation, the full employment equilibrium is maintained. Again the problem of indexation of prices in the tradeables sector to the non-tradeables sector arises.

In the above example, the fall in demand induced by domestic policy is short-lived, as the reallocation of resources to the tradeables sector quickly restores full employment. This model relies on the assumption that reallocation takes

place relatively painlessly, and that there is unlimited demand for exports. In our analysis of a deficit, the economy could have been in a position of less than full employment. Following the dampening of domestic demand, reallocation may take place, depending on the incentives. If, as has been suggested earlier, the exports of SOEs are primary goods, demand for exports may not be elastic. Hence the implication is that dampening of effective demand works itself out through the income adjustment process, resulting in negative expectations, which would impact negatively on investment decisions. Hence an adjustment of this sort could lead to further unemployment of domestic productive capacity.

The analysis above suggests that the assumption that a SOE faces a perfectly elastic demand for its exports may be misleading. If the SOE does indeed face perfectly elastic demand for its exports, this will facilitate a relatively smooth reallocation to tradeables, whether expenditure-switching or expenditure-absorbing policies are employed. In our analysis, we will retain the notion that export demand is determined exogenously, hence SOEs are not able to influence the world income elasticity for its exports (Pope, 1986:141). However, the assumption of highly elastic demand for exports will not be maintained. It will also be assumed that the prices and costs in the tradeables sector is linked to that in the non-tradeables sector, for any period longer than the immediate period. This suggests that the ease with which a nominal devaluation can result in an appreciation of the real exchange rate is

questionable (Pope, 1986:140).

The small open economy concept reveals itself to be a complex notion. This chapter has attempted to provide some insight into the theoretical associations of the concept, and distil those ideas relevant to this study. The use of the concept is at times naive from a Keynesian viewpoint - the extension of the analogy with the perfectly competitive firm is taken too far - so that the assumption of an infinitely elastic demand for exports is adopted without apparent evaluation. This assumption reinforces the neoclassical idea that it is resources that constrain production, rather than demand. In this study, it is assumed that it is demand which determines the level of employment and utilisation of productive capacity. The notion of perfectly elastic demand for exports is rejected, together with the association of the small open economy with the monetary approach to the balance of payments applies. The SOE is nonetheless useful as a theoretical tool, as it provides a distinctive comparison with the large relatively closed economy. Classification of small countries varies with the context, but two useful economic criteria are openness and inability to exploit economies of scale. In an SOE which imports consumption goods, as for any open economy, the income adjustment process is affected by the foreign trade multiplier. Some of the multiplier effects of an increase in investment are lost to the domestic economy, as the increase in income will stimulate import expenditure on consumption goods. If the expansion of the domestic economy results in increased growth of imports relative to exports,

then unless the deficit on the current account is financed, the influence of the balance of payments comes into play. The balance of payments constraint comes into effect as a result of the income adjustment process, following stimulation of the economy.

The theoretical associations with the concept of the small open economy that are adopted here include the notion that external and internal balance are associated and influence each other, that export demand is exogenously determined, and that the composition of exports and imports influence the success of devaluation in reducing a current account deficit. These ideas will be used to inform the analysis in chapter four. In chapter three, the investment decision will be examined.

Chapter three

The investment decision

In chapter one, the income adjustment process, or principle of effective demand was examined in an economy closed to external trade. The principle of effective demand demonstrates that the level of investment determines the level of income and employment. Investment is seen as the major influence of a closed economy as it is subject to sudden fluctuations. Chapter two examined the income adjustment process in a SOE, when investment increased. Hence investment was still the major cause of expansion in the economy. The emphasis on investment needs to be justified in the light of statements that exports represent the most important source of exogenous expenditure in the open economy (see, for example, Kaldor, 1983:9 and Thirlwall, 1983:44). The argument as to the most important source of exogenous expenditure could perhaps be regarded as an empirical issue. However, even if exports are a larger component of aggregate demand than investment, this does not make investment unimportant. The association of investment with technical change and growth is a strong one. Scott maintains that for an economy to become richer, investment and wise investment decisions must be encouraged (1981:225). Expansion of the export market may itself be dependent on investment, and hence the investment

decision requires further examination.

This chapter investigates a number of issues surrounding investment: Firstly, a definition for capital goods and hence investment will be provided. Secondly, the investment decision will be examined more closely. The Keynesian analysis of investment is based in the notion of liquidity preference and the interest rate in relation to the marginal efficiency of investment. Investment may increase if the interest rate falls. This contrasts with the conventional notion that investment can only be increased if saving increases. Finally, the causal link between investment and employment will be examined in two models in which investment is presented using different degrees of exogeneity.

3.1 Capital goods and investment : A definition

The principle of effective demand shows the link between investment and employment, and has contributed to the belief that more investment must be beneficial for the economy (Coen and Eisner, 1994:509). This begs the question as to what it is that constitutes investment. The classification of capital goods and investment is a controversial issue. This controversy will not be examined here, but the definition employed in the study will be briefly presented.

Joan Robinson (1964:117) suggests that *all* goods in existence are capital goods,

regardless of whether they are intended for industrial or private use. This definition suggests that all production is investment. Generally, however, capital goods are distinguished from consumer goods on the basis of durability or productivity. As will be seen, neither of these is entirely satisfactory as a classification. Classification of capital goods as durable goods implies that investment is the production of any new durable good (Chick, 1983:44). Hence capital goods render future services while consumer goods are consumed "instantly". If "instant" is interpreted literally, then only services, which by their nature are consumed instantly, are consumer goods, and all goods are capital goods - as Robinson has suggested (Stewart, 1991:154). Alternatively, capital goods may be seen as inputs to the production process, hence they are not demanded for themselves, but for their contribution to production. Consumer goods, according to this classification, are final goods. This definition is subject to ambiguities: coal for a household is a consumer good; coal for an industrial furnace is a capital good. Investment, according to this classification, is the production of any good which renders further production possible (Stewart, 1991:154). Taken to its extreme, this definition could also classify consumer goods which keep the work force alive, as capital goods.

Both the durability and the productivity classifications of goods are based on the characteristics of the goods (Chick, 1983:46). Keynes's definition appears to be based on the purchaser of the goods, rather than any property of the goods themselves: Hence consumption expenditure is the value of goods sold to

consumers (Keynes, 1936:61). The distinction in this definition is between the consumer-purchaser and the investor-purchaser; Chick refers to this as a sectoral approach (1983:46). Consumption expenditure is defined as the sum of total sales less the sum of sales made by entrepreneurs to each other (Keynes, 1936:62), so it represents the value of output sold to households. Investment is the value of sales amongst firms less user cost (Keynes 1936:62). User cost represents the costs of production to the entrepreneur in terms of goods and equipment used during the production process. These may be distinguished as interfirm transactions, those goods used in the production process which are bought from other firms (non-capital or intermediate goods) and intrafirm transactions where equipment, owned by the firm itself, is used up in the production process (Torr, 1992:3). Hence, for the owner of a firm, the user cost is the sum of his purchases of non-capital inputs from other firms, together with the wear and tear that comes through the use of his own capital equipment during the production process. Suppose a wheat farmer buys a tractor for R100 000, and buys fertiliser for R5000. Wear and tear on the tractor which occurs during its use in the production process is estimated at R8000. In this case, the wheat farmer's user cost will include the cost of fertiliser plus the wear and tear that comes through the use of his tractor (ie. R13000). His investment will then be R100 000 - R13 000. Hence, investment is the addition to capital stock as a result of the productive activities of the period (Keynes, 1936:63).

From the perspective of entrepreneurs producing goods for consumption,

consumer goods and investment goods may be distinguished from each other by means of short and long run expectations (Keynes, CW XIV:396). Production of consumer goods is based on short run expectations. Capital goods, however, are the result of long run expectations of consumer demand. However, a producer of capital goods, such as tractors, bases his production decisions on his short run expectations, i.e. his expected sales proceeds at the time that production commences (Keynes, CW XIV:395). However, there is overlap between the expectations of consumption and investment good producers. Since most capital goods are ordered in advance (Keynes, CW XIV:392), and the orders are based on long run expectations of the entrepreneurs producing consumption goods, one might say that the production of capital goods is based on the short run expectations of the capital good producers, which are the long run expectations of the consumption good producers.

Since investment is the purchase of capital goods, investment is generally carried out by firms. However, this is not an absolute definition. The purchase of a house, which presumably involves re-sale considerations prior to its purchase, is considered investment. The purchaser of the house is presumed to be influenced by long term expectations, so the house is considered a capital good, and its purchase, investment (Keynes, CW XIV: 396).

It is apparent from the distinction between long and short run expectations that not all activity by firms can be classified as investment. Decisions to invest or to

add to capital stock, are distinct from production decisions. Production decisions are influenced by short term expectations regarding the sale price of finished output (Keynes, 1936:46). Short term expectation is concerned with estimating the prospective demand for goods produced with existing capital equipment (Keynes, CW XIV:392). These expectations influence the degree to which current capacity is utilised and the extent to which offers of employment are made. Short term expectations influence the supply decisions of the producers (Runde, 1986:15).

Investment decisions are influenced by long run expectations which concern the returns to the producer if capital equipment is expanded (Keynes, 1936:47). Demand for capital goods, or investment, thus depends on long term expectations of consumers's demand (Keynes, CW XIV:396). In this view, investment is motivated by the proceeds which it will generate, in the form of future sales. Hawtrey's (1937:177) definition of active investment as the "voluntary acquisition of items of unconsumed wealth in expectation that they will be renumerative" accentuates this. The motivation for investment is expenditure rather than utility (Chick, 1983:46).

In this chapter, capital goods will be seen as goods purchased by firms from one another which will add to their capital stock. Investment, which is guided by long term expectations, is the demand for capital goods. Investment refers to the purchases of real assets like plant and equipment rather than financial assets

such as bonds.

3.2 The investment decision

Investment, or the demand for capital goods, arises from the desire of entrepreneurs for the services of capital goods. Investment will take place if the demand price for stocks of a capital good exceeds the current flow supply price of the capital good (Davidson, 1978:76). The demand price for a capital good comprises a stock and flow demand. The stock demand for a capital good essentially depends on the net prospective yield (or stream of income flowing from the output produced by the capital good throughout its life), compared to the rate of interest at which this future yield is capitalised (Keynes, CW V:180). Davidson (1978:72-75) elaborates on the stock demand as being a function of the market price of capital goods; the rate of discount expectations of growth and yield and access to finance. The stock demand thus represents the long term expectations of profit of the entrepreneur. The flow demand for capital exists due to the using up of existing capital stock. Together the stock and flow demand make up the market demand for capital goods. The stock demand is dominant, and hence one can talk of the spot price or the demand price for the stock of capital. Investment will take place if the spot (demand) price for capital exceeds the minimum flow supply price of capital. The flow supply function represents the quantity of capital goods produced at each possible market price. The minimum

flow supply price is the shutdown price of the industry (Davidson, 1994:60). If the spot price for capital goods exceeds the minimum flow supply price, then entrepreneurs will order new capital goods, and producers of the capital goods will have the incentive to produce them.

As investment in a capital good takes place, the spot demand and flow supply price may change: the demand price will tend to fall, since the prospective yield falls with the increased supply, and the flow supply price will tend to rise as pressure is placed on the production facilities of the capital good (Keynes, 1936:136). The capital good will be newly produced to that point where the demand price equals the flow supply price (Keynes, 1936:136). Changes in the rate of interest will affect the demand price, as the rate of interest is the value at which the prospective return will be discounted. If the rate of interest is expected to decrease, then there will be a rightward shift in the stock demand for capital goods. Hence the demand price for capital goods will increase. If the supply price is unchanged, this will obviously stimulate investment.

In a world in which orders are placed for capital goods, the production of capital goods can be seen in terms of spot and forward prices. A spot price is the price set for immediate purchase and delivery of the good, and reflects the demand for a good given the current stock supply. A forward price represents a contract for the future delivery and payment of a good. Generally, one can identify the demand price with the spot price for capital goods and the minimum flow supply

price with the forward price (Davidson, 1978:87). Hence, in terms of the analysis above, if the spot price exceeds the forward price then the entrepreneur producing capital goods will be making a profit, and it will be worth his while to produce the goods.

The principle of effective demand tells us that, given the level of consumption, the level of investment determines the level of employment. Unemployment thus indicates inadequate investment. Investment is inadequate to stimulate the full employment level of output, as further investment is deemed unprofitable. In terms of the analysis above, one might say that the spot demand price does not exceed the minimum supply price of capital goods. But this begs the question - what sets the limit to profitability?

In a self-adjusting economy, which is associated with orthodox, price adjustment theory, the natural forces in the economy ensure that equilibrium occurs at a full employment level. If an economy is not at full employment, it is not in equilibrium. The only limitation to production is a resource or supply constraint. In the case of a SOE, for example, it becomes important to identify which resource constrains the expansion of production[1]. This is the theoretical foundation for the two-gap theory, in which saving or foreign exchange may be seen as the constraint to

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[1] The word constraint in price adjustment theory is often reserved for resources. In this sense, saving cannot form a constraint (see Joshi, 1970, footnote 6). It is used here in Joshi's sense that saving constrains investment since consumption can be squeezed no further.

expansion of production. The pronouncement that saving is inadequate is often associated with official announcements (see eg, Kregel, 1984:139; Stals, 1993:27). This approach implies that higher rates of growth are not forthcoming because of a shortage of saving. Full employment, to the limits of the resource base of the economy, will occur in the self-adjusting economy, but expansion beyond this is restricted by the saving constraint. Hence, in a self-adjusting economy, there is still an optimum use of resources, given the availabilities envelope (Joshi, 1970:114). However, the saving constraint is the sole reason investment may not be increased beyond the current equilibrium level. The more a society refrains from consumption, the greater will be its ability to invest. Hence, investment is seen as constrained by an economy's ability and willingness to mobilise saving (Joshi, 1970:111). In a closed economy, if the available domestic saving is not great enough to finance the required level of investment for faster growth, then a saving gap exists. Hence, in this view, the direction of causation flows from saving to investment.

In Keynes's view, saving is the result of deferred consumption, without commitment as to when the stored purchasing power will be used. Investment is the demand for the services of capital goods. Neither price nor motive co-ordinates the activities of saving and investment. Investment generates income, and income saving, hence saving cannot constrain investment. In the Keynesian view, explanations of why investment may be inadequate to allow full employment of resources, i.e. why there may be an unemployment equilibrium,

centres around the notion of liquidity preference and the interest rate.

In Keynes's view, the interest rate is determined by the supply and demand for money. The demand and supply of money revolves around liquidity preference. The preference for liquidity arises from engaging in economic activities in an uncertain world: The risks involved in having one's money tied up may be considerably greater than being liquid and having the power to take advantage of future opportunities. Greater demand for liquidity is reflected in its price, the interest rate. The interest rate is thus the reward for parting with liquidity (Keynes, 1936:167), rather than being the reward of not-spending, it is the reward of not-hoarding (Keynes, 1936, 174). " our desire to hold money as a store of wealth is a barometer of the degree of our distrust of our own calculations and conventions concerning the future... The possession of actual money lulls our disquietude; and the premium which we require to make us part with money is the degree of our disquietude" (Keynes, CW XIV: 116). In this view, the interest rate is no longer the equilibrator of saving and investment, it is the price that has to be offered to induce people to part with their money in the present - so it represents a contract for the future delivery of money (Kregel, 1980:1). The interest rate is the forward price of money determined by expectations of the future, and the corresponding desire to be liquid or illiquid (Keynes, 1936:213). Hence, the money rate of interest is the rate of return for lending money, or for buying futures in money, in exchange for spot loans

(Conard, 1963:120).

Kregel (1982:223-224) notes that the interest rate parity theorem is the basis for the theory of liquidity preference. In the same way that a preference for foreign or national currency is determined by the relation of the spot to the forward price, the preference for holding money (or the liquidity preference) is measured by the rate of interest. The money rate of interest is the fee paid by the borrower to the lender if money is lent, in the same way the wheat rate of interest is applicable if wheat is borrowed. Any asset thus has its *own-rate* of interest, which may be seen as the relation of the forward price of the asset to its spot price, measured in terms of itself (Conard, 1963:121).

The interest rate on money can be seen as measuring the marginal efficiency of money (Keynes, CW XIV:101). The marginal efficiency of an asset is determined by q, its net yield, c, the carrying cost and l, the liquidity premium (Davidson, 1978:62). The marginal efficiency of capital goods arises primarily from q, and the marginal efficiency of financial assets is influenced primarily by l. The prospective yield, q, from producing a capital good, minus c, the carrying cost, will determine the marginal efficiency of the physical asset, and is referred to as the marginal efficiency of investment (Conard, 1963: 134).

The own-rates of return will be different for each commodity, and it is assumed

that wealth owners will choose to store their wealth in the asset which offers the greatest rate of return. The greatest of the own-rates of interest will rule the roost, as if a capital asset is to be produced, its marginal efficiency (or rate of return) must exceed the greatest of the own-rates (Keynes, 1936:223).

Now, there is a tendency for all own-rates to yield the same return as investment in a particular good takes place, and the stock of the asset increases, the cost of production will tend to rise and the yield will fall (Conard, 1963:148). Hence, the minimum flow supply price will rise and the spot demand price will fall. Wealth will be placed in other time-machines, ie. alternative liquid assets (Davidson, 1982:29). In a world in which own-rates fall at the same rate, investment will continue until full employment, for it is only then that assets would display inelasticity of supply and reach the neutral rate of interest (Keynes, 1936:243). In equilibrium, the own-rates of interest for all assets will tend to be the same, hence one can refer to the rate of interest (Lerner, 1952:178). If this were not so, a profit could be made by borrowing one asset and using it to purchase another.

However, if one asset's own-rate of interest declines slower than others, wealth owners will divert their wealth to the asset with the greatest rate of return. This would tend to put a stop to the production of other assets before the full employment level of investment (Keynes, 1936:229). For Keynes, money was this asset as it has a low elasticity of production (since it cannot be readily

produced by labour and so its stock does not grow as demand for it increases.) In addition, money has a low elasticity of substitution as money's utility depends on its exchange value, so there is no tendency to divert funds to other assets as its value rises (Keynes, 1936:231). The money rate of interest is more likely to fall slower than other rates of interest because of the expectation of the stability of money values. This expectation of stability is a function of money's low elasticity of production. Money is the asset for which the excess of the liquidity premium over carrying costs is the greatest (Keynes, 1936:228). It is this liquidity premium which allows money to "rule the roost" (Keynes, 1936:223). Because of this, the money rate of interest is used in the discounting of the prospective yield of a capital asset. The money rate of interest controls activity in the capital goods industry by limiting demand for capital (Davidson, 1978:82). In the absence of money, own-rates of interest would only reach equilibrium with their marginal efficiencies at full employment, since it is only under conditions of full employment that other commodities would display the inelasticity of supply which has been assumed to be a normal characteristic of money.

In the world in which the principle of effective demand operates, money plays an important role in pre-empting the full employment equilibrium that would be possible in a world of certainty. Hence, the interest rate which is the result of the liquidity preference of the public on the one hand, and of the liquidity preference of the banks on the other (Kregel, 1984:152), sets a limit beyond which it is not profitable to invest. In this way, money sets a real constraint to the

level of investment via the interest rate. It is not the quantity of money which is the problem, but the price of money. Hence, investment could increase without foregoing consumption, if the interest rate were to a fall (Kregel, 1984:143). If the propensity to consume explains why a gap between income and expenditure needs to be filled by investment as income rises, then the behaviour of the rate of interest to the marginal efficiency of investment explains why it is unlikely that investment will adjust by exactly that amount (Kregel, 1987:102).

