DETERMINANTS OF UNITED STATES FOREIGN DIRECT INVESTMENT IN AUSTRALIAN FOOD AND KINDRED PRODUCTS

By

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DETERMINANTS OF UNITED STATES

FOREIGN DIRECT INVESTMENT

IN AUSTRALIAN FOOD AND

KINDRED PRODUCTS

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PREFACE

This study was conducted to provide new knowledge concerning foreign direct investment. The United States is heavily involved in foreign direct investment, and this paper can provide potential investors with variables they need to take into consideration before they decide to invest in a foreign country. This paper deals directly with U.S. foreign direct investment in Australian food and kindred products, but could be adapted to other industries in Australia, as well as to other English-speaking countries.

Sincere thanks goes to my major advisor, Dr. David Henneberry, for his guidance, resources, and encouragement. I would also like to thank the other members of my committee: Dr. Brian Adam and Dr. Al Carlozzi.

I would also like to thank my father-in-law Don Reichert for the use of his printer, without which this paper would not be completed, and my husband Robert for all of his help and encouragement the past two years as I worked on this project.

Finally, thanks goes to the Department of Agricultural Economics, for supporting these two years of work.

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NOMENCLATURE

FDI	foreign direct investment
ER	exchange rate
LR	lending rate
WAGES	wages/weekly earnings
GDP	Australian gross domestic product
USGDP	United States gross domestic product
R&D	research and development
GNP	gross national product
CPI	consumer price index
GLS	generalized least squares
OLS	ordinary least squares
MNE	multinational enterprise

CHAPTER 1

INTRODUCTION

FOREIGN DIRECT INVESTMENT IN AUSTRALIA

During the late 1960s, foreign direct investment (FDI) in Australia increased rapidly, and by the early 1970s had reached a record level. Foreign direct investment is defined as the net book value of United States direct investor's equity in, and outstanding loans to, foreign affiliates (*Survey of Current Business* 1978). Merchant banks were formed when Australian local banks, financiers, merchant banks, and brokerage houses formed partnerships with the most powerful United States, European, and Japanese banks (*Compton's Interactive Encyclopedia*, 1994). In terms of value of production, foreign investment is highest in motor-vehicle construction and assembly, nonferrous metals, soap, oil refining, industrial and heavy chemicals and acids, and pharmaceutical and toilet preparations. For over twenty years there has been an "open-door" attitude towards foreign investors. They were sometimes even offered incentives, particularly by state governments. Now the federal government's attitude is changing, and it is closely examining each investment to decide if it is in the national interest or not. There has also been a public questioning of the merits of foreign investment in Australia, with some reaction against direct Japanese investment in Australia (*Compton's Interactive Encyclopedia*, 1994).

Capital outflows for U.S. direct investment abroad were at a record level in 1993. Almost one-half of the total was accounted for by reinvested earnings, which were boosted by both strong affiliate profits and an unusually high reinvestment ratio of 0.54. (The reinvestment ratio is defined as the portion of affiliate earnings that is reinvested) The high reinvestment ratio reflects U.S. parents' domestic profits growing, reducing their need for funds from abroad (*Survey of Current Business*, June 1994). Also, some parents deferred repatriation of earnings in expectation of a reduction in foreign withholding taxes on distributions, particularly in Europe. Finally, U.S. parents reinvested a larger share of affiliate earnings in anticipation of their need to finance a planned increase in capital expenditures by foreign affiliates in 1994. A foreign affiliate is a foreign business enterprise in which a single U.S. investor owns at least 10 percent of the voting securities, or the equivalent. According to a BEA survey taken in December 1993, majority-owned foreign affiliates plan to increase capital expenditures 8 percent in 1994, compared with a 2 percent increase in 1993 (*Survey of Current Business*, June 1994).

AUSTRALIAN PEOPLE

Australia is the most highly industrialized country south of the equator. Its location is Southwestern Oceania, between Indonesia and New Zealand. The official language is English, and the literacy rate is 100 percent. Literacy, measured by those age

15 and over that can read and write, is 100 percent of both men and women (Internet 1995). School is mandatory from age 6 to 15 Births are 14.29 per 1000 people, deaths 7.38 per 1000, and marriages 6.8 per 1000 people (1994 estimates). Life expectancy is 74.45 years for men and 80.84 years for women, 77.57 for the total population (1994 estimates). Infant mortality is 7.3 deaths per 1000 live births, and there are 1.83 children born per woman. Ethnic divisions are: Caucasian 95 percent, aboriginal and other 1 percent, and Asian 4 percent. The immigration rate is 6.91 migrants per 1000 population (Internet 1995). The major religions are Roman Catholicism 26 percent, Anglican 26.1 percent, and other Christian 24.3 percent (Internet 1995).

The labor force was 8.63 million in September 1991. By occupation, the percent in finance and services was 33.8 percent, public and community services 22.3 percent, wholesale and retail trade 20.1 percent, manufacturing and industry 16.2 percent, and agriculture 6.1 percent (1987) (Internet 1995).

Australia is the world's leading producer of wool, and is one of the world's leading meat-exporting countries. It is a self-governing member of the Commonwealth of Nations. Australians are governed by three independent but interlocking systems: the Commonwealth (federal) government, six state governments, and 900 local government authorities (Compton's Interactive Encyclopedia 1994).

Australia has an area of almost 3 million square miles and a population of only

18,077,419 (July 1994 estimate), a population growth rate of 1.38 percent, and with 5.8 people per square mile, it is one of the most sparsely populated countries in the world (*Compton's Interactive Encyclopedia,* 1994). About 85 percent of the population is urban, and 60 percent live in the metropolitan areas of the five largest cities. Most of the population is concentrated on the southwest, southeast, and east coasts.

AUSTRALIAN HISTORY

The development of Australia has been based entirely on immigration. From 1788 to 1830 the main source of population was convicts transported from England. Convicts numbered 63,000 compared to 14,000 free immigrants. The next twenty years, the number of free immigrants, 173,000, outnumbered convicts, which numbered only 83,000. The first assisted immigrant plan was developed in 1831. Gold discoveries in the 1850s triggered the largest inflow of migrants. The population grew from 400,000 to over one million in only ten years. Until the late 1880s, immigrants of any nationality could move freely into Australia. Two serious anti-Chinese riots led to legislation restricting Chinese entry.

Another source of population was South Sea islanders, recruited or kidnaped to work in the Queensland cotton and sugar plantations. A small number of Japanese were also brought in for labor. In the late 1880s the colonies developed firm immigration policies to maintain the predominantly British nature of the population. In 1888 most

states extended the Chinese law of 1881 to all nonwhite people. In 1901 the new federal government passed the Immigration Restriction Act to exclude unwanted immigrants. This was called the White Australia Policy.

AUSTRALIAN TRADE

China has always been considered a threat to Australia. Australia's relationship with Japan is mainly economic, Japan being one of Australia's biggest trading partners. Foreign trade has always been of great importance to Australia. It is an industrial nation, but Australia continues to be chiefly an exporter of raw materials and an importer of manufactured goods. Wool is the largest single export in value, although it has dropped in recent years. The value of wheat ranks second, followed closely by meat. Australia's main trading partners are Japan, the United States, and Great Britain. Principal imports are machinery, motor vehicles, and petroleum and oil. These, and other products such as textiles, paper, and drugs, come mainly from the United States, Japan, Great Britain, Germany, and Canada (*Compton's Interactive Encyclopedia*, 1994).

AUSTRALIAN LIVING

Seventy five percent of Australian families own their homes, one of the highest proportions of any country in the world. Australians spend more than $50 billion a year on consumer goods and services, with 20 percent of the total for food and 20 percent for transportation and communication. Housing expenditures are next at about 14 percent

(*Compton's Interactive Encyclopedia*, 1994). Australia is one the the top-ranking countries in the ratio of automobile ownership to population, jumping from 10 to 25 percent of the popuiation.

Australia has had to bear high costs in creating a transport network, due to its large size. Railways have been improved, linking all the mainland capital cities except one. Air transport is efficient and profitable, with two major domestic airlines. Roads link the main cities, but they are used more for recreation than commercial purposes.

Current environmental issues include soil erosion from overgrazing, industrial development, urbanization, and poor farming practices. Soil salinity is rising due to the use of poor quality water, clearing for agricultural purposes is threatening the natural habitat of animals and plants, and the Great Barrier Reef is being threatened by increased shipping and tourism (Internet 1995).