Investment is not constrained by the provision of resources via savings, but by the determination of relative spot prices of durables based on the market rate of return. The notion that the level of saving does not constrain investment, reflects the modern banking environment, where bankers do not keep a 100 per cent reserve requirement, and borrowers do not have to queue at banks awaiting depositors before their demand is met (Torr, 1988:7). The modern banking system is not dependent on saving for lending power, as overdrafts (deposits) are a means of payment (Chick, 1983:234-242).

The investment activity requires short-term finance during the construction phase; and long-term purchasing finance once the capital good is delivered (Davidson, 1982:36). Finance provision can be seen as a revolving fund, where the finance released by *ex post* investment provides for *ex ante* investment. If the rate of *ex ante* investment exceeds the *ex post* rate of investment, then there is a requirement for finance which needs to be met if the planned investment is to be

realised. The effect of planned investment is to increase the demand for liquidity over and above the demand arising from actual investment. The demand for liquidity depends on the actual and planned scales of activity, as well as on the state of confidence of the inactive holders of cash. The supply of liquidity or hoards depends on the terms on which the banks are prepared to become more or less liquid. Hence if the liquidity preferences of the public and the bank do not change when excess finance is required for *ex ante* investment, there will be a rise in the rate of interest. Hence the stock of hoards determines the spot price of hoards - hence Keynes describes the interest rate as equating the demand and supply of holding cash or idle balances (CW XIV:213). A higher scale of activity involves an increased demand for liquidity, which will be met with a rise in the interest rate - unless the banks lend more cash, or the public releases more cash. In this view, it is the availability of cash which may restrict investment plans, rather than the supply of saving. If the authorities do not accommodate the plans of the entrepreneurs by providing funds, the pace of investment will be affected (Keynes, CW XIV:210), as the entrepreneur has to be assured of his finance to meet his liquidity or cash flow requirements before he undertakes the decision to invest (Davidson, 1982:38). " If there is no change in the liquidity position, the public can save *ex ante* and *ex post* and *ex* anything else until they are blue in the face, without alleviating the problem in the least - unless, indeed, the result of their efforts is to lower the scale of activity to what it was before" (Keynes, CW XIV:222). The interest rate acts to set a limit to profitable investment, and hence reduces the demand price of capital goods. Investment

beyond this level would be irrational.

3.3 Degrees of exogeneity: Investment and employment in two models

The two models explore different assumptions about the exogeneity of investment. The casual link between investment and employment is dependent on the degree of exogeneity of investment. If a variable is relatively exogenous to another, as investment is exogenous to employment, it can be said to be a causal determinant of the latter (Hausman, 1983:78). Hence, we can say that investment determines the level of employment. Since the relative exogeneity of a variable is a feature of the structure of a particular model, presumably it must be possible to construct a model in which the determination of investment is relatively endogenous.

As will be seen, the more endogenous investment becomes, the more nebulous the causal link becomes. The names given to the two models in this chapter, and the model in chapter four, indicate the degree to which "animal spirits" are allowed leeway in each system. The animal spirits represent the exogenous aspect of investment. The two models examined in this chapter, both appear in the *General theory,* a third, which is constructed from the vision of Casar and Ros, will be presented in chapter four.

3.3.1 Model 1 : Animal spirits out-of-the-picture

This is a simple model of a closed economy, hence the only determinant of the level of income and employment is domestic expenditure. In this model, all investment expenditure is regarded as exogenous and hence relatively independent of the workings of the system. The model maker chooses not to explain the determinants of investment and although the animal spirits may exist, they are not discussed. There is no explanation of how or why the investment shocks occur. Symbolically, one would write, I = I. This is the model most preferred in text books since it eliminates the need for explanation of investment, and clearly displays causality: Investment is exogenous and the level of investment determines the level of income and employment. It is the condition of exogeneity which links investment to employment. If investment increases, then the multiplier process is set in motion which results in income and employment increasing until equilibrium is established at a new, higher level. Hence, the new level of income will be established at a multiple of the original change in investment.

It is this animal spirits out-of-the-picture model which is presented in chapter one. In chapter one, investment was in no way generated by the workings of the system, and hence exogenous. The income adjustment process reflected the operation of the change in investment and the simple multiplier. But for the fact that the economy is open to external trade in chapter two, the animal spirits out-

of-the-picture applies here as well. Although the economy is open, and exports and imports affect the domestic economy, no explanation of investment shocks is given, and the multiplier process is set in motion primarily by investment. Hence the difference between the analysis in chapters one and two is reflected in the use of different multipliers, which represent the leakages from the expenditure of income on domestic goods and services in each system. A new equilibrium level of income is established as a consequence of the change in exogenous investment and the workings of the multiplier.

3.3.2 Model 2 : Animal spirits in-the-picture

This is a model of an economy without external trade where investment demand is explained as a function of the other variables in the system, such as the interest rate, the number of entrepreneurs who have access to finance, long term expectations and animal spirits. Symbolically, I = f(r,N,E,animal spirits). Investment is partly endogenous as the system itself can influence the level of investment. The fact that the explanation of investment includes reference to animal spirits, implies that investment does not become stable and predictable. Hence the degree to which investment is endogenous remains a moot point.

The model will be examined in more detail by viewing two chapters of the

General theory which are particularly pertinent. These are chapter eleven, entitled "The marginal efficiency of capital" and chapter twelve, "The state of long term expectation". In chapter eleven, Keynes sets out an explanation of investment decisions as guided by prospective yield (1936:135). In chapter twelve, Keynes discusses the role of long term expectations in investment demand. Although Keynes emphasizes the role of expectations in chapter eleven, as well as in chapter twelve, as its title suggests, expectations appear to have different implications in the two chapters. In chapter eleven, the inducement to invest depends on the relation of marginal efficiency of investment and the money rate of interest. Both the marginal efficiency and the interest rate represent expected values (Keynes, 1936:145). Hence, investment depends on its expected money profitability (Carabelli, 1988:209). Investment demand depends on expectation of the future - but this is not reflected in a problematic light. Keynes shows how prospective yield can be calculated (1936:137) and discusses the aggregation of the investment demand schedules for different kinds of capital (1936:136). The determination of investment, in spite of the existence of expectations, seems innocuous.

Shackle (1974:35) contrasts the formal neatness of chapter eleven with that of the next. In chapter twelve, Keynes exposes the frail expectational foundations of the investment demand schedule. The "formal frame" of chapter eleven, which is one of fully informed action, is contrasted with the message of chapter twelve, which one of uncertainty and lack of information (Shackle, 1974:45). In chapter

twelve, Keynes emphasizes the unknown and unknowable future. The difficulty of investing in a speculative environment is highlighted (Keynes, 1936:157). For this reason, entrepreneurs have no alternative but to fall back on a convention (Keynes, 1936:152). The convention comprises a series of beliefs (Keynes, CW XIV: 114): Firstly, the entrepreneurs assume that the present conditions will continue into the future. Secondly, they assume that existing opinion correctly interprets the future, and thirdly, they adopt the general state of opinion - conforming to the average. So the convention is to conform to conventional judgement. This conventional behaviour gives the entrepreneur confidence in his actions. Nonetheless, since investment decisions are essentially based on the existing state of confidence, they are subject to rapid and substantial change. Keynes refers to the conventional method as a "flimsy" foundation (CW XIV: 114).

Another factor, revealed in chapter twelve, which exacerbates the instability of investment is that of the animal spirits or "spontaneous optimism" (Keynes, 1936:161). The fact that investors are stimulated into activity by this spontaneous optimism, defies attempts to calculate human decision (Keynes, 1936:162). Animal spirits appear to exert an influence outside of our rational assessment of the situation. We are in a situation with "our rational selves choosing between the alternatives as best we are able, calculating where we can, but often falling back for our motive on whim or sentiment or chance" (Keynes, 1936:163). This does not imply an irrational decision, since the decision is made in the absence of knowledge and hence not on the basis of evaluation of the

information available. These decisions could be seen as a-rational. Carabelli (1988:219) maintains that Keynes rejected the rational/irrational dichotomy, in the same way that he rejected the absolute notion of dependent and independent variables.

The world which Keynes exposes in chapter twelve, presents us with the possibility of an inherent instability in investment demand and hence income and employment. In this chapter, investment retains some degree of autonomy, as the intuitive motivations of investors are independent of decisions to consume, or indeed of any calculable criteria (Carabelli, 1988:214). Animal spirits make investment inescapably exogenous. Dow and Dow (1985:49-55) suggest that exogeneity resulting from the existence of "untamed" animal spirits is unacceptable to orthodox economists, as it threatens the very core of a study that aims to provide predictability. For this reason, rational expectations theory, which reduces animal spirits to calculable events in the system, has been widely embraced.

Shackle, on the other hand embraces the full implications of exogenous animal spirits. For Shackle (1974:31-49), this "kaleidic" vision was the ultimate message of the *General theory*, the formal frame of equilibrium is an artificial, and indeed, empty device. If we take the formal frame to be the whole truth, we will be entirely misled (1974:39). By rejecting the entire frame or model construct of Keynes's explanation, Shackle seems to be suggesting that Keynes's account

misleads us as to the degree of control we have over events.

However, if we assume Keynes's model construct is indeed a valid method by which to understand economics, then we need to return to the notion of investment in an uncertain world being exogenous. Carabelli maintains that it is the autonomous self-financing of investment which justifies Keynes's switch of causality from saving --> investment to investment --> saving (1988:215). She also maintains that it is only because of the autonomy of investment from the *real* interest rate and from intertemporal consumption decisions that investment can be said to determine the level of employment. For her then, exogeneity is crucial to Keynes's thesis.

If a variable is exogenous if no explanation of the variable is offered, Keynes's explanation of investment is not entirely exogenous. Keynes does offer some explanation of how investment is determined. The device of resorting to convention may not fully explain investment levels, as animal spirits may interfere, but he does offer us some glimmer of insight into the determinants of investment. He writes: " The considerations upon which expectations of prospective yields are based are partly existing facts which we can assume to be known more or less for certain, and partly future events which can only be forecasted with more or less confidence" (1936:147). It is true that entrepreneurs do need to forecast the future - but these forecasts are not "wildly wrong" (CW XIV: 182). The process by which the expectations of entrepreneurs are

disappointed and revised, is an explanation of how investment decisions are made. Keynes appeared to believe in the power of convention (his discussion on the workings of the Stock market in chapter twelve is a case in point) - for this reason, the conventional behaviour is not an empty explanation. The two "visions" of the investment decision seem to form parts of the same picture. Firstly, entrepreneurs base their forecasts on the expected rate of profit and the expected money rate of interest, using conventional judgements. Secondly, in spite of these forecasts, entrepreneurs are stimulated to invest, or withhold investment, by animal spirits. This appears to be an acceptable picture of a complex world. Investment can be explained to some degree by the expected profit and rate of interest. Beyond this lie the animal spirits.

The explanation is congruent with Keynes's method - it provides some understanding - but not calculable policy guidelines (Carabelli, 1988:151). The issue of animal spirits implies that there is always an element of exogeneity that is associated with investment. This justifies the *animal spirits in-the-picture* model; although we understand investment to some degree, there will always be some investment decisions we cannot explain in economic theory.

In this model, the casual link between investment and employment still exists, thanks to animal spirits. Hence, there is a degree to which investment is exogenous; this exogenous investment serves to initiate the income adjustment process. In this model, the simple multiplier will apply, as the economy is closed.

In chapter four, the model of Casar and Ros (1983) is examined. This model is of an open economy where investment involves imported capital goods. Investment becomes subject to additional variables over and above those discussed in the animal spirits in-the-picture model. The causal link between investment and employment may be influenced by these additional factors.

Chapter four

Small open economies and the income adjustment process if imports include capital goods

As investment is allowed to become more endogenous, the link between investment and employment is weakened. In this chapter, the *animal spirits constrained* model is employed. The model investigates a small open economy which imports both consumption and capital goods. The income adjustment process will be examined when investment involves imported capital goods.

The chapter begins with an examination of the reliance of SOEs on imported capital goods. Thereafter, the *animal spirits constrained* model is presented. If animal spirits are constrained, this suggests that their influence on the stimulation of investment is pre-empted in some way, so that investment is less than its potential. The equilibrium determined by the income adjustment process will be an unemployment equilibrium, as demand will be deficient in utilising the productive potential of the economy. Two explanations for the animal spirits being constrained are put forward: in section 4.2, the model of Casar and Ros (1983) is examined. They suggest that in an SOE which imports its capital goods, the income adjustment process results in an unemployment equilibrium; secondly, in

section 4.3, the influence of the balance of payments on animal spirits is examined. The suggestion here is that investment adjusts to the balance of payments. In this way, investment may be deficient and the income adjustment process will result in an equilibrium which falls short of the full utilisation of productive capacity.

4.1 The reliance of SOEs on imported capital goods

The composition of imports in a small open economy is skewed towards capital and intermediate goods (see Taylor, 1969:238 and Streeten, 1993:197). This arises from the relatively small domestic capital goods sector. The inability to produce complex capital goods has been attributed to the lack of sophisticated import substitution activities, given the existing size of market, level of skills and technology (Jalan, 1982:4). The financial instability in the investment market, and the inability to procure credit on favourable terms may also contribute to the underdevelopment of the capital goods sector (Casar and Ros, 1983:258 footnote).

The lack of a capital goods sector impacts negatively on the innovatory activity of the economy. Stewart (1991:164) maintains that there are greater externalities to innovation in the capital goods sector than elsewhere. Countries without a capital goods sector tend not only to import capital goods, but also technical progress. Imported technologies may be inappropriate, and since skilled labour

is a complementary input to investment, the relatively small learning base of SOEs may disadvantage their absorption of new technology (Lall and Ghosh, 1982:148). The higher costs of capital in SOEs which are dependent on imported capital goods; the limited availability of complementary inputs and the low capacity utilisation of plants, ultimately results in capital shallowing (Milner and Westaway, 1993:204-211). Capital shallowing, in its turn, reduces the potential for import substitution of complex capital goods. The lack of a capital goods sector may influence the export capacity of SOEs. The potential of improving export performance in manufactures is determined by the requirement for imported machinery and equipment (Ward, 1975:126).

The inability to produce capital goods means that the SOE is dependent on imported capital goods. The dependence on imported investment goods has both technological and economic features (Stolper, 1964:132). *Technological dependence* is reflected in the relationship between potential investment demand and the ability to buy imports. As export earnings improve, so too does the capacity to import and invest. For investment to increase, one or a combination of the following must occur: exports must increase, the import co-efficient of consumption and non-investment expenditure must fall, or the balance of payments deficit on the current account must increase (Kennedy, 1966:13). *Economic dependence* on imported investment goods potentially affects the minimum flow supply price of capital goods - if raw material imports become cheaper, the profitability of production may improve, resulting in increased

investment demand and greater demand for imports. Hence, the prices of imported goods affect the marginal efficiency of capital in countries which have to import to invest (Stolper, 1964:132).

Importing capital goods is however, easier said than done. The SOE is unable to influence its demand for exports, or the terms of trade at which they are sold, hence imports of capital and intermediate goods may be limited by the balance of payments. This aspect will be examined in section 4.3.

4.2 The income adjustment process in the animal spirits constrained model

This model is distinct from the models in chapter three, in that the economy is *open*. There is international trade between the economy and the rest of the world. The economy is an SOE which is unable to produce all the capital goods it requires, and the composition of imports is skewed towards capital and intermediate goods. Investment demand is explained as a function of the interest rate, the number of entrepreneurs who have access to finance, long term expectations, animal spirits and the balance of payments. Although there may be some capacity to produce capital goods domestically, it will be assumed that all complex capital goods have to be imported. This feature influences investment, making it subject to the workings of the model, and hence endogenous to some degree. In the animal spirits in-the-picture model, by virtue of the animal spirits,

investment remained exogenous. In the animal spirits constrained model, it is argued that although animal spirits are present, they are constrained by the structure of the model, i.e. the inadequate domestic capital goods sector.

When investment involves imported capital goods, the income adjustment process results in an unemployment equilibrium. Casar and Ros (1983:257) argue that investment is self-defeating, rather than stimulatory, in an economy which is dependent on imported capital goods. They maintain that the process of importing capital goods fails to stimulate domestic effective demand. Since domestic effective demand is not increased, the effect of investment on the level of employment is not realised. Thus, it is no longer true to say that given the consumption function, the level of investment determines the level of employment.

Casar and Ros base their analysis on a country without a fully developed capital goods sector, and whose exports are largely primary goods. The primary goods export sector is seen as slow-growing or stagnant (1983:259). The lack of a domestic capital goods sector means that capital goods will be imported. Importing capital goods affects the income adjustment process described in earlier models.

Importing capital goods stimulates the investment sector of the trading nation. This sets up a multiplier process in the trading nation since income and

employment increase, prompting an increase in consumption, and hence an increase in the production of the consumption sector. A new equilibrium level of income is established in the trading nation. This suggests that the stimulation resulting from the increase in investment expenditure benefits the trading nation. Back home, the imported capital goods increase future productive capacity, but effective demand for this capacity is not forthcoming. In the closed economy model, an increase in investment stimulated the effective demand for currently produced consumption goods. This effective demand emanated from those employed in the investment sector. However, since capital goods are not ordered from the domestic investment sector, effective demand is lost. Investment expenditure has lost its capacity to stimulate effective demand for current production. Utilisation of productive potential is deficient. To the degree that investment involves imported capital goods, the multiplicand of the multiplier process is exported (Stolper, 1964:13).

If investment involves some purchases from the domestic capital goods sector, and domestic demand is stimulated, part of this demand is lost to trading nations as imports for consumption purposes. Hence, the foreign trade multiplier applies. Furthermore, repercussion effects resulting from the stimulation of trading partners are assumed to be minimal, as it is unlikely that demand for domestic primary goods will grow as a result of increased foreign income. Hence, when imports are capital goods, investment fails to stimulate employment to any degree, as both the multiplicand and the multiplier are affected.

The impact of the loss of the primary multiplier effect of investment dampens the profit in the consumption sector. Hence, short term expectations will be disappointed. This may result in the revision of production and employment plans. To the extent that short term disappointment affects long term expectations and animal spirits, orders for investment goods will decline. The increase in the capital stock resulting from investment, tends to depress the rate of profit (Casar and Ros, 1983:262). This will act to further depress animal spirits. The fall in the rate of profit can be stemmed by the government - if it stimulates effective demand without increasing productive capacity. The cost of this intervention, however, is a worsening of trade and fiscal deficits - implying that the intervention cannot continue indefinitely. The problem which initially appeared to be a lack of effective demand resulting from investment in imported capital goods is now transformed into a balance of payments crisis (Casar and Ros, 1983:263).

The extent to which investment generates effective demand domestically depends on the composition of investment among industries (Casar and Ros, 1983:258). In the Casar and Ros model, there will be some domestic stimulation of effective demand if the new investment generates increased production capacity in import-substituting industries. The increased capacity of import substitutes may stimulate production in other industries. The strength of this indirect multiplier will determine the growth in the economy, resulting from the initial investment.

Casar and Ros's model of an open economy, in which productive capacity is

enhanced as a result of investment, while the stimulation of effective demand and employment fails to materialise, bears strong resemblance to the problem identified in the Harrod-Domar growth theories, i.e. the dual role of investment.

The Harrod-Domar growth models identify the dual role of investment which seems to be central to the problem of long term growth - i.e. that investment adds to productive capacity while at the same time adding to aggregate demand. The Keynesian model is essentially restricted to the short term; but Harrod and Domar seek to investigate the long term results of investment (Jones, 1975:65), and so are compelled to face the effects of capital accumulation on employment. Domar (1946:139) points out that the Keynesian system recognises the income-generating capacity of investment, but ignores its productive capacity. Thus Keynes recognises the demand side of investment, and sees employment as a function of national income - but not of productive capacity (Domar, 1957:87). Domar's acceptance of the Keynesian view that investment is necessary to maintain the level of income, points directly to a problem in the long run: even if investment today is sufficient to ensure an income level at which there is full employment, this income may not be adequate to ensure full employment tomorrow. Domar (1946:147) sees investment as inextricably linked to growth; if a company invests in more capital goods, this may result in the employment of less labour, so income must be growing elsewhere if full employment is to be maintained. The rate of growth of income thus needs to match the growth of

productive capacity to maintain full employment. If investment fails to grow at a rate at which income matches the growth in productive capacity, then idle capacity will gradually develop, bringing with it unemployment.

Domar sees the rate of investment and the rate of growth as essentially representing the same thing (1946:143). He is concerned with establishing the rate of growth which would ensure full employment, and so analyses the relative rate of growth of productive capacity with that of the growth of income as investment increases. He finds that whereas the increase in productive capacity is a function of the amount of investment expenditure each year, the increase in national income is a function of the *increment* of investment from one year to the next. Hence there is a lack of symmetry in the stimulation of productive capacity and national income. In addition, the stimulation of income through the multiplier is a temporary phenomenon, which works itself out, but the increase in productive capacity is permanent (1957:101).

In the Domar model, if the economy fails to grow fast enough so that income fails to grow at the required pace, idle capacity will develop. This will imply both unemployed capital and labour; the existence of the former will inhibit new investment (Domar, 1946:145). In terms of our earlier analysis, the unemployed capital suggests that the demand or spot price will be less than the minimum flow supply price, as a result of the redundancy. The redundant capital will depress the economy, which will further subdue the economy (Harrod, 1939:22),

resulting in a self-aggravating depression with long term unemployment.

Domar's solution to a persistently inadequate growth rate which the economy has no capacity to improve, is the reduction of the marginal propensity to save or an fall in the capital-output ratio (by stimulating capital intensive industries). If the required rate of growth is achievable, then investment should be encouraged to compensate for the marginal propensity to save. Fiscal measures to encourage investment can be utilised, and a program of "talking" the economy to "prosperity" should be embarked on. Domar concludes that the "smooth functioning of a capitalist society requires continuous growth" (1957:121). The analysis of Casar and Ros suggests that Domar's solution of stimulating capital intensive industries in an open economy which imports its capital goods would hasten the problem of productive capacity exceeding effective demand.

The similarity between the analysis of Casar and Ros and the Harrod-Domar analysis lies in their recognition of the dual role of investment. Although Harrod and Domar are concerned with the long term growth process, and Casar and Ros with the implications of importing capital goods on the income adjustment process, they are essentially concerned with the same problem. In both models, effective demand may not be adequate. In the Harrod-Domar model, effective demand is seen as potentially inadequate to buy the products which may be produced if productive capacity is used to its full potential. In Casar and Ros's model, investment expenditure fails to stimulate domestic effective demand, while

productive capacity is imported. In both models, investment is endogenous.

The dual role problem arises for different reasons in the two models. In the Harrod-Domar model, the dual role of investment arises in the analysis of growth, in which they examine the effects of investment over a longer time period. In the Casar and Ros's model, the problem arises because of the lack of a domestic capital goods sector. Park (1994:66) suggests that investment, through the principle of effective demand, determines not only the short term utilisation of capacity, but that the structure of capacity adjusts to investment in the long run. In the model of an economy without a domestic capital goods sector, effective demand is exported and utilisation of capacity is inadequate. At the same time, animal spirits are constrained by the enhancement of productive capacity for which effective demand is deficient, and the long term position of the model is affected.

In the animal spirits constrained model, it is apparent that the multiplicand and the multiplier effects are lost to the trading partner, and so while productive capacity of the economy is enhanced, effective demand is not. The act of importing capital goods limits effective demand, unless these imports are directed towards import-substituting industries. Casar and Ros maintain that fiscal attempts to stimulate effective demand will lead to fiscal and balance of payments crises. Casar and Ros see the balance of payments potentially influencing the workings of the model if the government attempts to stimulate deficient effective

demand. However, since investment involves imported capital goods, the influence of the balance of payments may arise earlier. If investment is dependent on imported capital goods, then pro-cyclical demand for capital goods may place pressure on the current account. Section 4.3 will examine this issue.

4.3 The balance of payments and the animal spirits constrained model

In the animal spirits constrained model, imports of capital goods accompany investment. Hence, as investment increases, increased imports of capital goods may place pressure on the balance of payments. Pressure on the balance of payments implies that the current account is in deficit. A deficit on the current account can be sustained if it is accompanied by inflows of foreign capital. Failing this, and given finite reserves, a deficit requires macroeconomic adjustment which may entail expenditure-switching or expenditure-absorbing policies. The aim of either of these policies is to bring imports into line with exports.

When imports are for investment, the potential for conflict between the balance of payments equilibrium and other national policy objectives becomes apparent. Investment is necessary for full employment, but investment requires imports. Thirlwall (1980:50) refers to Robinson's magic quadrilateral of macro policy

objectives: balance of payments equilibrium, full employment, faster growth and stable prices. Our model suggests that there may well be conflict between the balance of payments equilibrium and full employment and faster growth. In this case, the importation of the means by which expansion can be made possible causes the current account deficit. A reduction in imports will result in that which is required for growth, being reduced.

If labour is unemployed because of the absence of capital imports, then the imports represent borrowing in the present to increase both present and future production. If the projected rate of growth that the imported capital will help to achieve is greater than the interest required to finance the balance of payments deficit, then an international loan should be sought (Kregel, 1975:178). However, this finance may not be forthcoming.

A deficit on the current account conveys a warning signal. Assume we have a small open economy which imports capital and intermediate goods. Exogenously, investment expenditure increases. This stimulates imports, and the import bill increases relative to export receipts, resulting in a current account deficit. A deficit will result in adjustment: Under a *floating exchange rate* system, a current account deficit will put pressure on the exchange rate, since there will be excess demand for foreign exchange. The value of the domestic currency will fall. Depending on the elasticity of demand for imports, demand for imports may drop off as the price of foreign exchange continues to increase. Where investment

decisions depend on the availability and price of imported capital goods, investment expenditure may fall. Essentially, investment may be crowded out by the high price of foreign exchange. In a situation of a *managed float*, the exchange rate may be supported by the intervention of the monetary authorities. Intervention is only possible if the reserve bank has stocks of foreign currency to sell to the market to attempt to meet the excess demand. If stocks are sufficient to meet the current flow demand, intervention in the market may be successful. If stocks are deemed to be inadequate, then the monetary authorities may resort to contractionary policy. This often implies an increase in the interest rate. Since the prospective yield will be discounted by a higher interest rate, this may result in a reduction in investment. This time the investment may be crowded out by the high interest rates.

In both cases, investment is dampened as the current account comes under pressure; either by price effects as the domestic currency depreciates, or by an increase in the interest rate. If one assumes that investment expenditure would involve some domestic input, then stimulation of the economy is pre-empted by the reduction in investment expenditure. This will influence confidence and animal spirits negatively. If domestic orders are cancelled, expectations of entrepreneurs will be negatively affected and jobs will be lost, or not created, resulting in lower income levels.

The adjustment process resulting from an unsustainable current account deficit

will be examined by assuming first a freely floating exchange rate regime and then a managed float in the animal spirits constrained model.

Proponents of freely flexible exchange rates see the effective working of the market for foreign exchange as the only means to eliminating balance of payments deficits. Thirlwall and Hussain (1982:498) are sceptical as to the efficacy of this policy stance. They maintain that the use of depreciation of the domestic currency to change relative prices, and induce expenditure-switching is unlikely to change the trend growth of a country. McCombie (1993:481) supports this: Long term trends in exports shares may be affected by a depreciation, but are unlikely to be reversed. However, the notion of a market-clearing price, restoring equilibrium is appealing. In a floating exchange rate market, there are no physical constraints on the purchase of foreign exchange, although the price of foreign exchange may become prohibitive to the prospective buyer. As the exchange rate continues to rise, exports will become relatively cheaper and imports will fall. Domestically produced goods may be substituted for imports. The change in relative demand for exports and imports will ultimately result in the elimination of the deficit.

The proponents of the free floating exchange rate do not recognise the possibility of perverse elasticities of demand for imports and exports. If demand for imported goods is inelastic enough, however, the domestic currency value may fall for a prolonged period and pressure on the current account may not be relieved. The

assumption that a devaluation will relieve the trade balance assumes sufficient world demand for exports. Essentially it is assumed that the country experiencing the devaluation in its currency can sell as many exports as it chooses (Williamson and Milner, 1991:195). However, if demand for exports is inelastic, and demand for imports is inelastic, the freely-floating exchange rate will not relieve the pressure on the current account. The sustainability of the balance of payments position then becomes an issue.

The possibility that the market-clearing price is a myth also needs to be considered. Equilibrium implies the *motivation* of buyers and sellers is balanced out, so that neither have the incentive to alter the price or quantity offered or purchased (Davidson, 1967:333). This implies that the equilibrium of the exchange markets may *not* be one where quantity demanded over a certain period equals the quantity supplied at the given price. The exchange rate and the balance of payments are not independent of the rest of the domestic economy and the implications of a "free-fall" currency need to be considered.

In the freely floating system, there is no constraint on purchases of foreign exchange, but it is assumed that a market-clearing price will be reached. However, the achievement of the market-clearing price may be so delayed that the domestic costs of a flexible exchange rate may become too great. The freely floating exchange rate approach relies on exchange rates to alter the relative money costs of production, so that the unit labour costs in the country with the

depreciating exchange rate will fall relative to its trading partners (Davidson, 1982:263). Hence, the support for the freely floating exchange rate rests on the notion that expenditure-switching will prompt the relative demands for exports and imports to eliminate the trade deficit and associated payments imbalances. McCombie maintains that the non-price factors, such as product design, technical sophistication, and quality, are dominant in determining export demand (1993:482), and so expenditure-switching is unlikely to improve long term trends in growth.

Limited potential for import substitution is frequently cited (eg Joshi, 1970:122 and McKinnon, 1964:405) as a reason why expenditure-switching may not be successful. An analysis of the composition of imports of SOEs reveals, for example, that intermediate and capital goods make up a significant percentage of the import bill. The importance of foreign inputs to the production process is unlikely to diminish - as even although a country's ability to produce simple capital goods may improve as it develops, its requirements for more complex capital goods will tend to increase, thus offsetting any reduction in dependence (McKinnon, 1964:405). At the same time, the composition of exports reveals a dependence on primary goods. If, as may be reasonably assumed, these are income-inferior goods, it is unlikely that demand for these exports will rise, even if the devaluation makes them relatively cheaper.

In a closed economy, the need for finance to realise investment plans was

discussed as a factor which could delay or discourage investment. In an SOE which imports capital goods, the balance of payments imbalance represents a liquidity problem (Davidson, 1994:213). Imports of capital goods may be financed by short term capital flows and ultimately by long term loans. However, if a nation is denied access to finance, lack of availability and price of foreign exchange may be prohibitive. If the ordering of imported capital goods places upward pressure on the price of foreign exchange, then this may result in a decline in investment. To the extent that this investment involves domestic inputs, the lack of availability of foreign exchange will pre-empt investment, and hence the increase in domestic aggregate demand and income.

In a SOE, the demand price for imported capital goods must exceed the minimum flow supply price if capital goods are to be ordered and produced. In our animal spirits constrained model, the supply price may be seen as a function of the exchange rate and the world price of the capital good. The demand price may be influenced by the availability of foreign exchange, long term expectations, the domestic interest rate, the number of entrepreneurs who can obtain finance/ forward cover and animal spirits. The investment decision is thus influenced by the balance of payments constraint through the price and availability of foreign exchange. In the same way that the price and availability of finance is a factor in realising investment plans when capital goods are ordered from domestic sources, the price and availability of foreign exchange influences investment which requires imported capital goods. As the economy expands, there is a

tendency for import expenditure to increase, however, if export expenditure does not increase simultaneously, then the availability of foreign exchange may fall short of the domestic economy's needs. This will tend to put upward pressure on the value of foreign currency.

Since the price of foreign exchange influences the supply price of imported capital goods, if the value of foreign currency increases, the supply price will rise. Given the demand price of the goods, investment may be discouraged. If the capital good is destined to produce goods for export, then a change in the exchange rate may affect the prospective yield of the capital goods and the demand price may also be influenced by the exchange rate. The exchange rate is a price which influences the level beyond which it is no longer profitable to invest.

By examining the freely floating exchange rate in our animal spirits constrained model, emphasis has been placed on the influence of the exchange rate on the investment decision when imports involve imported capital goods. In the animal spirits constrained model, the availability and price of foreign exchange acts to limit animal spirits, by affecting the profitability of marginal projects. It appears that a free-fall currency may not alleviate the problem of a current account deficit, if demand for exports is not forthcoming and the demand for imports is inelastic. A depreciating currency may reduce the numbers of orders placed for imported capital goods, so investment may decline. This suggests that although the

proponents of a freely floating exchange rate maintain that it is the exchange rate which adjusts to shocks on the balance of payments, the animal spirits constrained model suggests that investment also adjusts.

Davidson (1982:262) maintains that the managed float scenario is the only realistic one in an economy. Governments can never allow the public to believe that they will permit truly free floating exchange rates. The possibility of this instability is "anathema to all entrepreneurial trading economies". If the authorities maintain a managed float, they will intervene in the foreign exchange market and support the domestic currency by purchasing the excess supply of the currency with valuable foreign exchange reserves. This intervention cannot be sustained without other policy measures which will alleviate the current account deficit, since the state's capacity to intervene in the currency market is limited by their foreign exchange reserves. Contraction of the domestic economy is necessary to reduce domestic absorption. One of the policy instruments available to reduce absorption is the interest rate. Others may include a reduction in government spending, or an increase in the tax rate.

In order to reduce absorption, the interest rate may be increased. This will tend to increase the discount on the prospective yield of the output produced by the capital good over its productive life, so the demand price will fall. Since the demand price must exceed the supply price for an order for the capital good to be placed, marginal investment projects may be shelved. This dampening of

investment will affect all planned investment in the economy, including that which may not involve imported capital goods. Hence, in order to address the current account deficit while maintaining the value of the domestic currency, absorption must be dampened. Although all domestic expenditure may be affected by the increase in the interest rate, the major effect will be borne by investment, as of the components of aggregate demand, it is the most sensitive to interest rates, and secondly, since it is investment expenditure which caused the deficit, investment is the target of policy measures. As investment starts falling, pressure on the current account will be relieved.

If stimulation of the economy by investment expenditure, causes import demand to rise sharply, without an accompanying rise in export demand, the short term supply capacity of the economy may not be exploited before domestic demand has to be dampened. The resulting contraction of demand which is forced on the economy, will cause investment demand to fall, and technological progress to slow down (Thirlwall, 1979:46). The decrease in investment will have negative implications for the country's future growth and technical progress, and its export market, as exports may become less competitive. A negative growth cycle may ensue, which will also affect the country's debt capacity. If the country is a debtor, and the country's growth rate is less than the interest rate, then the non-interest current account balance will have to be in surplus in order to service the country's debt. The slower the rate of growth of income, the smaller will be the sustainable external debt (Cumby and Levich, 1992:117). The lowering of the level of

sustainable debt lowers the sustainable inflow of foreign finance. Hence the implications of investment adjusting to the balance of payments does not bode well for the future of the economy.

The chapter suggests that investment which requires imported capital goods is different from that which does not. Firstly, investment which involves ordering capital goods from another country, is impotent in generating domestic employment by means of the income adjustment process, as the stimulation from investment benefits the trading nation. Investment becomes double-edged, as that which is required for expansion, fails to provide demand for the potential products of the expansion. Investment becomes self-defeating. Secondly, when investment involves imported capital goods, the balance of payments influence on the investment decision cannot be discounted. Since the imports of a SOE are skewed towards capital and intermediate goods, it is investment which bears the brunt of macroeconomic adjustment to an unsustainable current account deficit. Hence animal spirits are constrained by the adjustment forced on the economy by the balance of payments.

In the animal spirits constrained model, investment appears to be largely determined by the workings of the model. Hence, investment becomes more endogenous. (Investment is not completely endogenous, as some investment which does not involve imported capital goods may take place, and the animal spirits may affect *this* investment at least.) That investment which involves

imported capital goods, which does take place, benefits the level of employment and income of the trading nation. Hence the potency of investment, in the animal spirits constrained model, in generating employment and income via the income adjustment process, is disappointing when compared to that in the models where a domestic capital goods sector meets all the requirements of investors.

Chapter five

Imported capital goods and the South African economy

The previous chapters have led to the conclusion that when investment in a small open economy involves imported capital goods, investment does not stimulate employment and income to the extent suggested in the model of the closed economy, although the productive potential of the economy may be enhanced. Importation of capital goods means that as investment increases, balance of payments problems may be encountered. In the absence of an inflow of foreign capital, adjustment to a deficit on the current account of the balance of payments, requires that exports increase or imports decrease. In a country like South Africa, adjustment normally entails a reduction in imports, and since imports are largely capital goods, adjustment to the balance of payments takes place via a reduction in investment.

In this chapter, South African data are used to investigate the adjustment process when imports consist largely of capital and intermediate goods. The chapter begins with a justification of the classification of South Africa as an SOE. Secondly, the chapter examines the composition of South Africa's imports and the relationship between investment and imports. Finally, influences on investment in South Africa,

which is heavily reliant on imported capital goods, are examined. It is suggested that investment adjusts to the balance of payments and in response to animal spirits.

Unless otherwise stated, the data are obtained from the *Quarterly Bulletin* of the South African Reserve Bank, and the definitions of data series are those provided by the SARB.

5.1 The openness of the South African economy

South Africa has often been grouped with small open economies (see for example, Mohr, 1993:26 and Nattrass, 1991:30). This is in spite of South Africa having a population of some 40 million people. In chapter two, the emphasis was placed on the analytic approach to country size classification, which stresses that small open economies may be classified as such by virtue of their openness. Since this is the classification procedure we adopt here, South Africa may be considered a small open economy, if it is demonstrated that it is an open economy. Openness reflects the foreign proportion of a country's economic activity. This may be measured by the ratios of imports to gross domestic expenditure (GDE), and exports to gross domestic product (GDP). The comparison of imports to GDE arises from the convention that excludes imports from GDP, but includes imports in the value of GDE. In some cases, the *sum* of exports to GDP and imports to GDE is used as an indication of the extent to which the foreign sector influences the domestic

economy. Mohr and Rogers (1991:53), however, suggest that the *average* of the ratios of exports to GDP and imports to GDE should be used as the measure of openness. The export and import values should include both goods and services, since the foreign involvement in both these areas affects the measure of openness. (In the ratios shown, non-factor services are used as the denominators, GDP and GDE, are domestic concepts.) Figure 1 shows the ratios of exports to GDP and imports to GDE in nominal prices for the period 1970-1994; and the average of the two ratios is plotted in Figure 2.