AGRICULTURE

Thirty percent of Australia is too arid or too rough for any productive land use. Another 50 percent receives only enough rain for pastoral activities. The land use is 6 percent arable land, 0 percent permanent crops, 58 percent meadows and pastures, 14 percent forest and woodland, and 22 percent for other use (Internet 1995). The rest of the land receives sufficient rainfall to support intensive agriculture and mixed grazing. Australia has large areas of desert, but there are thousands of square miles that are very

productive. Rainfall has helped determine the agricultural development of the country. Seasonal and fairly reliable summer and winter rains have resulted in the southeast part of the continent being the most densely populated and most developed. There is greater rainfall over eastern Australia than over the western side, and as the distance from the coast increases, the rainfall decreases (*Compton's Interactive Encyclopedia*, 1994).

Australia depends heavily upon pastures, farms, and mines, which provide raw materials for industry as well as the country's leading exports. There has been a decline in traditional industries, but there has also been increasing interest on the part of the other countries in Australia, as a trading partner and an avenue for investment.

Australia's main agricultural crops are wheat, sugarcane, cotton, barley, grapes, potatoes, apples, bananas, oats, tomatoes, oranges, rice, and sorghum. The main livestock products are sheep, cattle, pigs, and poultry. Foreign trade is made up of 52 percent imports, and 48 percent exports. The chief imports are machinery, basic manufactures, paper and paper products, nonferrous metals, transport equipment, chemicals, mineral fuels and lubricants, food, and live animals. The main exports are metal ores and scrap, textile fibers, cereals, meat, mineral fuels and lubricants, petroleum, natural gas, machinery and transport equipment, and chemicals (*Compton's Interactive Encyclopedia*, 1994).

Sheep raising is first in agricultural industries. Australia leads all other countries

in wool output. Flocks total 135 million sheep and yield almost a third of the world's wool. Ninety percent of the wool is exported. Sheep are also raised for meat With the development of the refrigerated ship, fresh meat can be shipped overseas. Wool production has been declining sharply, with the value of exports also dropping, but meat production has increased to an extent.

Beef cattle are raised in areas where the grass is too low quality to support sheep. Cattle stations are hundreds of miles from a railroad or seaport, and driving the cattle to market causes them to lose weight. Road building is in progress so that more stock can be trucked to market. Airplanes haul beef from inland packing plants to coastal cities.

Australia is among the leading wheat-producing countries of the world, even though only a small proportion of its land is used for farming. Wheat is planted on about half the cultivated acreage, and many other crops, such as hay, oats, barley, cotton, rice, and tobacco, on the remaining land.

AUSTRALIAN ECONOMY

Australia has suffered from low growth and high unemployment in the early 1990s. The Australian economy entered a recession in the middle of 1990, with real GDP dropping by 3.5 percent the second half of the year. The publication *International Financial Statistics Yearbook* defines GDP, gross domestic product, as the sum of final expenditures: exports of goods and services, imports of goods and services, private

consumption, government consumption, gross fixed capital formation, and the increase or decrease in stocks. For the 1990 calendar year, total domestic demand fell 0.6 percent, but an improvement in the trade balance sustained a 1.5 percent rise in real GDP. This was a marked slowdown from the 4.6 percent growth in 1989 (*OECD Economic Outlook*, July 1991). The recession largely reflected private sector reactions to the checking of excess demand by very high interest rates since 1989. Cutbacks in household spending on durables and housing further aggravated the already highly leveraged balance sheet positions of companies, leading to a drop in inventories and fixed investment (*OECD Economic Outlook*, July 1991). In 1992-93 the economy recovered slowly from the prolonged recession of 1990-91, a major restraining factor being weak world demand for Australia's exports. Unemployment has been around 10 percent and will probably remain there since productivity gains rather than more jobs account for growth (Internet 1995).

In 1993 Australian GDP was $339.7 billion, purchasing power equivalent. The real growth rate of national product was 4 percent, and national product per capita was $19,100. The inflation rate (consumer prices) was 1.1 percent, revenues were $71.9 billion, and expenditures were $83.1 billion. Exports were $44.1 billion in 1992, with Japan receiving 25 percent, the United States 11 percent , South Korea 6 percent, New Zealand 5.7 percent, and the United Kingdom, Singapore, and Hong Kong also involved in the trade (Internet 1995). Imports were $43.6 billion in 1992, importing machinery,

transport equipment, computers, and petroleum products from the United States (23 percent), Japan (18 percent), the UK (6 percent), Germany (5 7 percent), and New Zealand (4 percent). Australia's external debt was $141.1 billion in 1993 The growth rate of industrial production was 1.9 percent (fiscal year 1993) which accounted for 32 percent of GDP (Internet 1995). Agriculture accounts for 5 percent of GDP and over 30 percent of export revenues. Australia is the world's largest exporter of beef and wool, is second-largest for mutton, and is among the top wheat exporters (Internet 1995).

DESCRIPTION OF FIGURES 1-16

Australian exports have been rising since 1973. Figure 1, Australian Exports, shows the increase in both volume and prices of Australian exports, with prices rising much more than volume since the late 1970s. Beef exports from Australia in millions of Australian dollars, seen in Figure 2, Australian International Transactions. Beef Exports, have been sporadic over the past several years. They dropped significantly in 1974, then rose over several years, dropped off over the next seven years, increased slightly in 1982, and then rose steadily from 1984 to 1988. The volume of exports has also fluctuated, following the same patterns as the movement in value. Export prices have remained low compared to the previous two categories, with no real changes.

Wool Exports, shown in Figure 3, Australian International Transactions: Wool Exports, have also been volatile, with the value in millions of Australian dollars rising

steadily until the mid-1980s, when they dramatically increased. Just as quickly the value plummeted, with a slight leveling off in the early 1990s, and then continued to decline through the early 1990s. The volume of wool exports followed basically the same trends. with slightly more frequency in the declines and increases, but followed the same trend as value, also dropping sharply in the late 1980s. It recovered to its previous level, but then began to decline again in the early 1990s.

Wheat production in Australia, depicted in Figure 4, Australian Wheat Production, has varied greatly, with yield in kg/ha and production in 1000MT following the same trends of declines and peaks. Over the twenty year time frame, the levels of yield and production did increase. Australian Scoured Wool Production, presented in Figure 5, followed the same trend as the world production of scoured wool, increasing until the 1990s, when it began to decline. Figure 6, Australian Greasy Wool Production, shows Australian greasy wool production from 1973 to 1993 compared to world production. Both increased in production until the 1990s, when production began to drop. Australian greasy wool production as a percent of world production (Figure 7) did not show as consistent pattern. It declined through the 1970s until the mid 1980s, increased until 1990 when it peaked, and then began to decline once again. Australian imports of greasy wool, measured by both volume and prices, are shown in Figure 8. Import volume has varied, but has risen over the past twenty years. Import prices have

risen steadily since 1973.

Figure 9, Australian Trade Balance, shows the Australian trade balance, which dropped dramatically from the mid-1970s to the mid-to-late 1980s, after which it began to rise sharply. The trade balance as a percentage of imports also dropped drastically until the mid-to-late 1980s, when it began to increase again. Since the early 1980s, the trade balance by value and as a percentage of imports have been negative in value.

Figure 10 shows Australian economic indicators from 1973 to 1993. Measured in index numbers, with 1985=100, consumer prices and wages have both steadily risen Stock market share prices have increased, but have had increases and declines over the twenty year time frame. Australian GDP has increased steadily since 1973 (Figure 11), as has Australian GNP (Figure 12). Figure 13 shows Australian investment and consumption as a percentage of GDP. Consumption remained fairly constant, rising just slightly from 1973 to 1993. Investment was more volatile, increasing and decreasing, but since 1990 has steadily declined. Consumption has been a much larger percent of GDP than investment, and as the graph shows, this gap continues to widen.

Australian national accounts, shown in Figure 14 have all risen since 1973. Exports and government consumption have followed closely together, with small increases. Private consumption increased steadily, as well as national income which increased most of all. Australian financing by residence of lender is shown in Figure 15.

Domestic financing increased until 1976, when it began to decline, began to increase sharply in the early 1980s, and then plummeted until 1990, when it began to rise again. Foreign financing increased slightly until 1978, when it declined until 1981, and then rose again until 1986, when it dropped sharply until 1989, when it began to increase again. Foreign financing also was deficit since 1988.