FIGURE 1

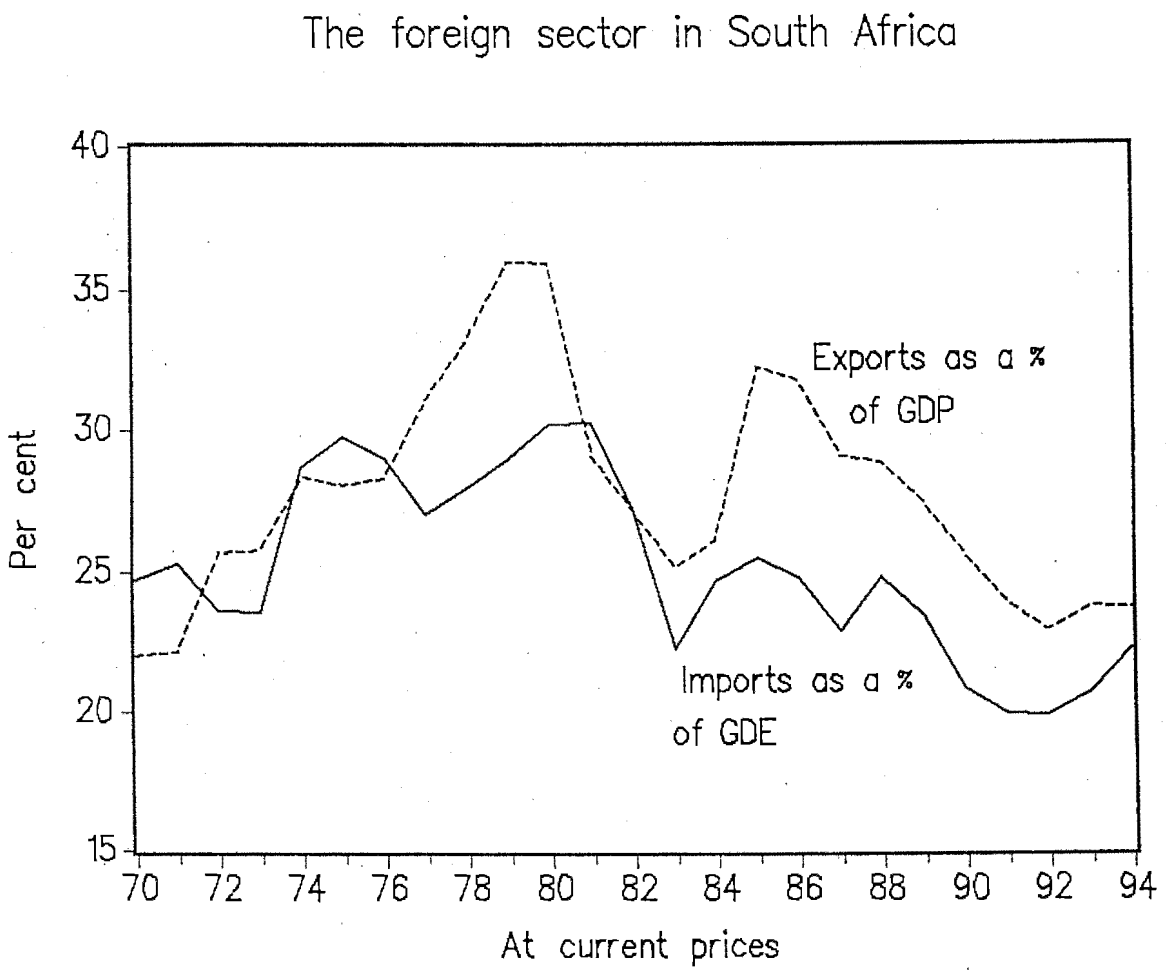
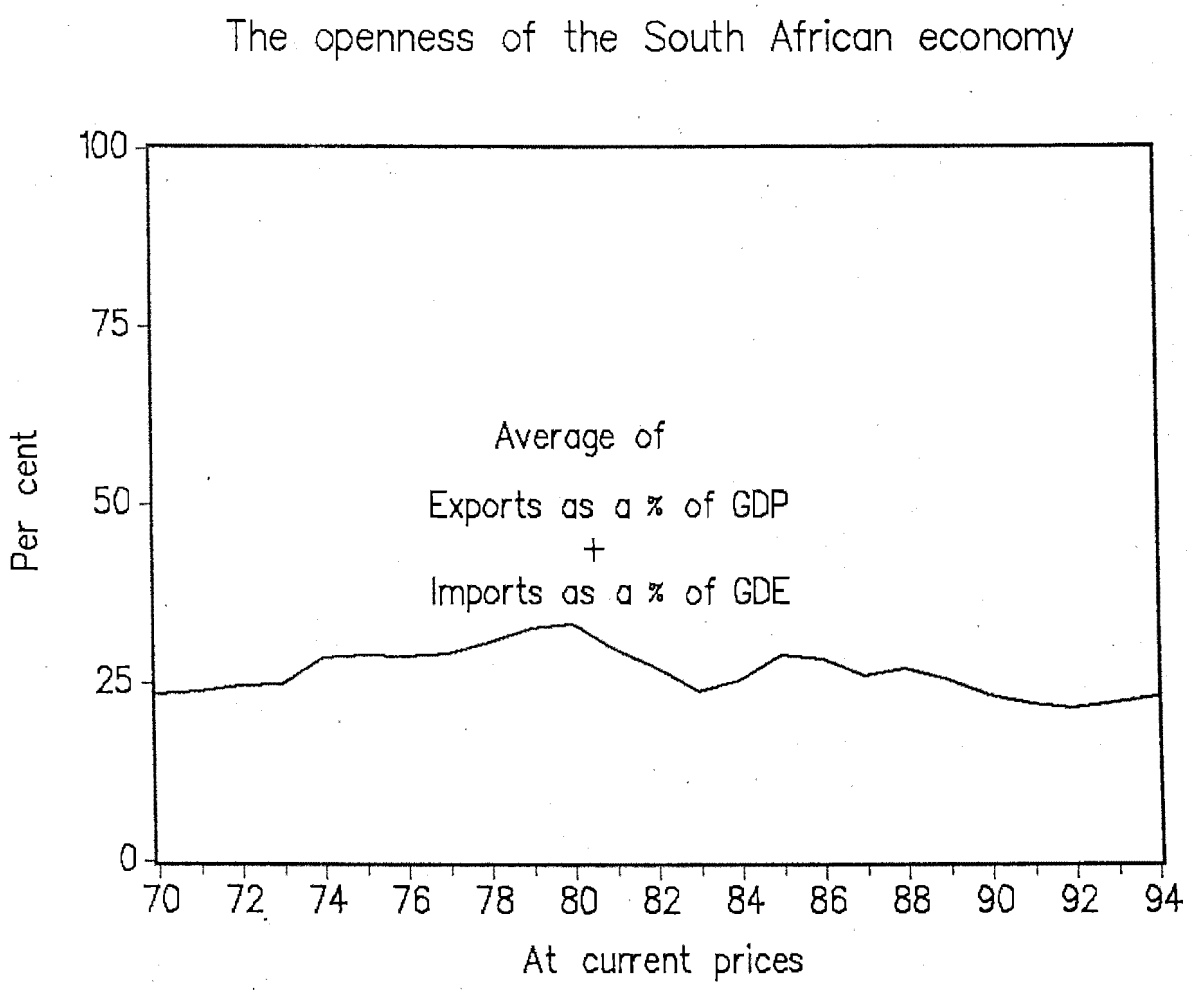


FIGURE 2



The stability of the share of imports in GDE seen in figure 1 has been a feature of the South African economy since the 1920s. This is despite a policy of import-substitution being implemented from as early as 1924 (McCarthy, 1988:9). Since the ratio of imports to GDE has not changed, the composition of imports may have changed. The composition of imports will be examined in section 5.2.

Over the past two decades, the foreign sector has accounted for about 25 per cent of domestic activity. The rule of thumb given in chapter two was that the foreign sector should represent 20 per cent or more of domestic activity, for the country to be considered a SOE (Prachowny, 1985:235). Thus South Africa is a small open

economy.

5.2 Investment and the reliance on imported capital goods

In order to examine the link between investment in South Africa and imported capital goods, we begin by examining the aggregate figures, and then go through a process of disaggregation. Merchandise imports are compared to imports of goods and services in Figure 3. Merchandise imports account for about 80 percent of the total import bill over the period 1970-1994. The difference between the two curves is the value of imported services.

FIGURE 3

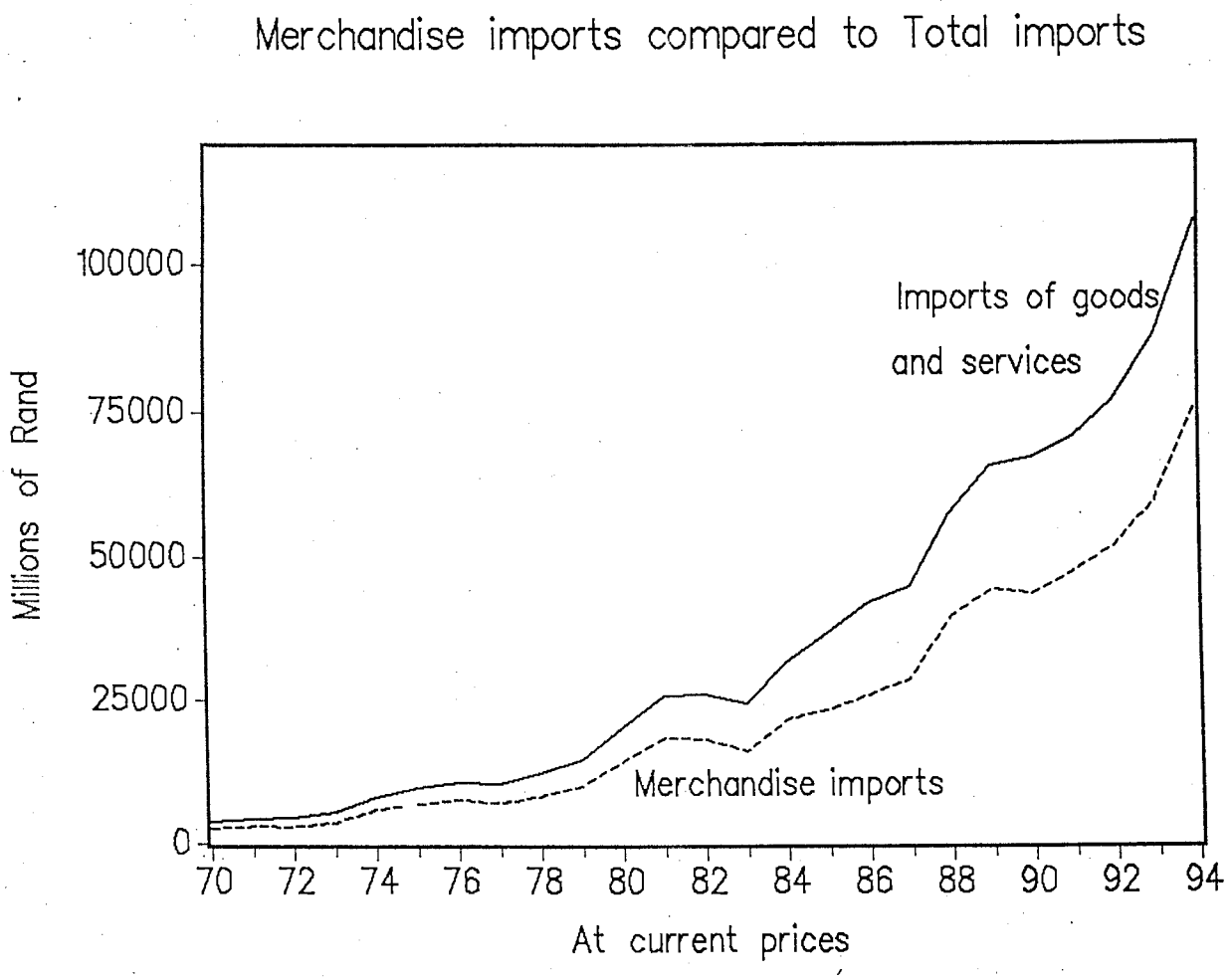
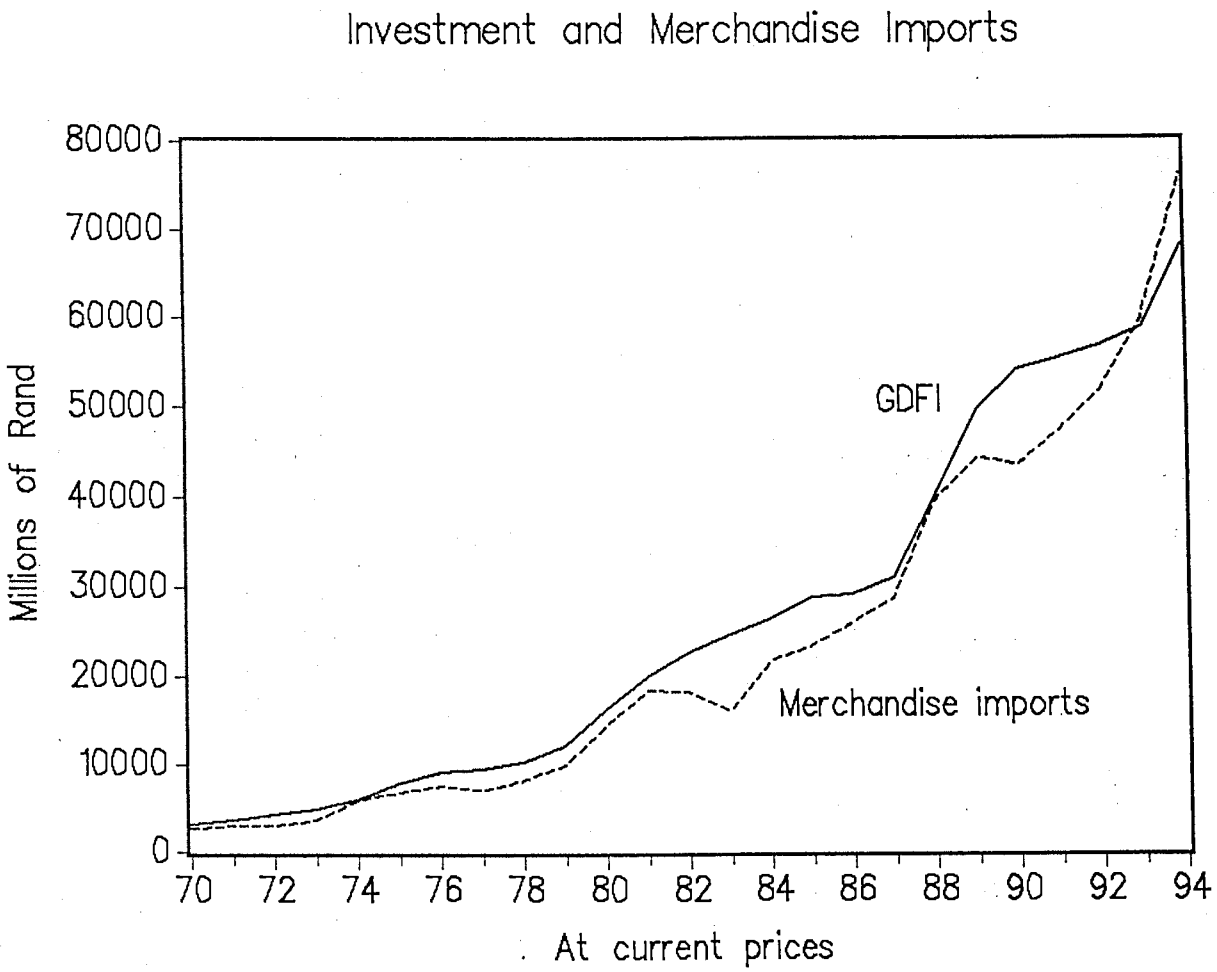


Figure 4 shows the gross domestic fixed investment (GDFI) and merchandise imports from 1970-1994, both at current prices. GDFI represents expenditure on new, durable and productive assets which have a life expectancy extending beyond the year in which the expenditure takes place (SARB Supplement, June 1991:9). While the curves move in sympathy, not every good imported is of a capital nature, and not all capital goods are imported.

FIGURE 4



The link between investment and imports does not appear as strong when the series are presented in real terms. This may have to do with the number and variety of deflators involved. A range of price indices are used to deflate GDFI, according

to the type of investment asset: Three separate indices are used for each of residential building, non-residential building and construction and land improvements. Components of the producer price index are used to deflate the categories of transport equipment and machinery and other equipment, and transfers are deflated by the same index used for residential buildings (SARB Supplement, June 1991:11). Merchandise imports are deflated by calculating the average index value per unit imported. This index is based on data from the Commissioner of Customs and Excise.

FIGURE 5

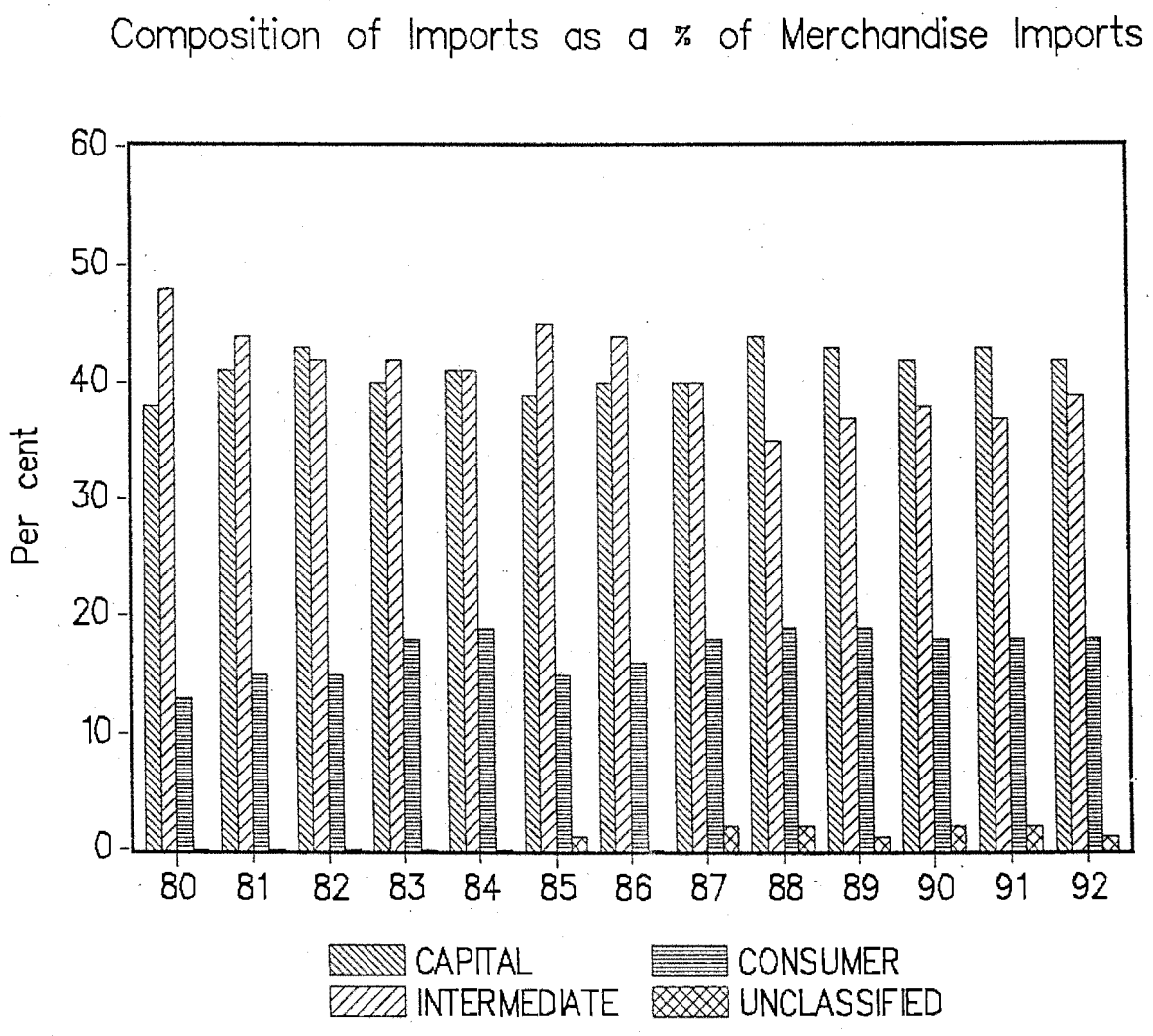
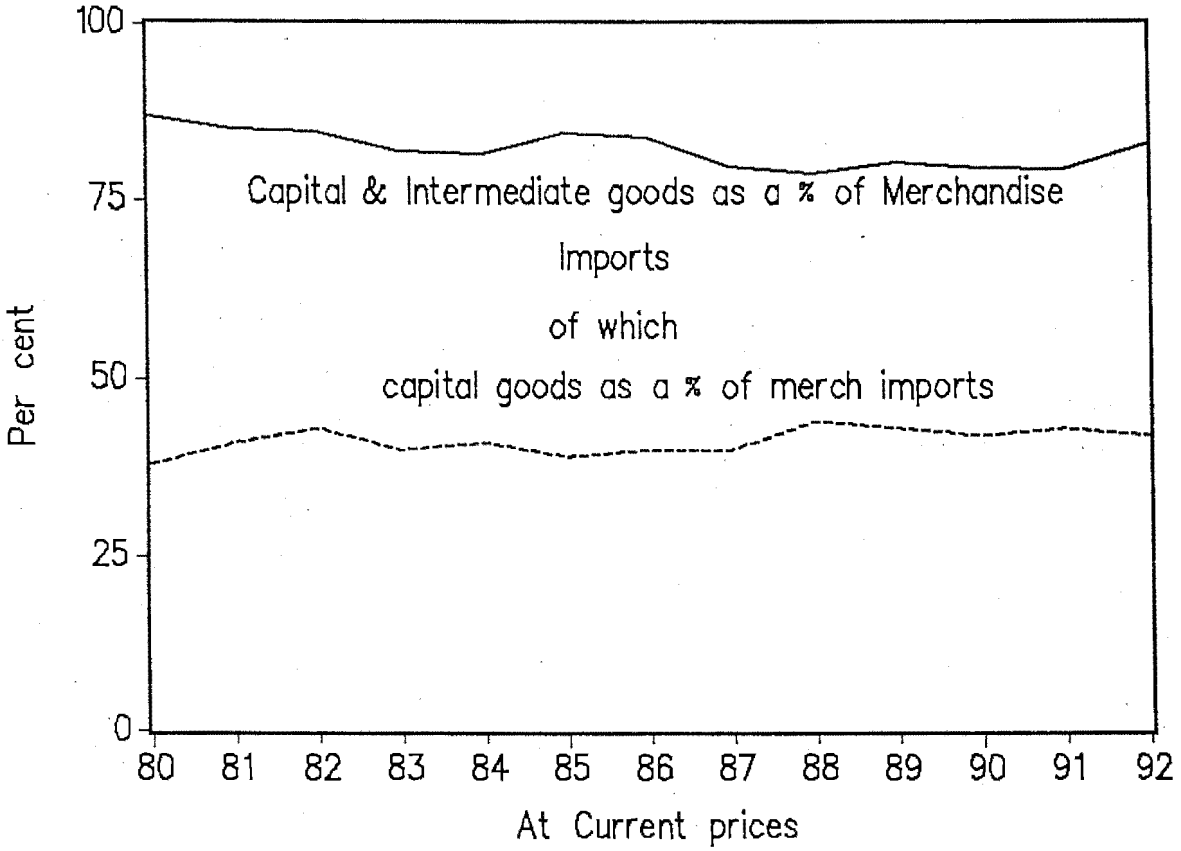


Figure 5 shows the composition of merchandise imports, classified into capital, intermediate, consumer and unclassified goods. The data upon which the figure is based are unpublished data from the Reserve Bank. Capital goods are productive assets which have a life expectancy beyond the year in which they are purchased. Goods considered to be used up during the accounting period, or goods considered unlikely to yield benefits in the future, are classified as intermediate goods (SARB Supplement, June 1991:9).

FIGURE 6

Capital & Intermediate goods as a percentage of Merchandise Imports

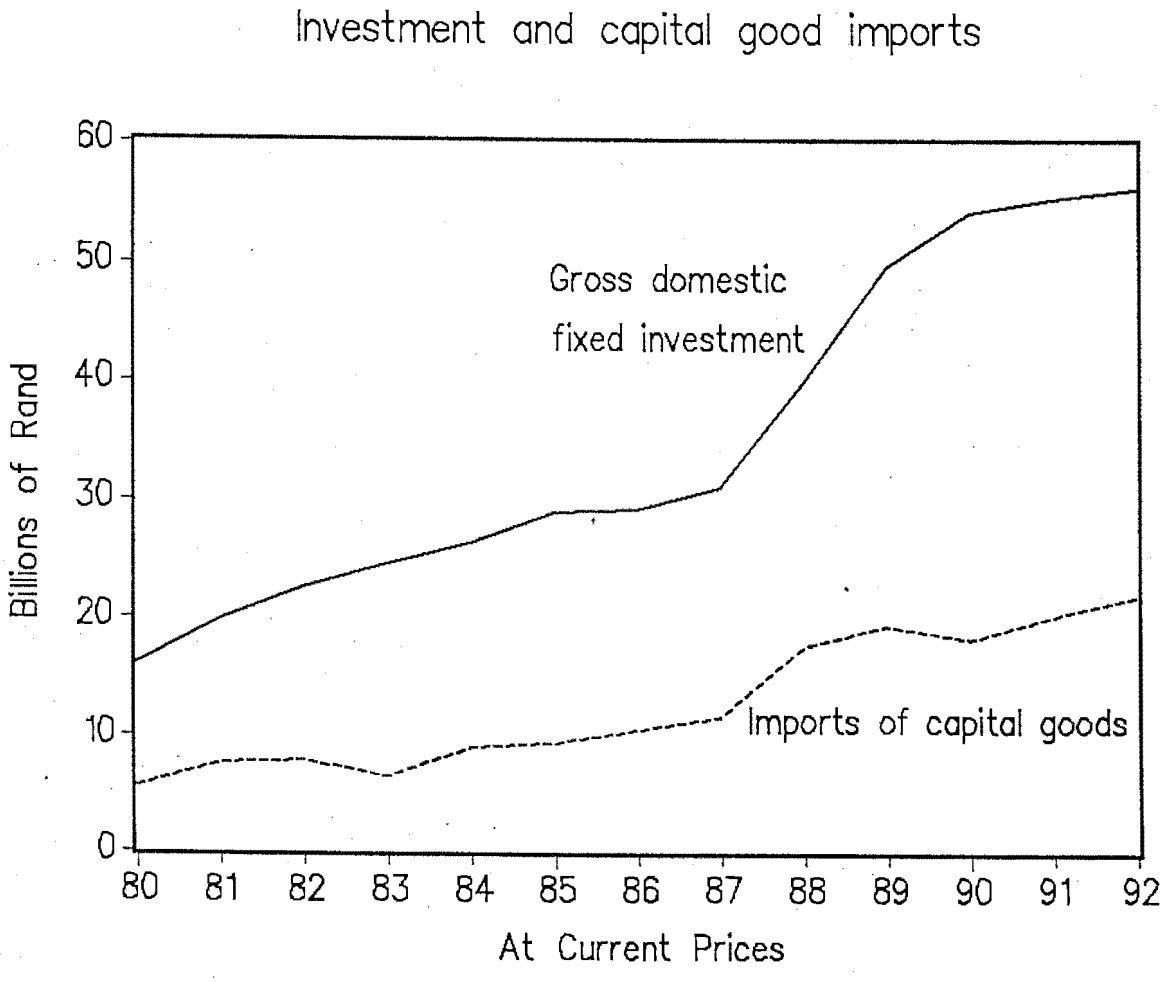


Capital and intermediate goods each make up about forty percent of the total merchandise import bill. The 80 per cent rule - where capital and intermediate

goods together make up 80 per cent of the merchandise import bill can be seen clearly in figure 6. Hence the association of a SOE with an import bill which is skewed towards capital and intermediate goods, is verified in this case. The percentage of merchandise imports made up by capital goods is also displayed.

Figures 5 and 6 emphasise the high percentage of capital and intermediate goods in the import bill. The question remains as to the degree that imports represent investment expenditure.

FIGURE 7



The imports of capital goods, together with gross domestic fixed investment are plotted in figure 7. Compared with Figure 3, where expenditure on merchandise imports and GDFI correspond closely, Figure 7 suggests that there is a fair amount of investment which does not involve imports, and that not all imports are related to investment. Hence we require a disaggregation of GDFI.

In the national accounts, investment is categorised by the type of asset. The assets are residential building, non-residential building, construction and land improvement, transport equipment and machinery and other equipment. Descriptions of these categories are found in the Supplement published by the SARB (June 1991: 11). Investment in *residential building* consists of the value of work in constructing or altering dwellings, which may include the installation of stoves or plumbing. Investment in *non-residential building* includes the construction or alteration of structures which are primarily used for industrial or commercial use. This includes building of schools. Investment in *construction and land improvement* includes the construction and alteration of roads, airports, mine-shafts and dams. Investment in *transport equipment* is measured as the purchase value of newly completed ships, aircraft, railway stock and motor vehicles as well as outlays for alterations or improvement to existing transport equipment. Investment in *machinery and other equipment* includes agricultural machinery, power-generating machinery, cranes and forklifts, office machinery and furniture, computers and electrical equipment and instruments used in hotels and hospitals. Hand tools of small value and inexpensive furniture are regarded as current expenditure.

Fixed investment in these last two categories, transport equipment and machinery and other equipment, are generally regarded as the most important sectors in terms of import demand (Kahn, 1987:239). It can be argued that investment in the first three categories is met largely by domestically produced capital goods, however, the situation is complex. For instance, investment in the building and construction categories requires imported goods which will appear in the transport equipment or machinery and other equipment categories. If a construction project requires the importation of a particular crane, this will appear in the category of machinery and other equipment. Investment in building and construction may also have backward linkages to imported goods. Although corrugated iron sheeting used in residential building, may be manufactured locally, all the machinery and other equipment required to make it may not be. These aspects make it difficult to ascertain the import requirements of building and construction investment. The issue is clearer with regard to investment in transport and machinery equipment. In South Africa, more complex capital goods tend to be imported. Kaplan (1991:183) finds the machine tools industry in South Africa a case in point. The domestic production of machine tools has been in decline since 1982, so that domestic production of machine tools as a percentage of the total market fell to 7 per cent in 1985, from a value of 15 per cent in 1975. The composition of imports in South Africa has shifted toward heavy industry in which capital, skill and technology are requirements for viable domestic production (McCarthy, 1988:14). Investment in transport equipment and machinery and other equipment seems to be closely linked to imports. Investment in residential, non-residential building and construction will be ignored for the moment.

FIGURE 8

Imports of capital goods and Transport and Machinery Equipment Investment

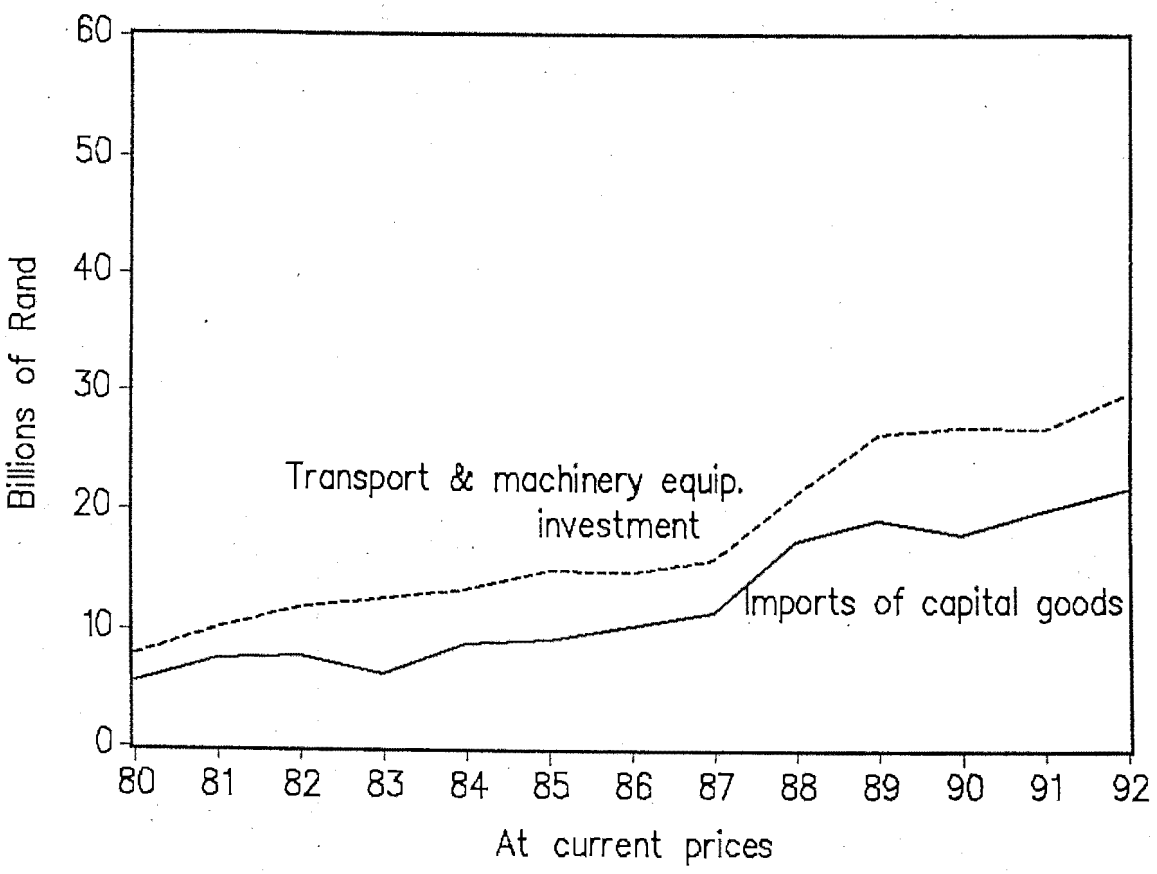


Figure 8 shows imports of capital goods and investment in transport equipment and machinery and other equipment. The values for investment in these two asset categories exceeds those of imports of capital goods, suggesting that not all investment requires imports. Ratios of the values of imports of capital goods to the value of investment in transport equipment and machinery and other equipment is shown in Table 1. Over the period 1980-1992, except for 1983, imports of capital goods represented about 70 per cent of the value of investment in transport equipment and machinery and other equipment. Although the data in Table 1 represent aggregate figures, the import ratio to domestic investment is confirmed

upon examination of specific categories of import and investment. For example, if the fifth category of investment assets, machinery and other equipment (which includes electrical machinery), is compared to the imports of machinery and electrical equipment (Categories 84 and 85 of the annual data of the Commissioner of Customs and Excise) then in 1992, imports made up just over 70 per cent of the total expenditure on investment. The data are shown in Table 2. On average, expenditure on imports of machinery and transport equipment accounted for 64 per cent of investment expenditure on machinery and other equipment during the period 1980-1992.

TABLE 1: Imports of capital goods compared to investment in transport equipment and machinery and other equipment

Year	Imports of capital goods as a % of investment in transport and machinery and other equipment
1980	70.4
1981	74.3
1982	65.0
1983	49.7
1984	61.1
1985	69.5
1986	71.8
1987	81.9
1988	72.8
1990	67.0
1991	74.9
1992	72.9

TABLE 2: Imports and investment in machinery and other equipment

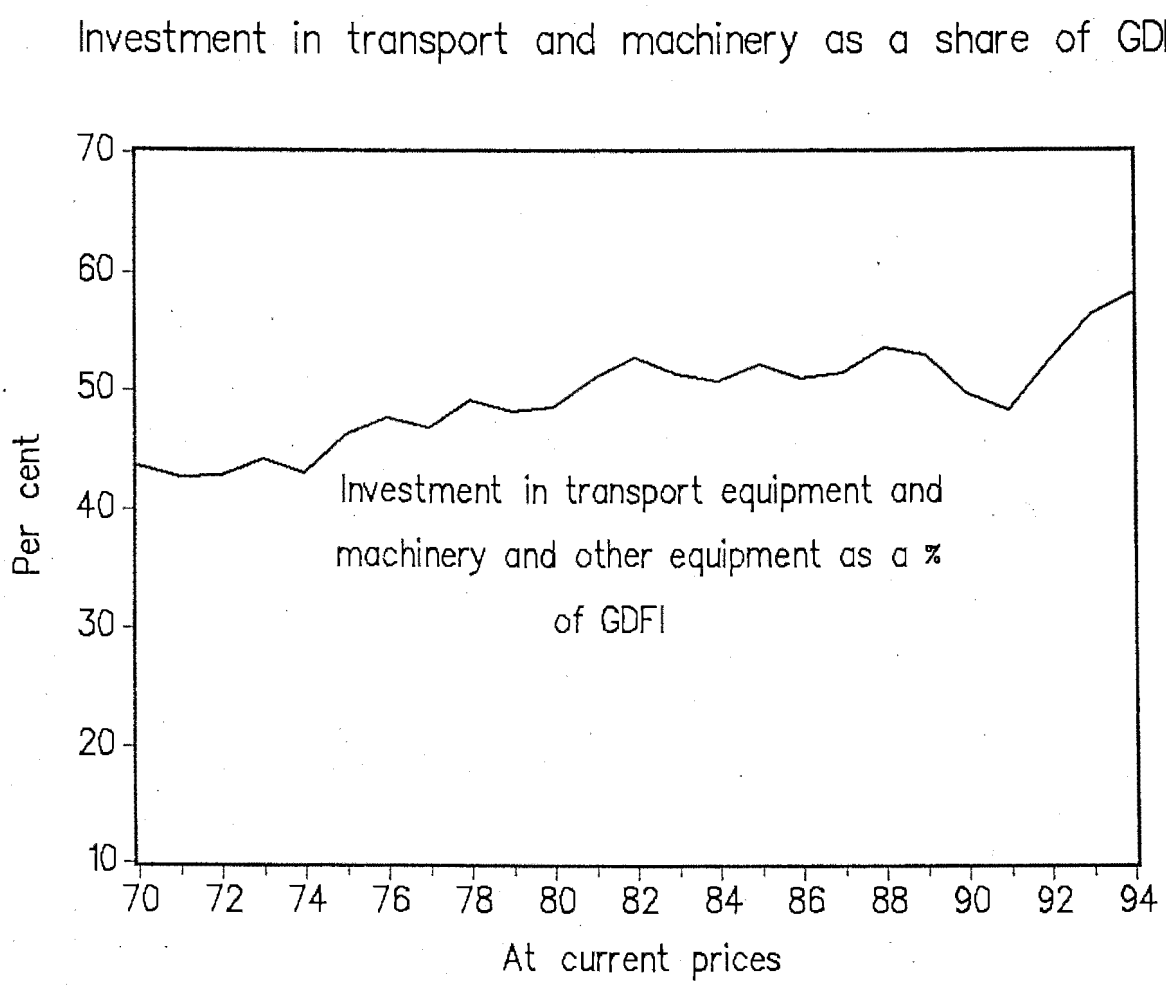
Year	Investment in Machinery and other equipment (2) Millions of Rand	Imports of machinery and electrical equipment (3) Milllions of Rand	(3) as a percent of (2)
1980	5 945	3 525	59.2
1981	7 540	4 897	64.9
1982	9 018	5 101	56.5
1983	9 552	4 429	46.3
1984	10 500	6 361	60.5
1985	12 083	6 482	53.6
1986	11 889	7 303	61.4
1987	12 091	7 819	64.6
1988	15 533	12 430	80.0
1989	18 837	12 409	65.8
1990	19 628	13 220	67.3
1991	18 548	14 007	75.5
1992	21 262	14 743	70.2

5.3 Investment activity

This section will attempt to provide an analysis of the influences on investment in South Africa. Two themes emerge: Firstly, as was seen in the previous section, South Africa imports a substantial portion of its capital goods. Analysis of investment must thus take cognisçence of the influence of the balance of payments. Secondly, in a country which has been subject to political instability, consideration must also be given to animal spirits.