FOREIGN DIRECT INVESTMENT

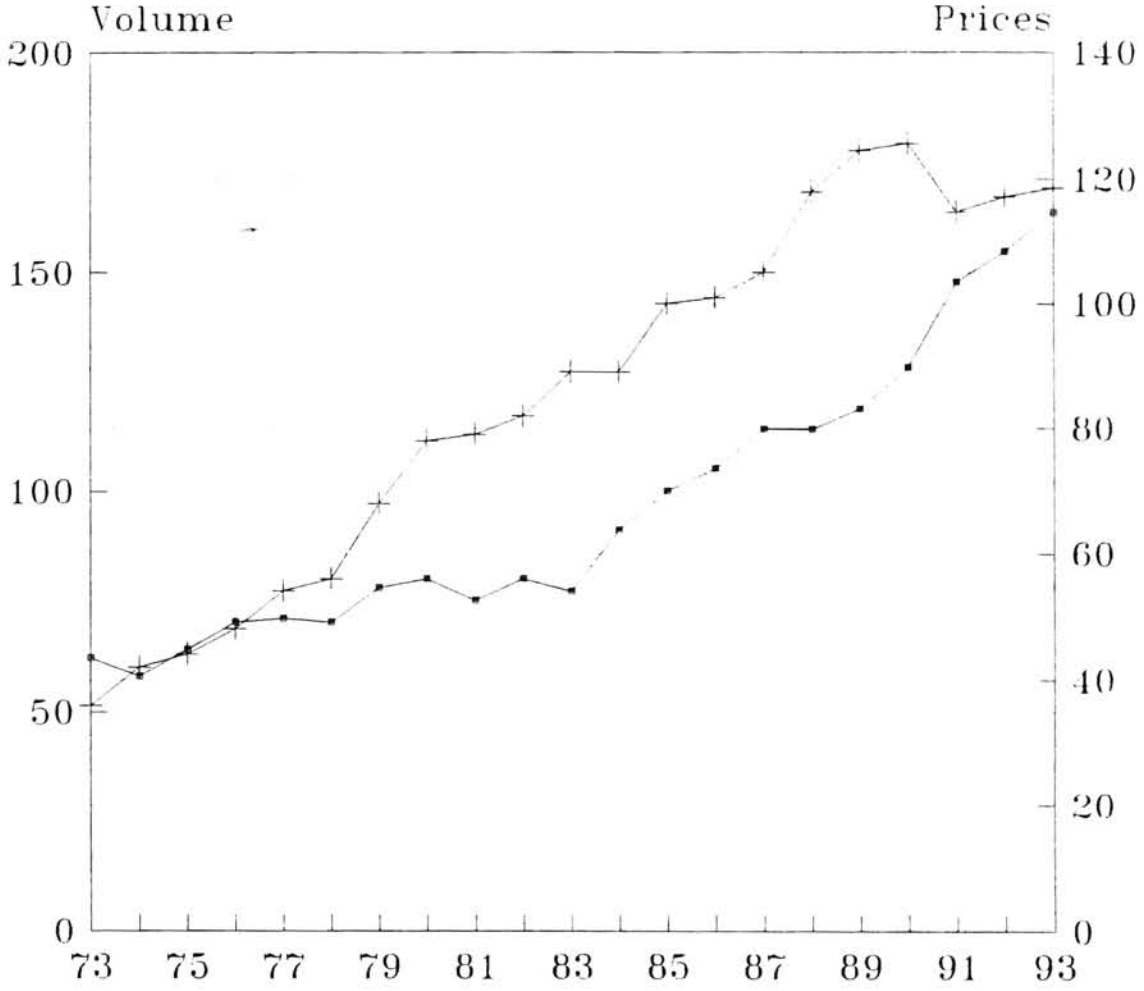
Figure 16 shows United States direct investment in Australian food and kindred products. This is the graph that we are most interested in for this paper. U.S. foreign direct investment (FDI) increased steadily from 1973 to 1988. In 1989, there was a very substantial increase in the amount of FDI from the United States into Australian food and kindred products. In 1989, the amount of U.S. foreign direct investment in Australia doubled, and from then on has continued to increase to very high levels.

OBJECTIVES

The objectives for this paper are to find as many factors or variables that influence U.S. foreign direct investment in Australian food and kindred products by analyzing data and reading other studies done in this area. From this, I will determine which variables are the most important in determining FDI, and then I will develop a regression model to describe the determinants of FDI. After formulating the model that best fits the FDI data, I will make inferences from it. Hopefully, this will enable me to

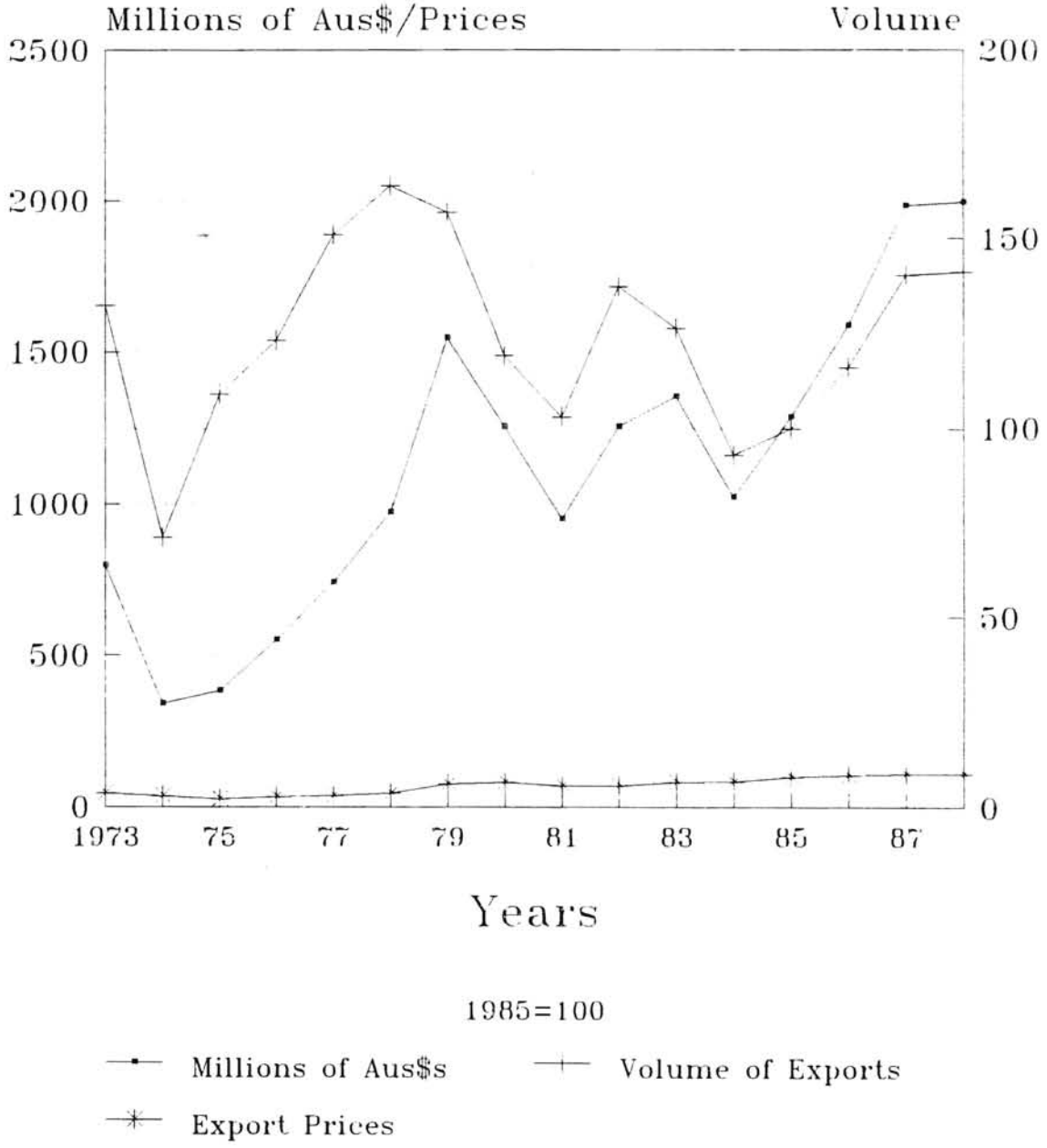
make suggestions to potential foreign direct investors in Australian food and kindred products, and help them decide which factors they need to consider when investing in Australia.