In the previous section, the disaggregated data was examined when establishing a link between investment and imports. In this section, the nature of the analysis requires aggregate data, hence the GDFI series will be used, rather than the series of investment in transport equipment and machinery and other equipment. However, these two categories of assets make up a good proportion of GDFI, as can be seen in figure 9. Hence, the GDFI curve will be an adequate basis upon which to discuss investment which involves imported capital goods.

FIGURE 9



Imports and domestic demand display a pro-cyclical relationship in South Africa. In

figure 10, the percentage change of imports and GDP from the previous year, are shown in real terms. Imports and GDP expand and contract together. This pro-cyclical relationship is attributed to the composition of imports being mostly capital and intermediate goods (Mohr et al, 1994:134). Figure 11 shows the percentage change in GDFI and imports of goods and non-factor services compared to the previous year. As GDFI growth increases, so too do imports, and investment and imports tend to peak simultaneously.

FIGURE 10

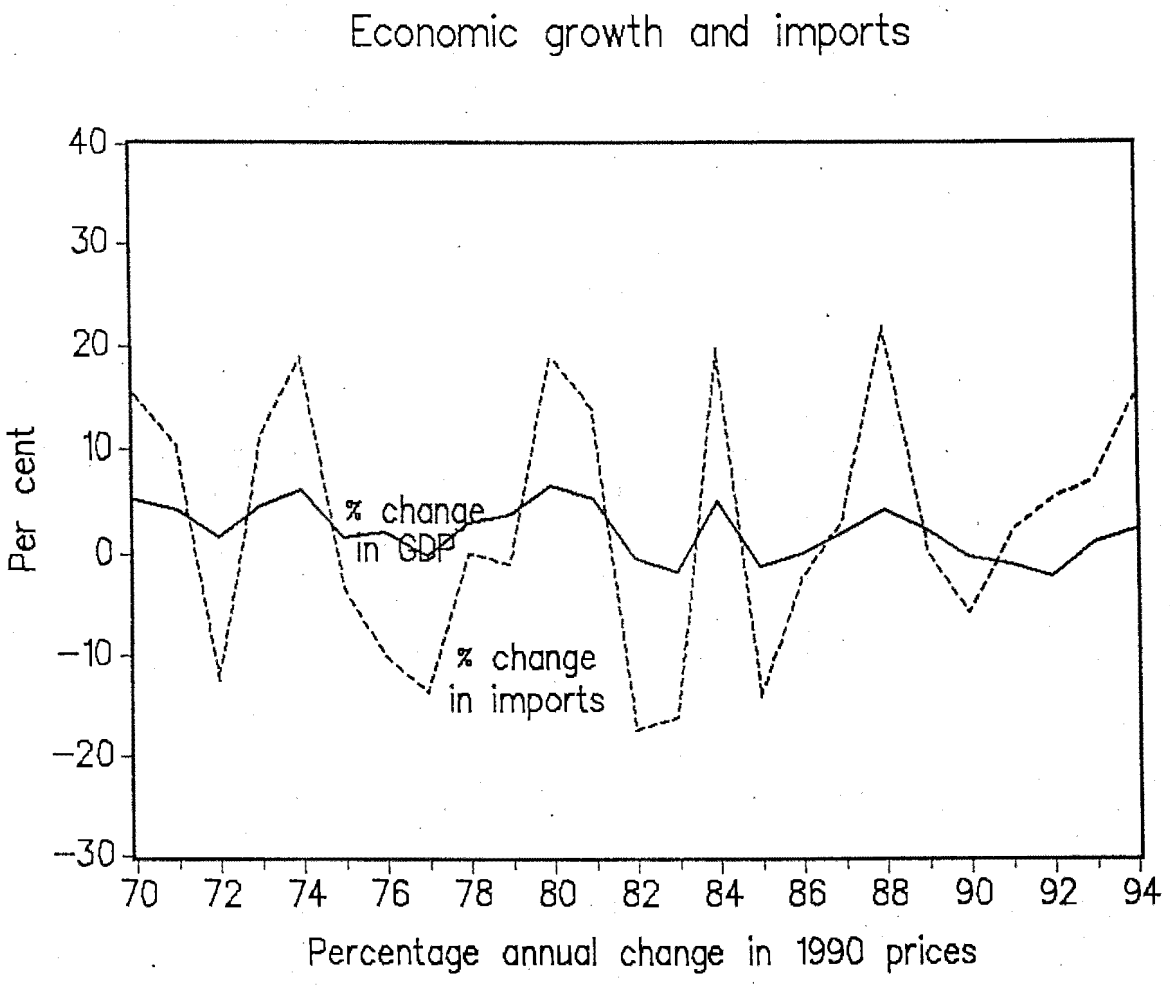
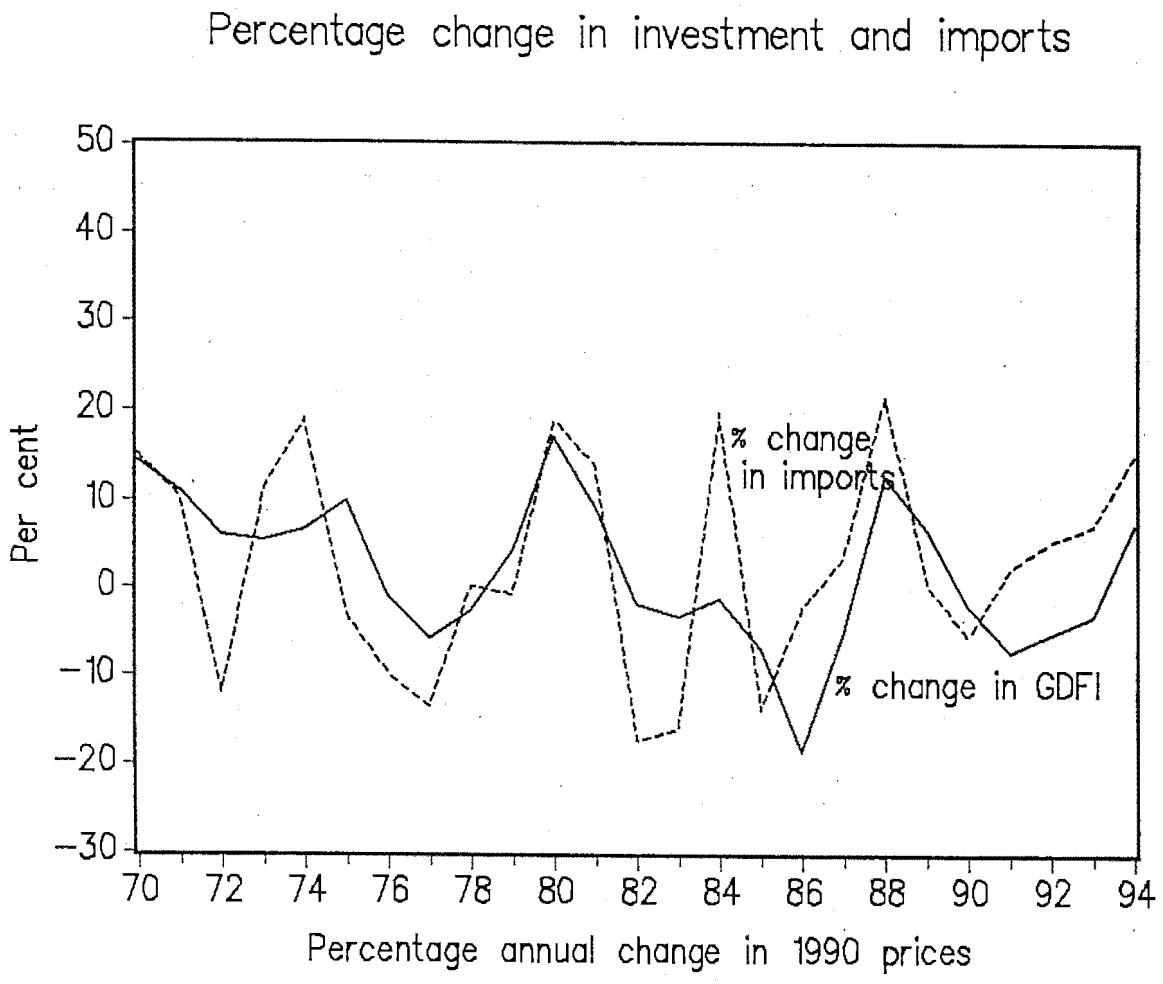


FIGURE 11

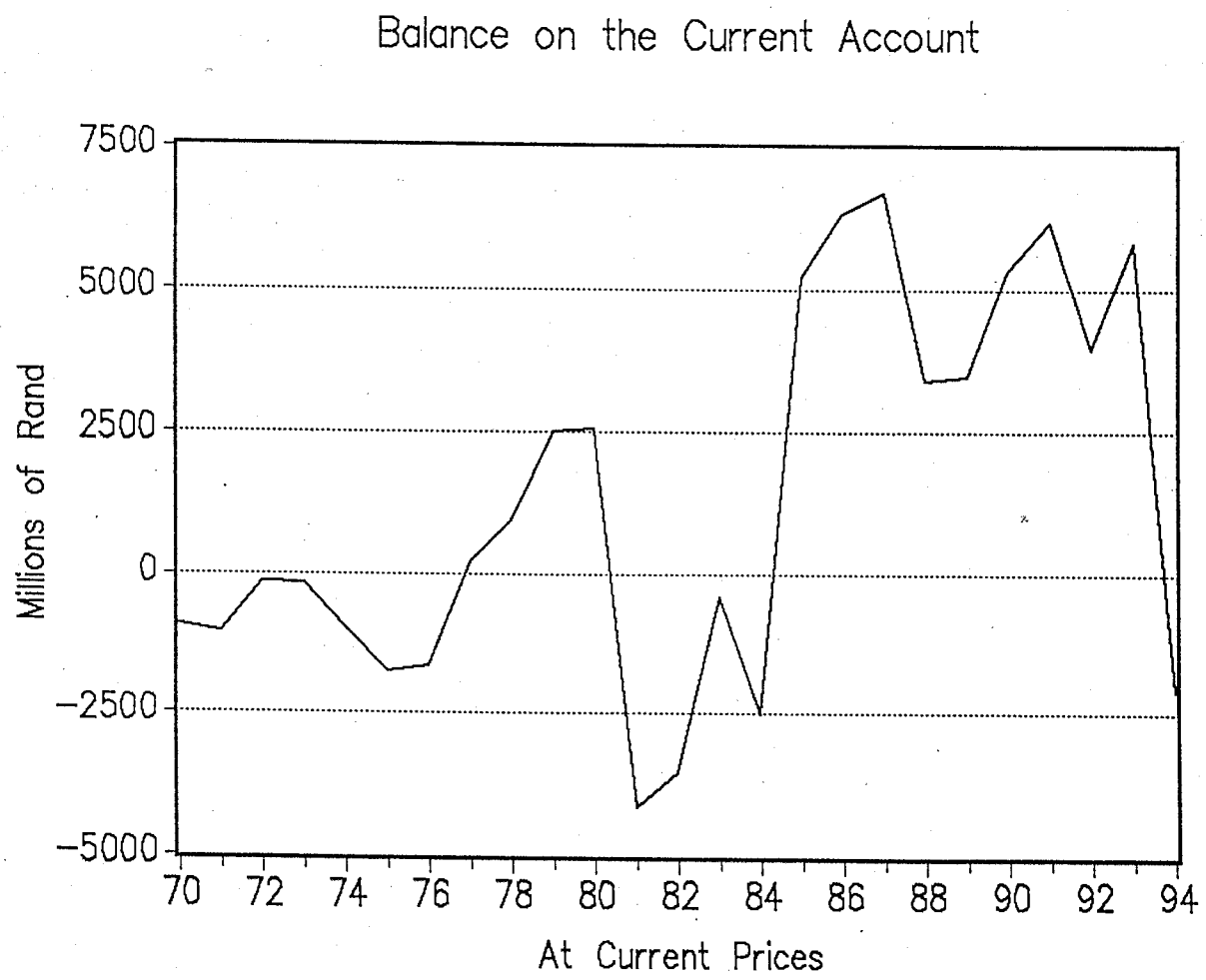


Figures 10 and 11 suggest a link between increases in investment and GDP and import expenditure. The increase in imports and the expansion of domestic demand may result in a deficit on the current account of balance of payments, which if not met by long term inflows of capital, will result in a decline in reserves. A deficit on the current account implies that either imports need to fall or exports need to increase. A traditional approach to encouraging these relative changes in exports and imports, is currency depreciation or expenditure-switching. However, this approach is only successful if there is strong potential for substitution between imports and exports. In South Africa, the potential for substitution appears to be

small, which is reflected in the very low price elasticity of demand for imports (Kahn, 1992:83). This may account for the more frequent use of the alternative approach to reducing imports, expenditure-absorbing policy.

The balance on the current account in South Africa from 1970-1994 is shown in nominal terms in figure 12. Movements on the current account can best be explained by dividing the series into two periods, pre- and post-1985. Prior to 1985, South Africa could generally afford to run a deficit on the current account. A persistent deficit on the current account can be addressed by obtaining financing or by macroeconomic adjustment in the economy. Prior to 1985, inflows of foreign capital financed, at least partially, a deficit on the current account. Financing a deficit on the current account allows the economy to postpone macroeconomic adjustment. Macroeconomic adjustment aimed at reducing a current account deficit may include tighter monetary policy, reduction of the budget deficit and exchange rate depreciation (Woodward, 1992:14).

FIGURE 12



In the period preceding 1985, South Africa borrowed heavily abroad, its excellent debt record making it a sought-after borrower, and the provision of forward cover at attractive rates by the government, both serving to promote borrowing (Mohr, et al, 1994:137). During the early 1980s the nominal effective exchange rate tended to move in accordance with world prices of primary commodities, since gold and the mining sector were the major foreign exchange earners. The fall in the gold price in dollar terms in 1981 and 1983-4, was met by a fall in the nominal effective exchange rate (Kahn, 1992:87), so that gold in rand terms was kept relatively constant. For example, the gold price in rand terms was R477 (average daily price per ounce) in 1980, and R472 in 1983.

FIGURE 13

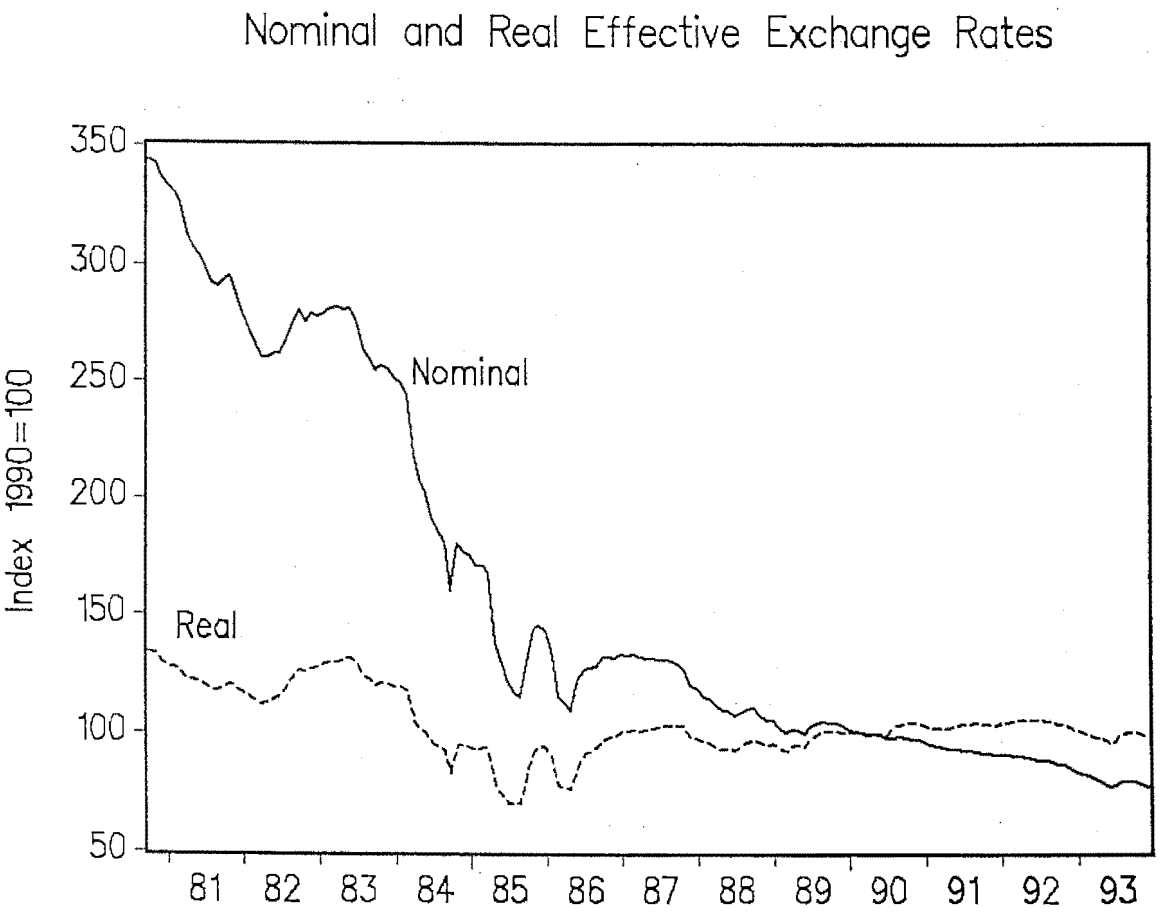


Figure 13 shows the nominal and real effective exchange rates from 1980-1993. Although the depreciation in the exchange rate may have contributed to the support of the mining industry, it had a detrimental effect on South Africa's debt burden. During the period, 1980-1985, South Africa's foreign debt increased by about 50 per cent in dollar terms, and by about 500 per cent in rand terms (Van der Walt and De Wet, 1993:3). The refusal of the international banking community to roll-over debt in August 1985, resulted in the imposition of a debt moratorium by South Africa. The subsequent repayment agreements meant that with access to foreign finance greatly reduced, loans and interest payments on the long term debt had to be

generating a surplus on the current account. In contrast with years prior to 1985, capital outflows in 1985 amounted to 8 per cent of GDP (Kusi, 1993:255). The surplus on the current account was generated both by implementation of adjustment policy and political uncertainty.