Figure 1. Index of Australian Export Volume and Prices



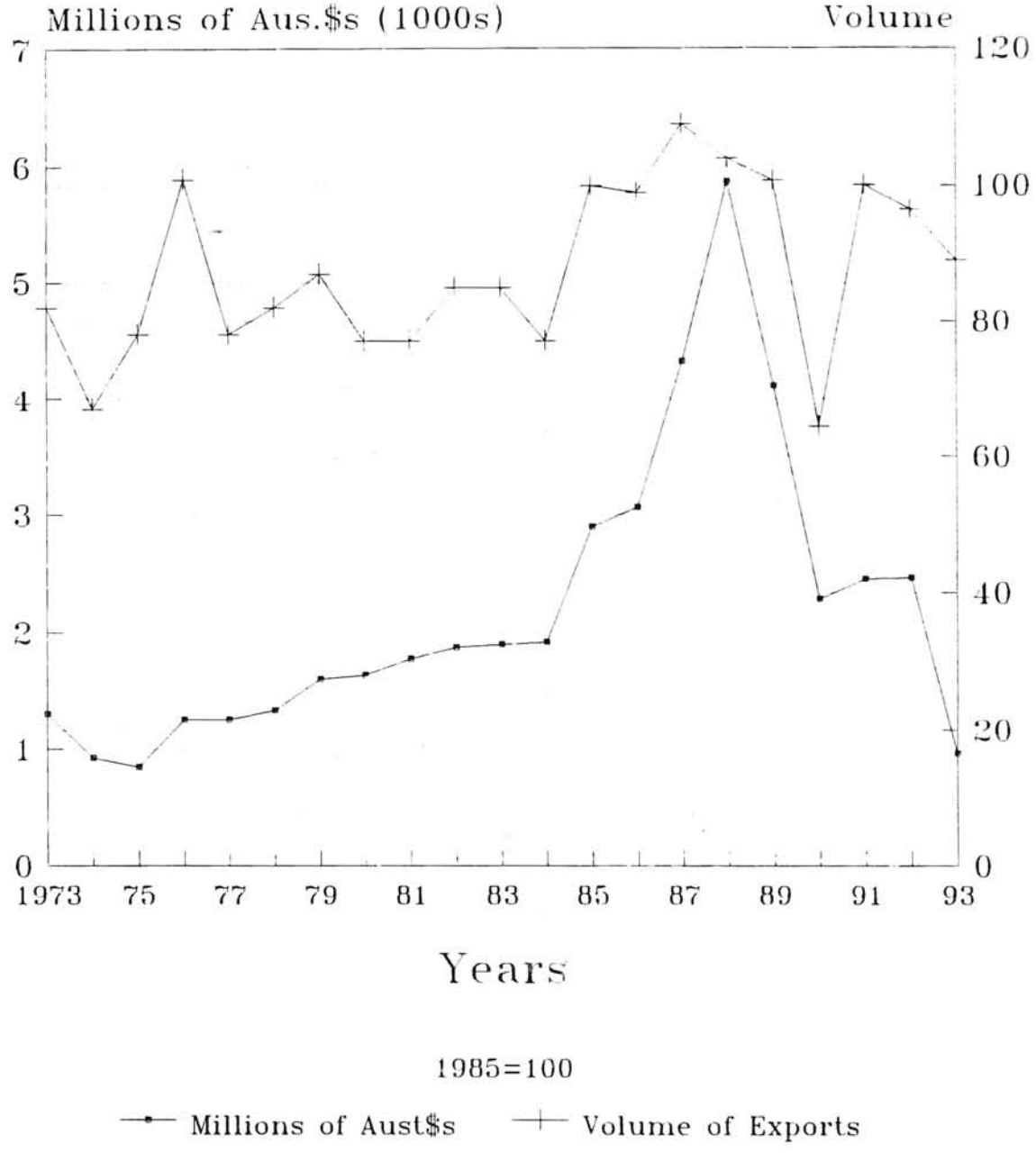
Source: International Financial Stats.

Figure 2. Australian International Transactions: Beef Exports



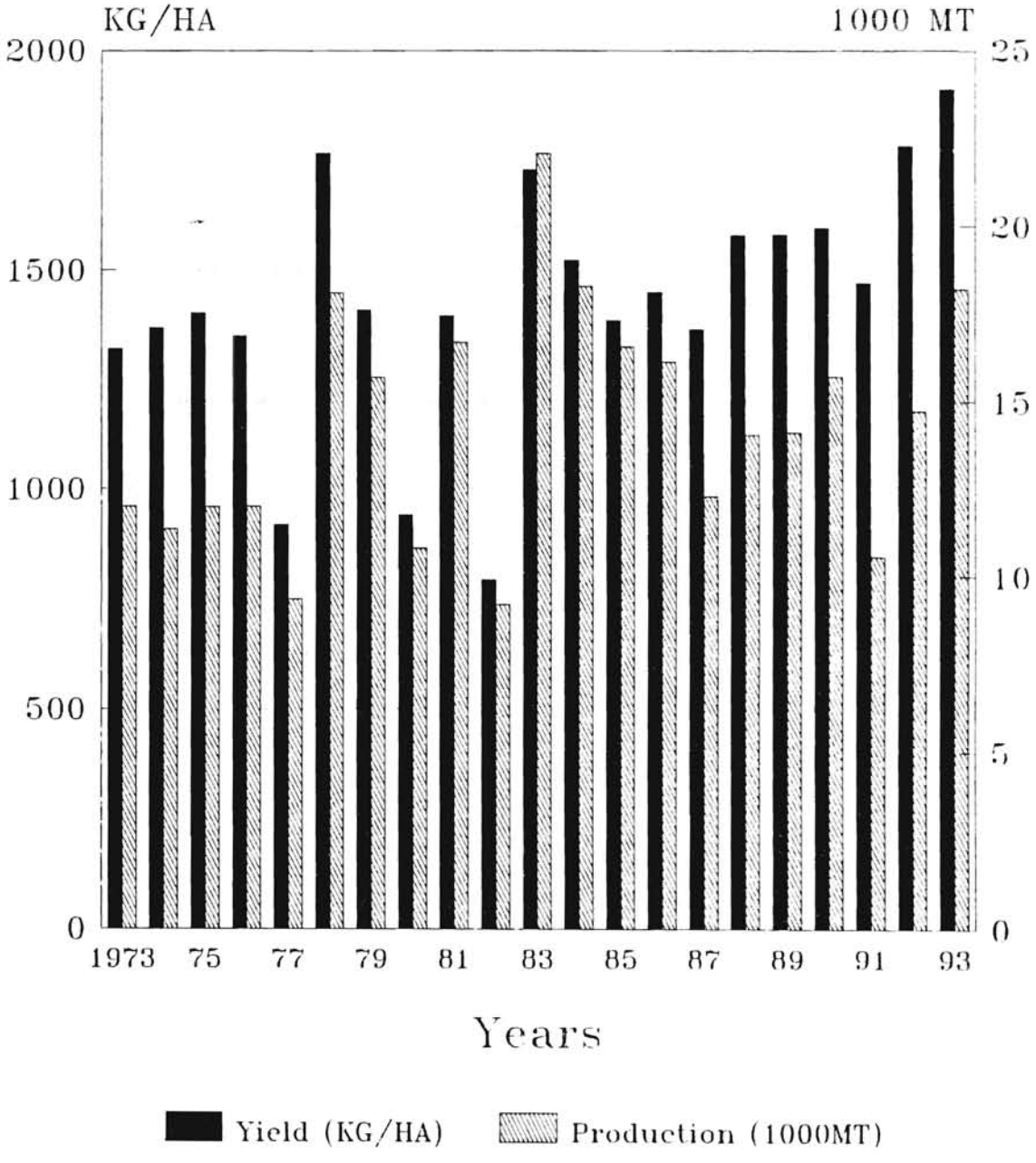
Source: International Financial Stats.