Kusi (1993:256) provides a summary of the policies which were put into place as a result of the capital outflow and balance of payments crisis : the dual exchange rate system was re-introduced to protect foreign exchange reserves; the current account surplus was induced by tariff protection on exports and surcharges on imports; imports were discouraged by the real depreciation of the rand which took place in the second half of the 1980s; taxes were raised, so that by 1989, tax revenue amounted to 28 per cent of GDP, compared to 18 per cent in 1980; and tax policy was supported by increases in interest rates. Although the implementation of these policies is not in dispute, the current account had been in surplus since the first quarter of 1985, and there is a view that suggests that uncertainty in South Africa was so great that demand did not need further dampening (Mohr et al, 1994:136). This suggests a possible influence of the animal spirits.

Although Kusi (1993:257) maintains that South Africa adjusted to the balance of payments crisis through structural changes involving a switch of resources to tradeable goods, this occurred with the notable lack of investment in new capacity for export production (1993:263). This could well be attributed to the need for imported capital goods to establish this capacity.

Whether in response to policy implementation, or animal spirits, the decline in investment can be seen in figure 14. Here, the decline in imports as a percentage of GDE and the decline in investment as a percentage of GDP can be seen. In figure 15, investment as a percentage of GDP and the balance on the current account as a percentage of GDP are plotted. Post-1985, as investment declined, the balance of payments was in surplus.

FIGURE 14

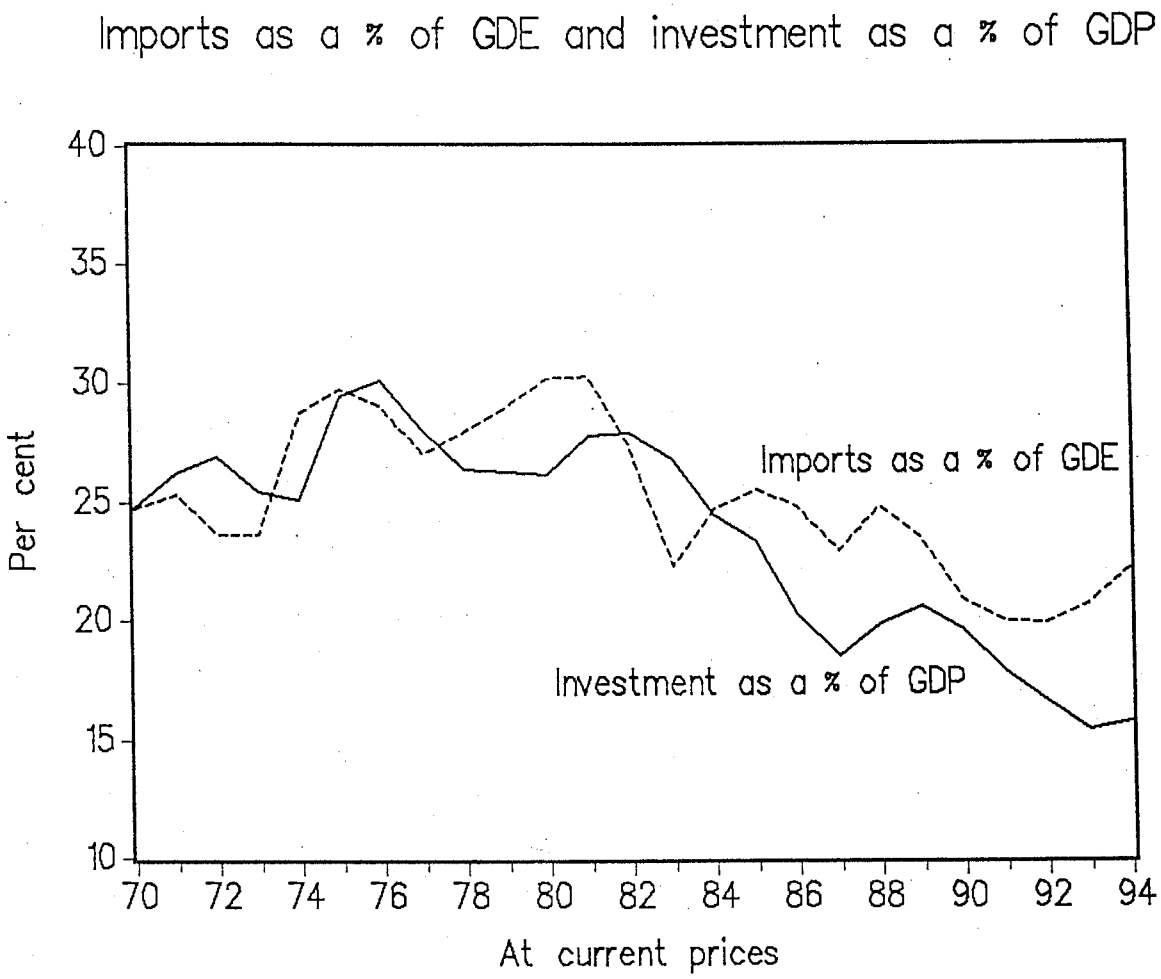
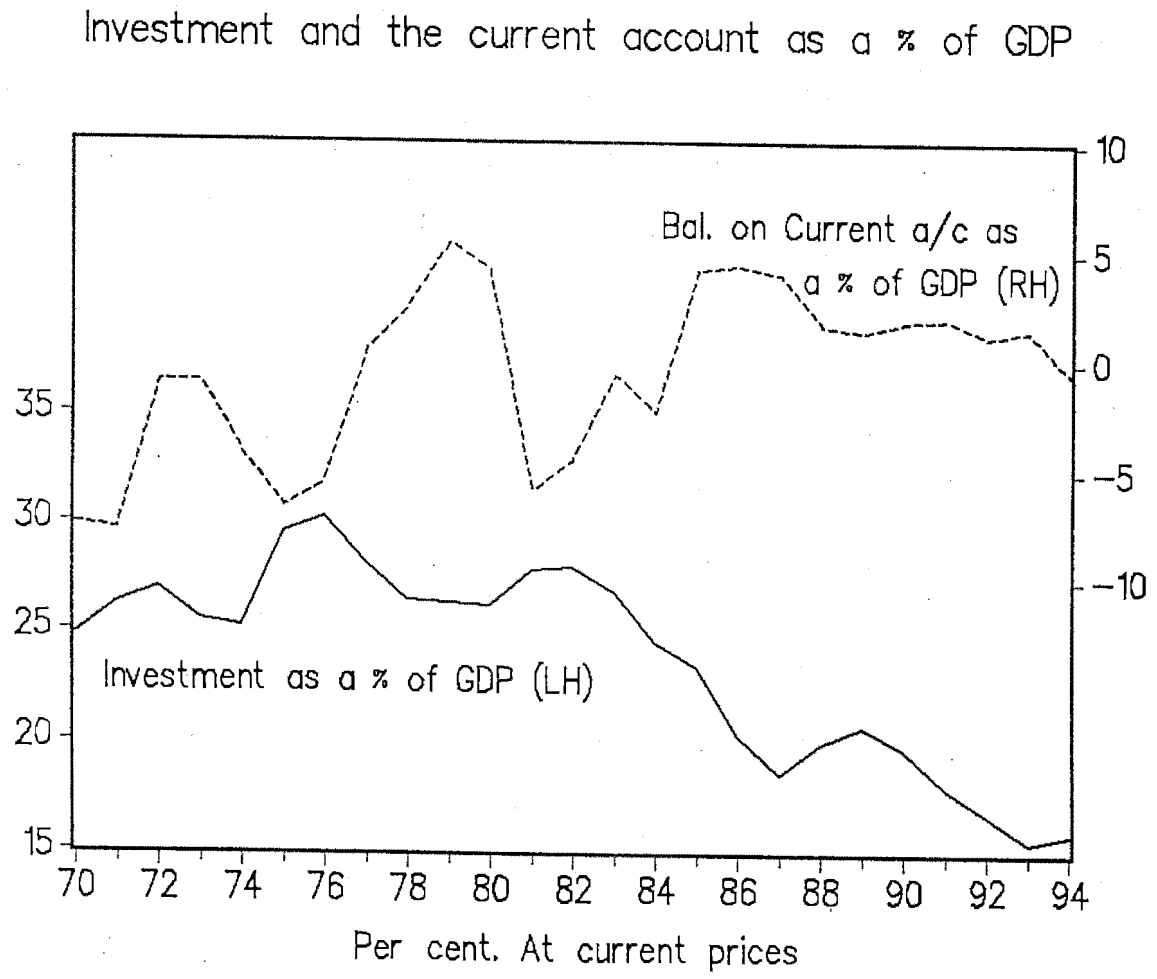
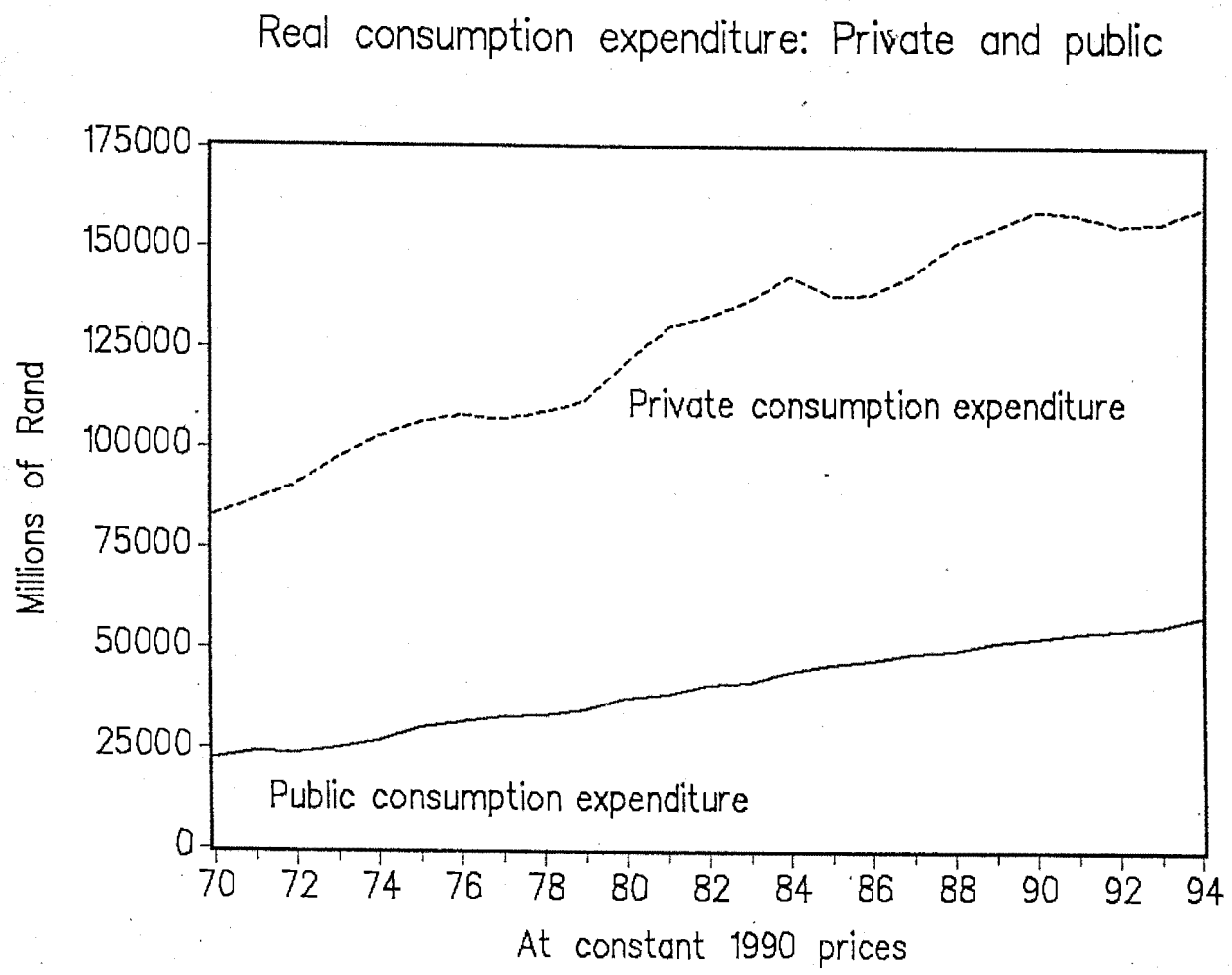


FIGURE 15



The conclusion that investment was the adjustment variable which induced the generation of a surplus on the current account, is supported by an examination of real consumption expenditure during this period. In Figure 16, both private and public expenditure are shown. Public consumption expenditure includes salaries and wages and expenditure on non-capital services. The pattern of the two curves supports the Keynesian notion that consumption is relatively stable in contrast with unstable investment expenditure.

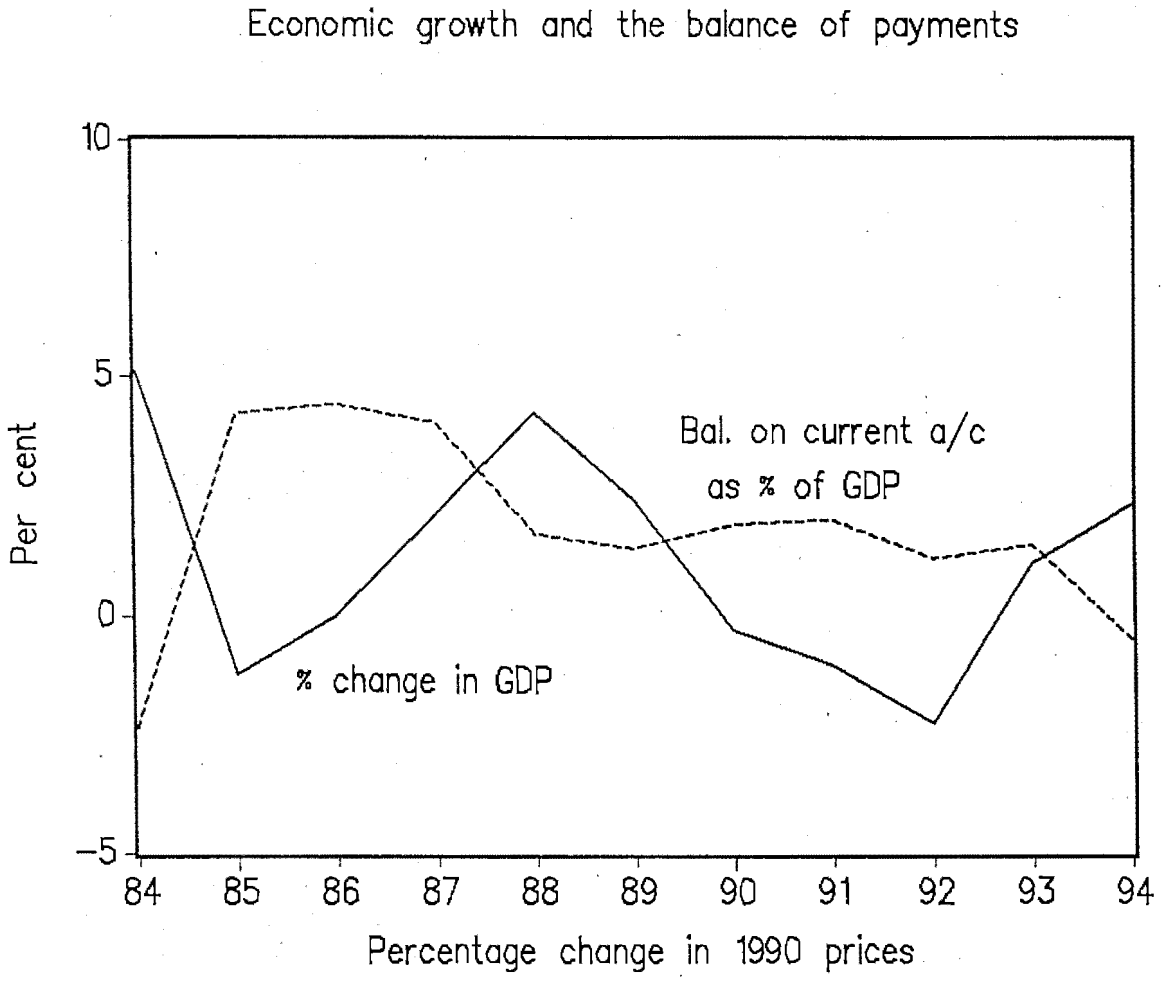
FIGURE 16



If the balance of payments comes under pressure, there may be a response from the authorities to dampen demand, as expenditure-switching may not be successful. In figure 17, the percentage change in GDP is compared to the balance on the current account as a percentage of GDP. The anti-cyclical nature of the changes in the balance of payments is apparent, so that the five per cent growth in GDP in 1984 is accompanied by a balance of payments deficit of two per cent. Post-1985, although an increase in GDP growth may have affected the balance on the current account negatively, the current account remained in surplus. In the third quarter of

1994, a deficit on the current account accompanied the upturn in growth, for the first time since 1985.

FIGURE 17



The Reserve Bank normally responds to balance of payments pressures by instituting changes in the rate of interest. Figure 18 shows the level of the prime lending rate increasing as the balance on the current account is in deficit between 1973-1977. The surplus on the current account from 1977-1980 coincides with a decrease in prime, and a deficit on the current account occurs together with increase in the prime rate between 1980-1984. As the balance on the current account is in surplus from 1985 to the end of 1986, the prime rate falls. However,

from 1987, as the balance on the current account deteriorates, the prime bank rate rises until the balance on the current account is steadied at the end of 1989. Obviously many factors influence the interest rate. Figure 18 simply tries to show that movements in the interest rate should not be viewed independently of movements in the balance of payments.