Figure 3. Australian International Transactions: Wool Exports



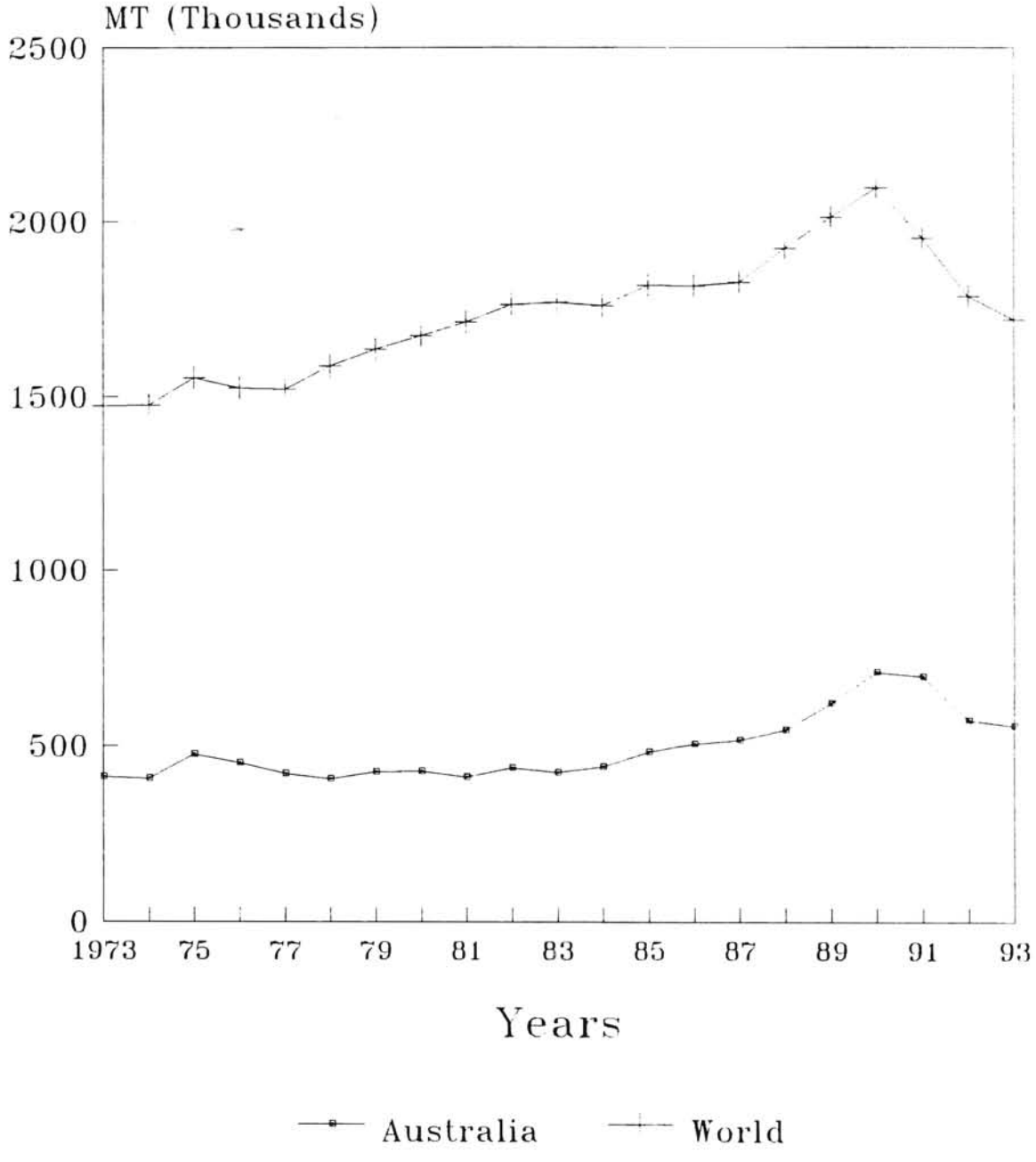
Source: International Financial Stats.

Figure 4. Australian Wheat Production



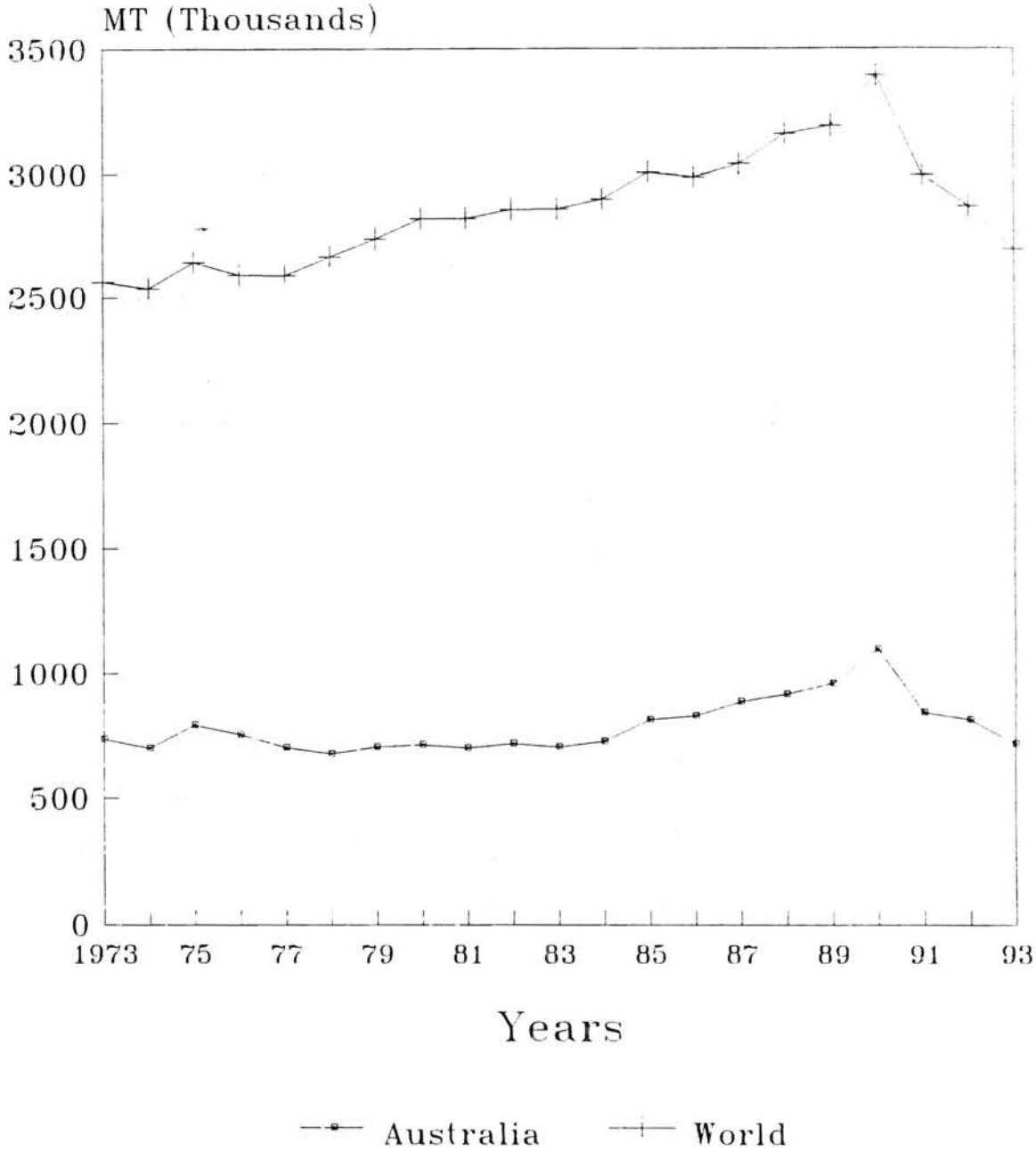
Source: FAO Production Yearbook

Figure 5. Australian Scoured Wool Production



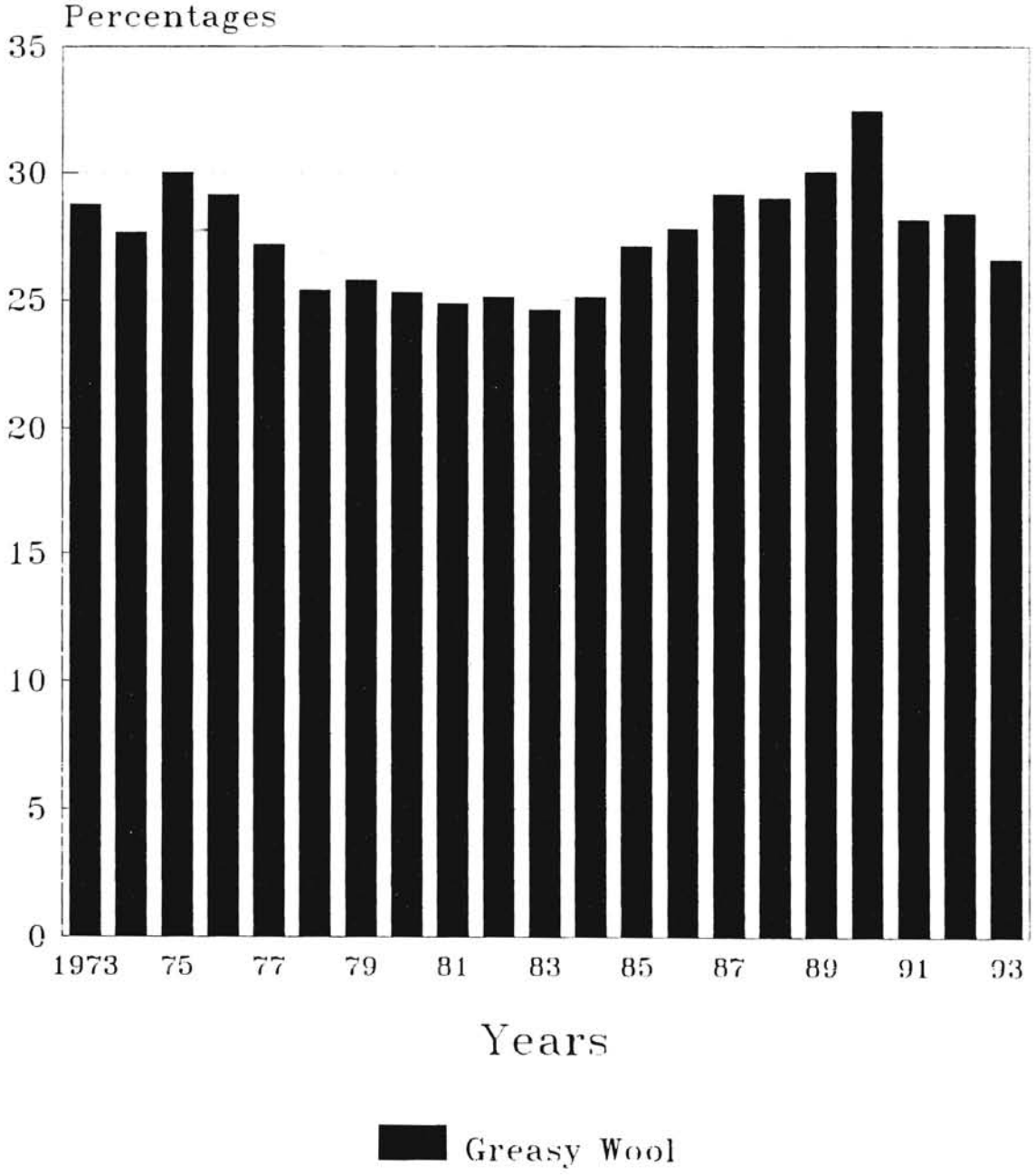
Source: FAO Production Yearbook

Figure 6. Australian Greasy Wool Production



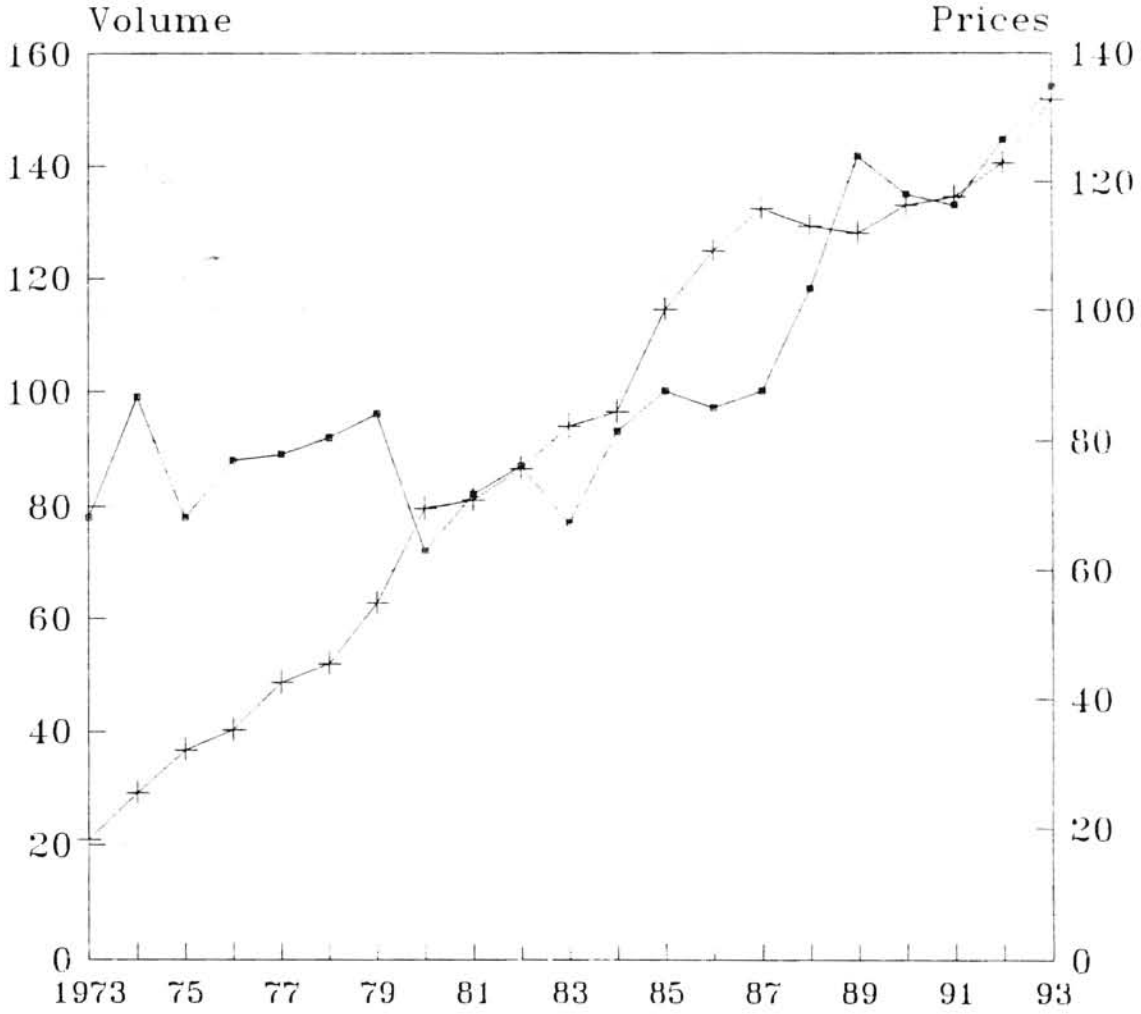