FIGURE 18

Balance on the current account and the Prime interest rate

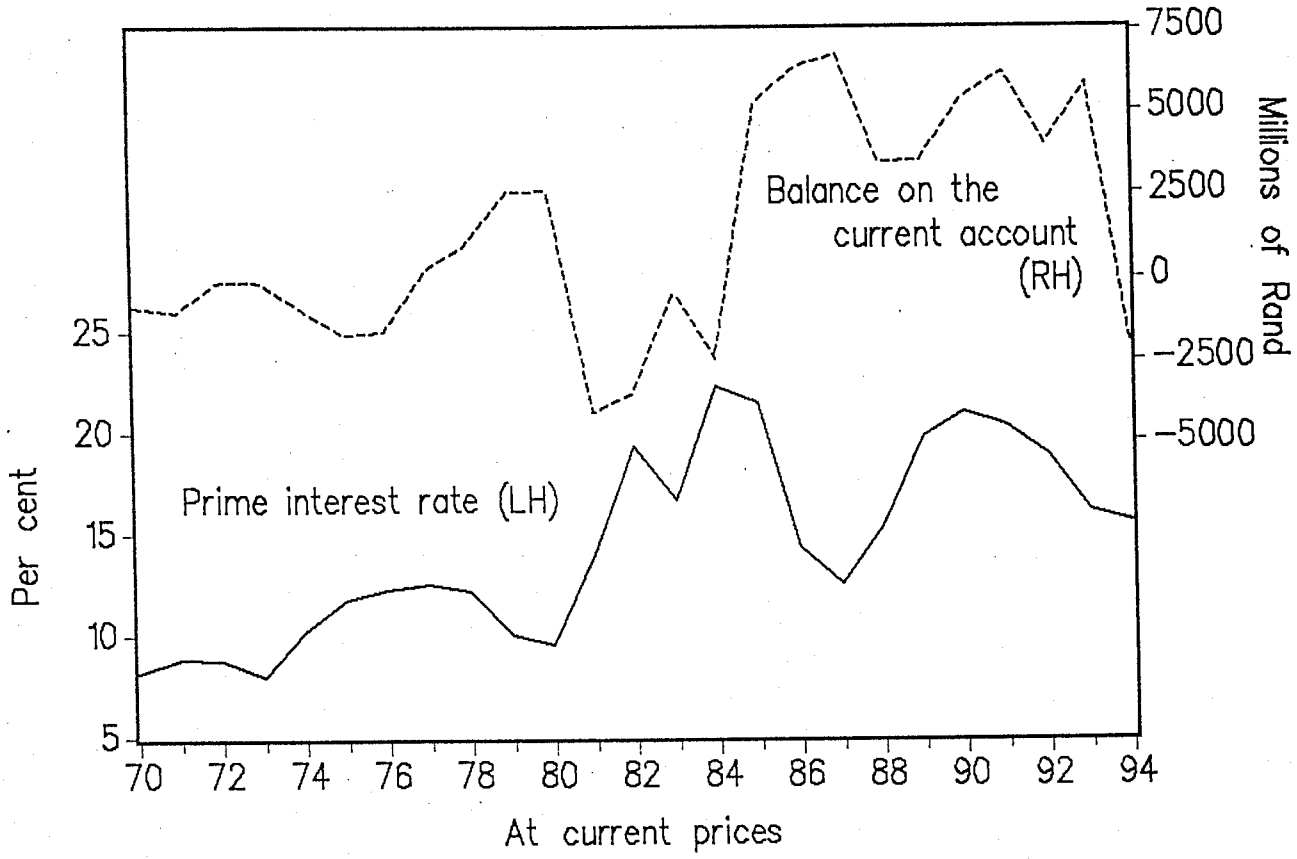
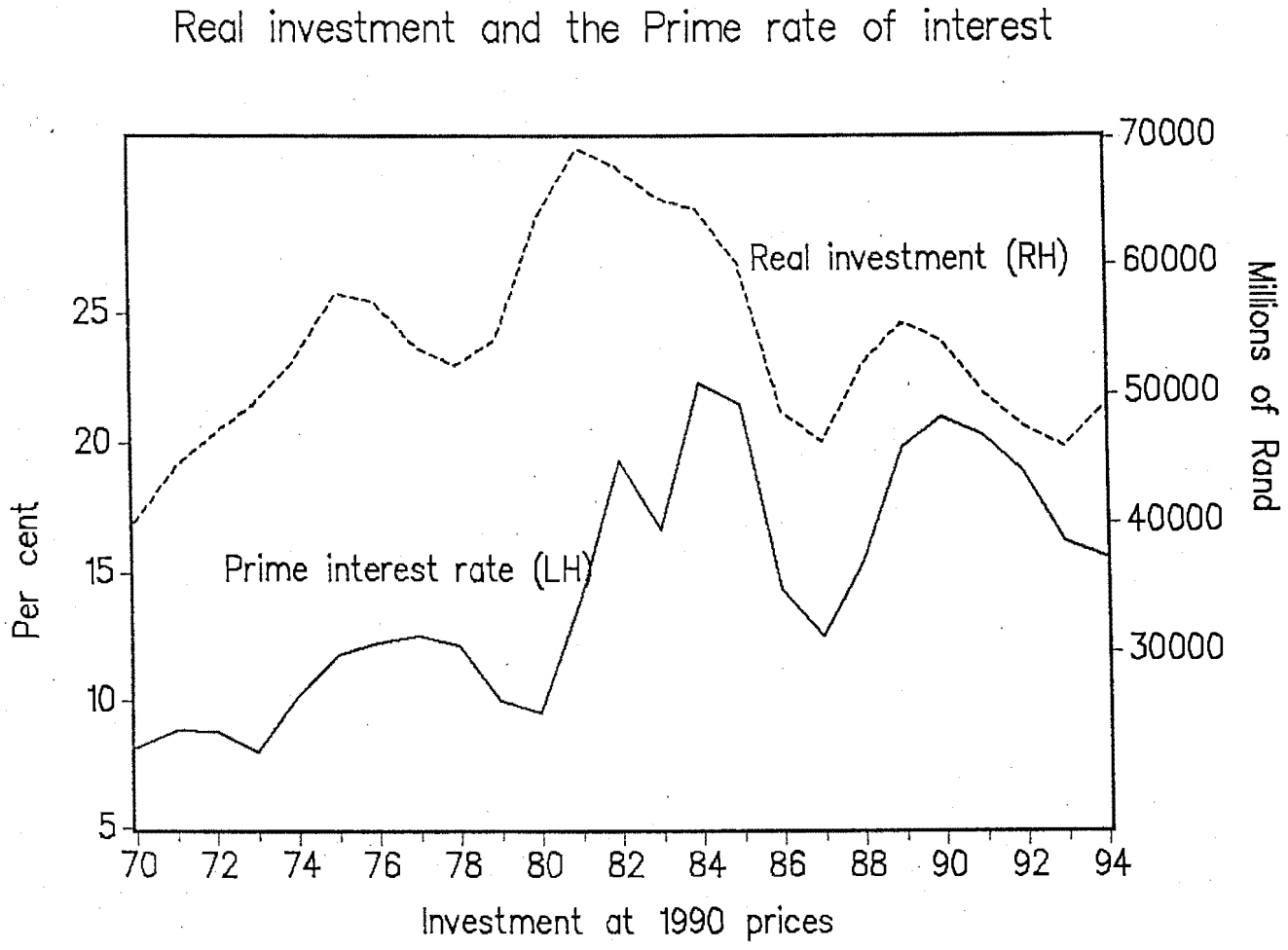


Figure 19 is a comparison of real investment and the prime interest rate. The curves show considerable sympathy of movement, with some degree of lagging. In 1981, when investment was high, the prime rate was rising, when investment began to

fall, the prime rate peaked. Investment again rose in 1989, and the prime rate of interest rose to a high in 1990. This kind of lagged movement could be interpreted along the lines that the prime rate of interest is raised to dampen investment when it places pressure on the current account. Although an increase in prime tends to have a negative effect on investment expenditure, a decrease in the prime rate may not stimulate investment.

FIGURE 19

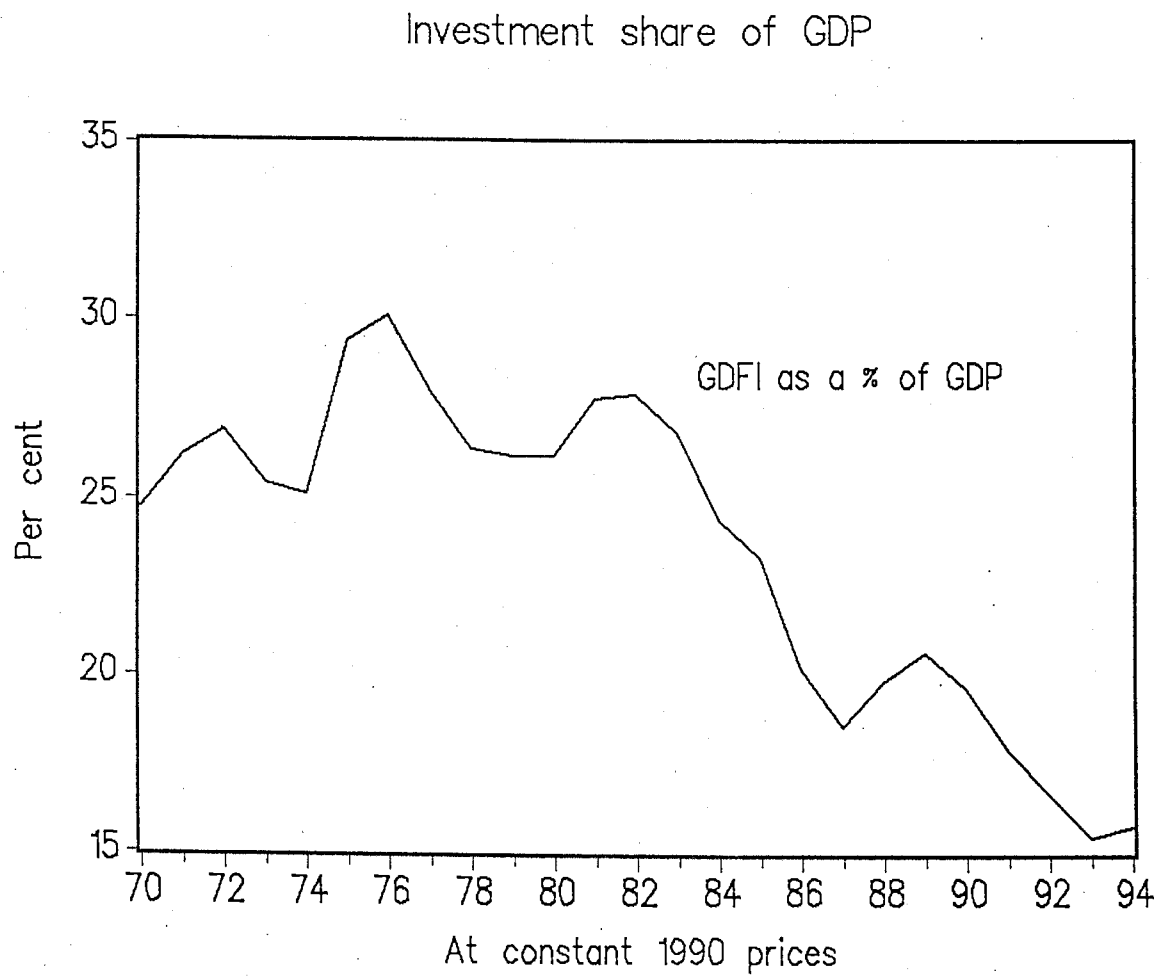


The analysis so far underlines that the balance of payments cannot be ignored when analysing investment in South Africa. If the importation of capital goods, places pressure on the balance of payments, and the deficit on the current account

is not met by capital inflows, then adjustment to the balance of payments may involve dampening domestic demand. Since consumption is relatively stable, investment tends to be the adjustment mechanism. The influence of animal spirits may also provide some insight into the instability of investment in South Africa.

Figure 20 shows the share of investment in GDP. Since the late 1970s investment appears to be on a downward trend which appears to have worsened since the second half of the 1980s. The decline in investment in 1977-1978 could be attributed to the Soweto uprising in 1976, which did much to shake confidence at the time. During 1980-1981, South Africa experienced a boom during which investment and imports of capital goods surged. However, events of 1984 eroded confidence once more, with unrest in the Vaal Triangle and other political unrest culminating in the declaration of a partial state of emergency in July 1985. The political instability resulted in considerable lack of confidence. The role of uncertainty in constraining animal spirits continued even in the relatively liberal era of F.W. De Klerk; although investment increased marginally in 1989, this did not reverse the downward trend. Investment did not show any signs of recovery until

FIGURE 20



the first quarter of 1994. This has been attributed to the need for South African manufacturing to update its outdated equipment, a legacy of the economic stagnation since the mid 1980s (IDC, 1995:32). However, the improvement in confidence in the light of the relatively peaceful transition to the New South Africa must also have played a role. Animal spirits have once again been awakened. This has resulted in a surge in the imports of capital goods. Preliminary IDC trade data shows a surge in imported capital goods of some 70 per cent from 1993 to the end of 1994. Although this has resulted in a current account deficit for the first time since 1985, an inflow of long term capital occurred in 1994. If an inflow of capital

continues, there may not be an immediate need to dampen investment, although murmurs from the Reserve Bank regarding an increase in interest rates to dampen inflation have already surfaced this year. If the animal spirits remain buoyant, however, and imports continue to increase, adjustment policies may once again be implemented.

The analysis above has attempted to show that South Africa is a small open economy, which imports the greater proportion of its capital goods. This makes investment very vulnerable to adjustment if the balance of payments comes under pressure. As investment increases, so does import expenditure, and if pressure on the balance of payments results, the authorities may implement policy to dampen demand, which results in investment decreasing. This has implications for the long term growth process: as investment is dampened, and animal spirits are constrained, the equilibrium level of employment achieved is lower than the potential. The dampening of effective demand does not only have implications for the income adjustment process, but also for the long term growth rate (Park, 1994:45). The lowering of the achievable growth rate in South Africa since the balance of payments crisis in 1985, is a common theme (see for example Van der Walt and De Wet, 1993:11-12.)

Running through the last section is the suggestion that animal spirits may be a significant contributor to the determination of investment, although the influence of the balance of payments and that of animal spirits is often difficult to distinguish. However, it is apparent that in South Africa, it is investment more than any other

variable, that adjusts to the balance of payments. Hence, although there may be investment opportunities which may be profitable, the inducement to invest is dampened. In this way, animal spirits are constrained and investment becomes the means of balance of payment adjustment. Hence, investment becomes endogenous to some degree, and the causal link between investment and employment is weakened.

Conclusion

Keynes presents investment as being the *causa causans* of the monetary, entrepreneurial model. Investment is explained, on the one hand, by the relation between the marginal efficiency of investment and the interest rate, and on the other, as the result of stimulation by animal spirits. These animal spirits are "too eagerly clutching at the straws of suggestion whirled along by "the news", to be ever captured in any intelligible, let alone determinable equation" (Shackle quoted in Vickers, 1992:446). It is this latter element which makes investment unstable and which is associated with the exogeneity of investment. It is exogenous investment expenditure which is required to fill the gap between income and expenditure as income increases, if entrepreneurs are not to make losses. Exogenous investment is not generated by the workings of the model - it is associated with the animal spirits. The more buoyant the animal spirits, the easier it is for investment to fill the gap between income and expenditure.

In a small open economy, which does not have a fully developed capital goods sector, investment will involve imported capital goods. The implications of this for the income adjustment process is that, in the absence of exports or government expenditure increasing, the effective demand required to ensure that entrepreneurs make adequate profits, may not forthcoming. As the expectations of entrepreneurs are disappointed, production and employment plans may be revised downwards. This suggests that the level of employment may be less than the potential productive capacity of the economy. The reduction of employment, or the failure of

its stimulation, means that the multiplier effects of the income adjustment process are not forthcoming. The lack of stimulation of the economy that results when investment involves imported capital goods, means that the state of confidence and the animal spirits are likely to be suppressed.

The lack of a fully developed capital goods sector appears to be the problem, a problem which may not be confined to small open economies, but which is likely to occur in such an economy. Research into the use of the concept of the small open economy proved not altogether gratifying. In part, the problem proved to be one of definition. Although South Africa is thought to be an SOE, the dominant conception of a SOE, which is of a country with a population of less than say 10 million people, does not accommodate South Africa. This has lead to the adoption of an alternative definition, that of openness. The use of this definition may be justified as it captures an economic concept; although the empirical resource-based definition of population size has a certain appeal, it was not employed here.

Another disappointment with regard to the use of the SOE concept is its strong association with price-taking theory. The micro analogy of the SOE as a price-taking firm seems to be applied with too much vigour - this allows for the assumption of perfectly elastic demand for the exports of a SOE - regardless of the composition of exports. This assumption points to the conventional viewpoint that there will always be demand for that which is produced. In this view, the only limitation to the level of exports is the SOE's ability to produce them. In a world where domestic markets are closely guarded, and where SOEs export primary goods, the blanket

use of this assumption is questionable. The use of the SOE concept as a vehicle for the monetary approach to the balance of payments, together with the MABP's explanation of an imbalance on the balance of payments as a temporary phenomenon restored painlessly by the movements of international money, was also rejected for the purposes of this study.

The concepts associated with the SOE which were employed, include: Prachowny's notion of openness being the relevant identifier of a SOE; the emphasis on the external balance influencing the internal balance in a real way; and the examination of the composition of imports and exports. The last two items point to the need for an analysis of the influence of the balance of payments on the domestic economy.

Throughout the above chapters, it is apparent that if the world view adopted is one of certainty or at least calculable risk, then the determination of the level of employment is automatically destined to be at full employment. Productive capacity will be exploited to its potential. This contrasts with the monetary entrepreneurial model of the economy, where uncertainty, incalculable risk and disappointment are implicit. In this world, adjustment to disappointment takes place primarily via production and employment decisions. Hence deficient demand results in unemployment. The potential capacity is not as important as the utilisation of this capacity - this may be expressed as "It's not what you've got - its what demand there is for it!" In the Keynesian world, the emphasis is on demand as the crucial determinant of employment, rather than productive capacity.

It is only in a model which allows the possibility of uncertainty and the need for non-empty decisions, that animal spirits could enter the picture. The a-rational forces of the animal spirits, which stimulate activity rather than inactivity, and contribute to investment shocks, have no place in the world of perfect information and certainty associated with conventional price adjustment theory.

Once the economy is opened, the balance of payments begins to influence the income adjustment process. Since foreign trade makes up a significant component of domestic activity of the SOE, the balance of payments cannot be ignored.

In this case, the balance of payments crisis or problem refers to an unsustainable situation on the current account. This is generally taken to mean a deficit on the current account. A deficit is unsustainable if there is an inadequate inflow of capital to balance the current account, as the current account deficit can only be supported temporarily by finite reserves. An unsustainable situation on the current account may occur, even if the current account is balanced, if outflows of capital are such that a surplus on the current account needs to be generated to meet international obligations. In either case, the implication is that imports must decrease or exports increase. Since increasing exports is a development process which may only be achieved in the medium term, imports must be reduced. This can take place via expenditure-switching or expenditure-absorbing policy. The success of expenditure-switching policy depends on the relative elasticities of imports and exports, and the degree of substitution between domestic and imported goods. Where imports are capital and intermediate goods which are not produced locally, the potential for

import substitution is limited. The alternative of expenditure-absorbing policy may have to be implemented. This may involve an increase in interest rates.

The aim of either of these policies is to bring imports into line with the requirements of the balance of payments. In either case, investment is negatively affected, either by the high foreign exchange price for capital goods, or by the increase in interest rates, which acts to discount at a greater rate, the prospective yield of the capital good over its productive life. Hence, since investment is responsible for the deficit on the current account, investment must adjust to facilitate the reduction of imports.

Analysis of South African data reveals a country open to trade, and a country which imports most of its complex capital good requirements. Capital and intermediate goods make up some 80 per cent of imports to South Africa. Investment in transport equipment and machinery and other equipment is closely associated with imported capital goods. There appears to be support for the notion that investment adjusts to the balance of payments. This is particularly apparent post-1985, where, in order to generate a surplus on the current account, investment expenditure appears to have been dampened. This occurred during a period of low confidence in the economy, and so the suppressing of animal spirits may also have played a role in keeping investment expenditure down.

It appears the investment multiplier is smaller in a country which has an underdeveloped capital goods sector than in a country where the domestic capital goods sector is fully developed. Firstly, investment expenditure may fall short of its

potential if the animal spirits are constrained by balance of payments difficulties. Secondly, that investment which does take place, results in the multiplicand of the multiplier process being exported, and so effective demand is not generated domestically. Indirect multiplier effects may be generated if the imported capital goods are employed in import-substituting industries - but the stimulation of employment associated with a closed, self-sufficient economy, fails to eventuate.

The analysis of the study points to the need for the development of a domestic capital goods sector in an SOE which imports its capital goods, so that animal spirits are more free to stimulate investment, and so that the stimulation of effective demand associated with investment expenditure, benefits the domestic economy.

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