Source: FAO Production Yearbook

Figure 7. Australian Greasy Wool Percent of World Production



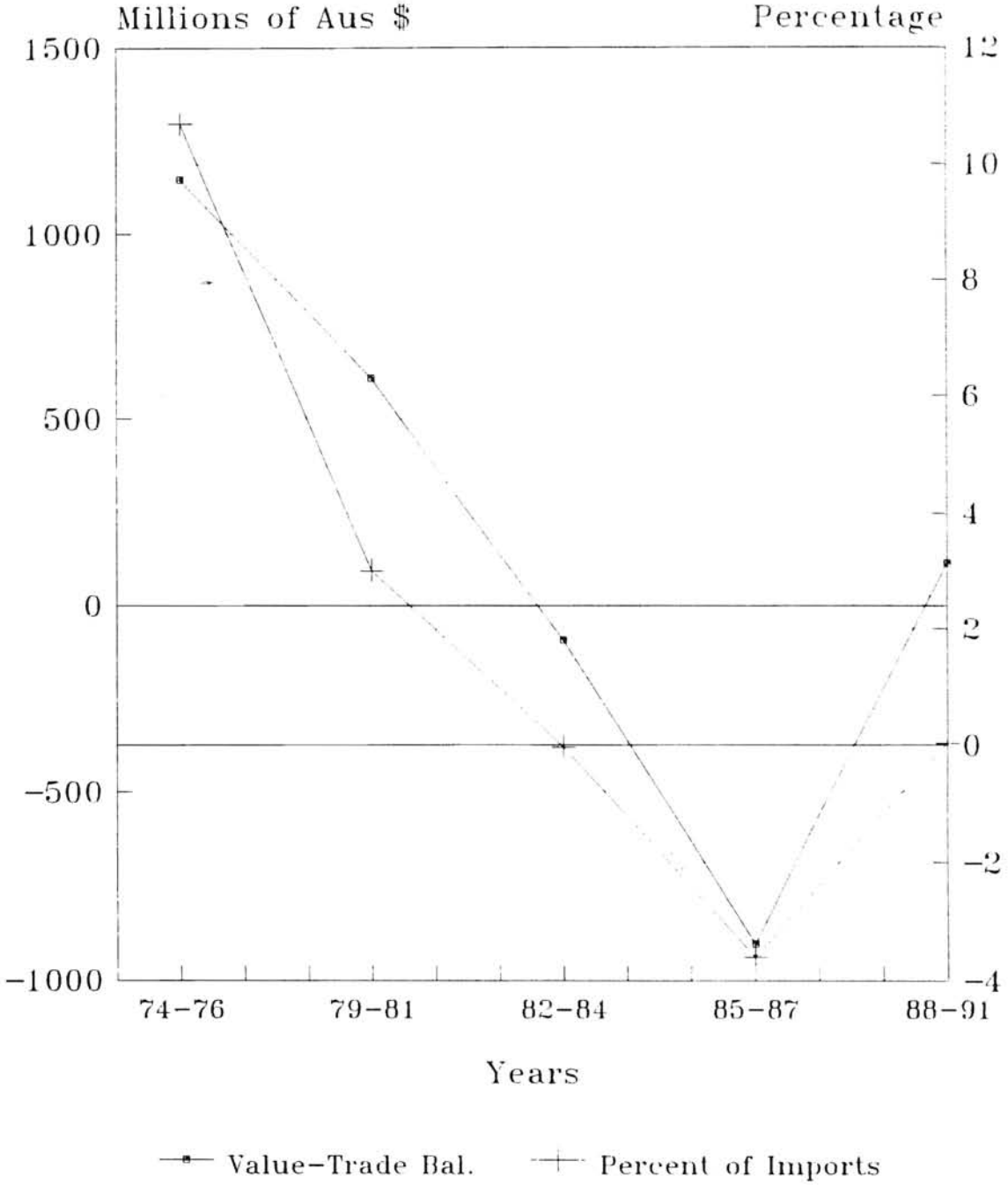
Source: FAO Production Yearbook

Figure 8. Index of Australian Import Volume and Prices



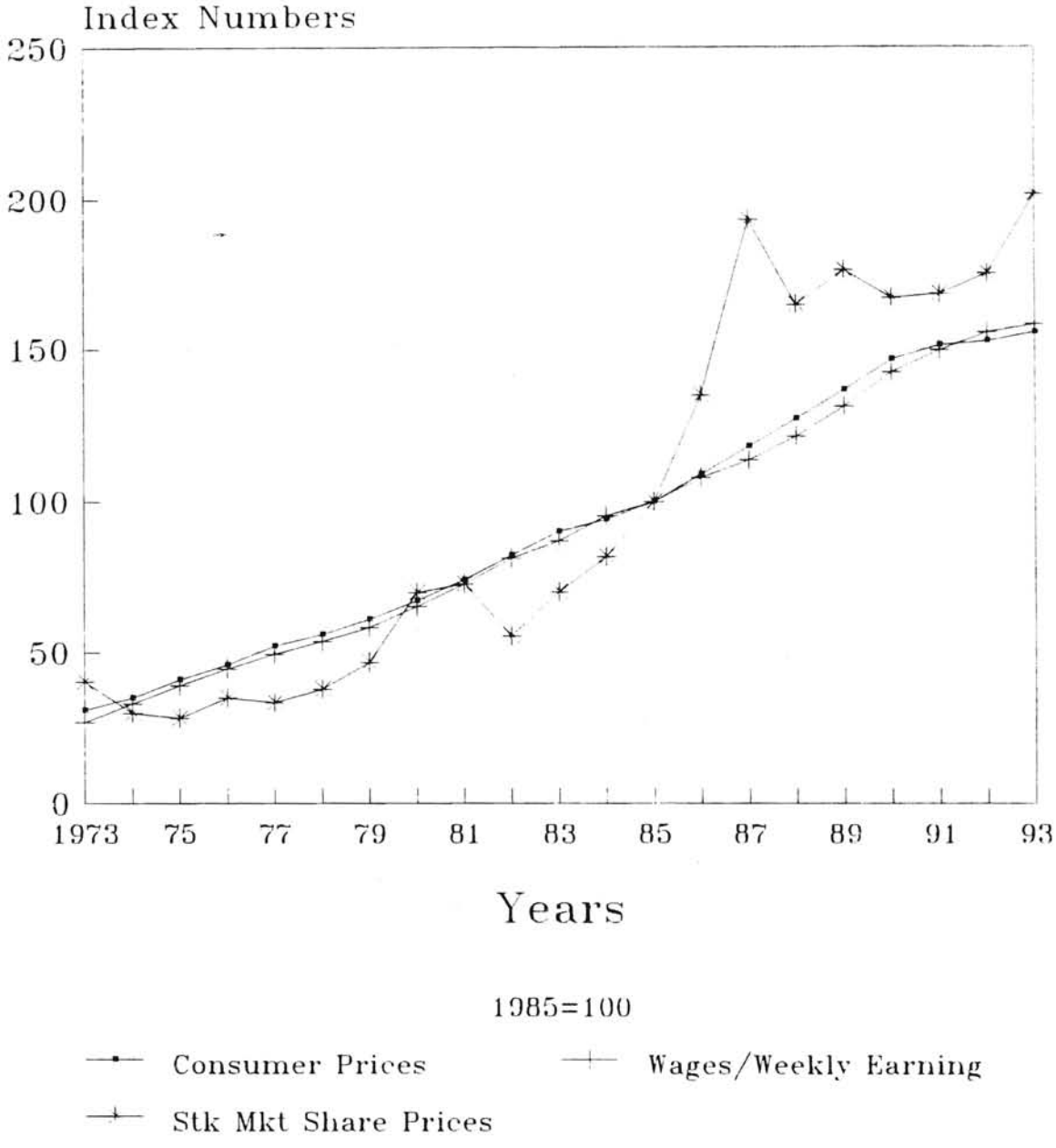
Source: International Financial Stats.

Figure 9. Australian Trade Balance



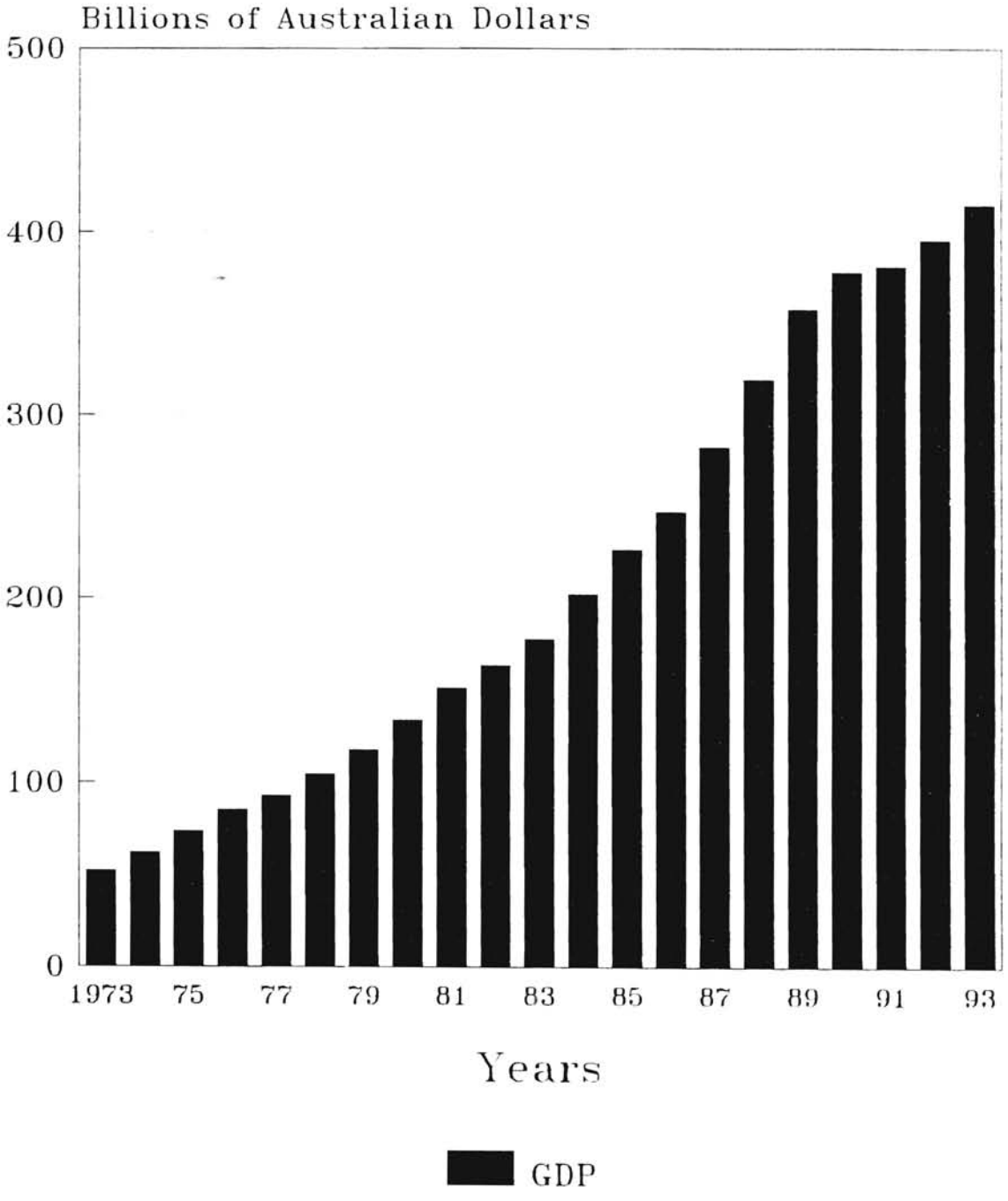
Source: Int'l Trade and Devel. Stats

Figure 10. Australian Economic Indicators



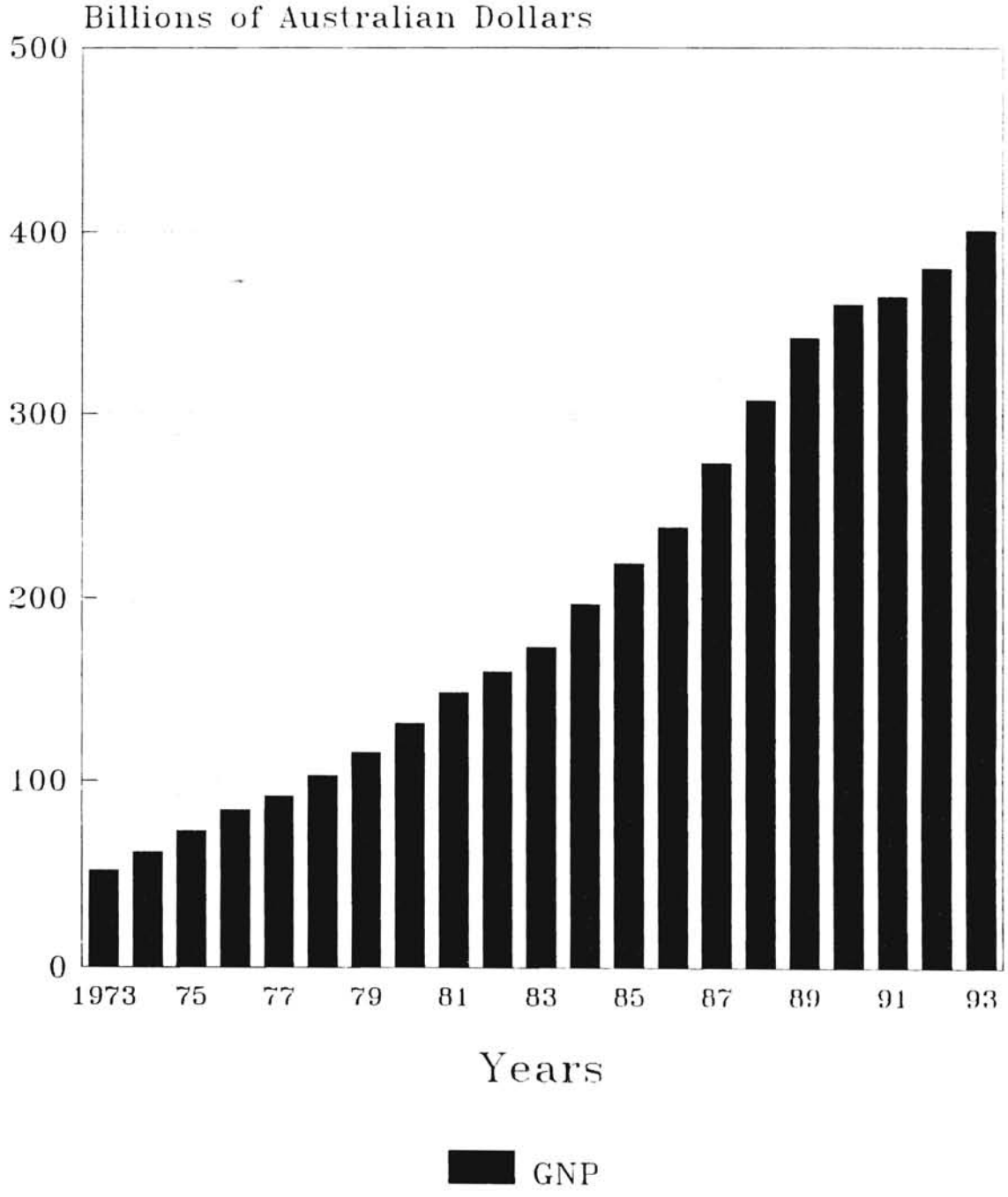
Source: International Financial Stats.

Figure 11. Australian GDP



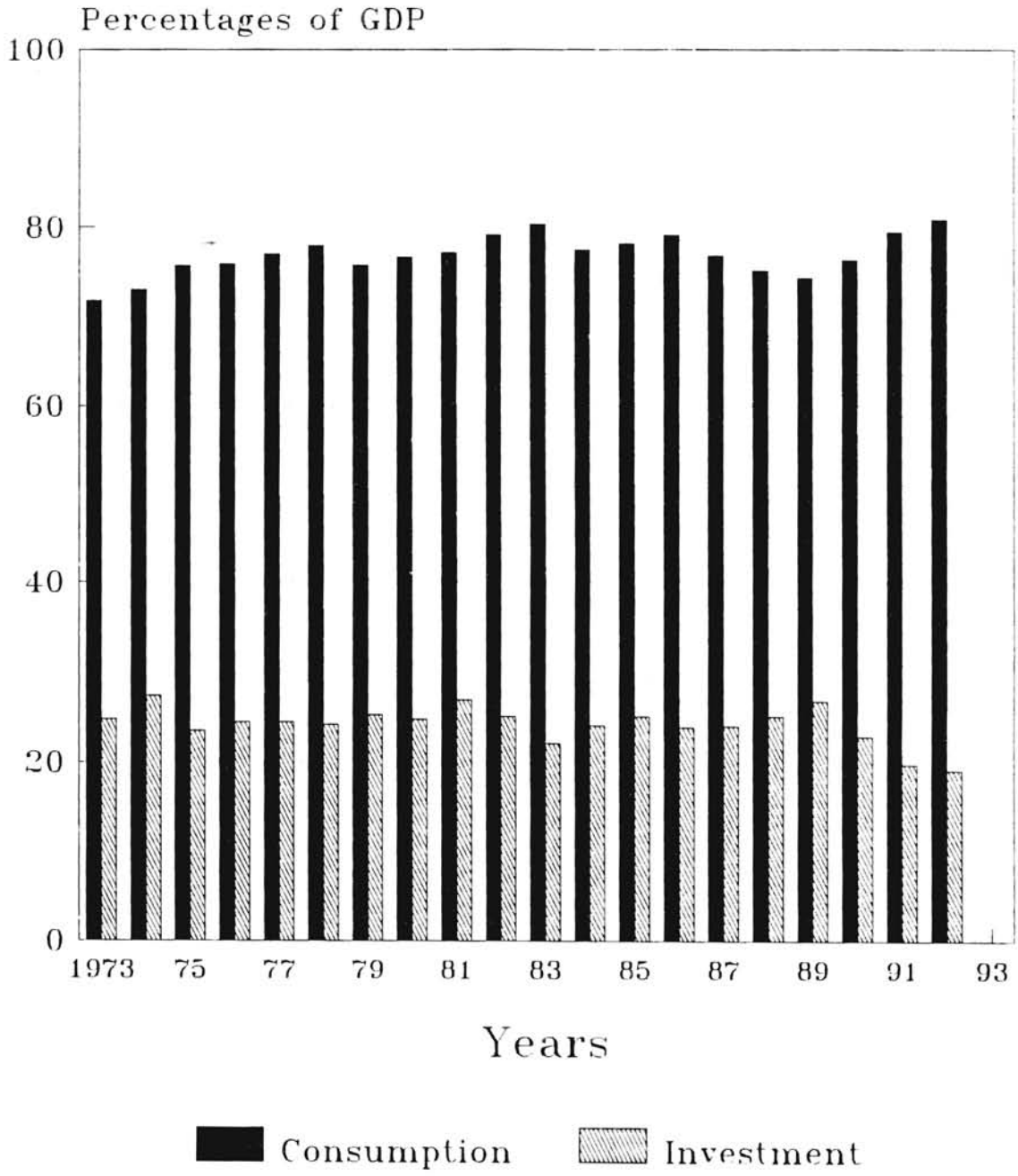
Source: International Financial Stats.

Figure 12. Australian GNP



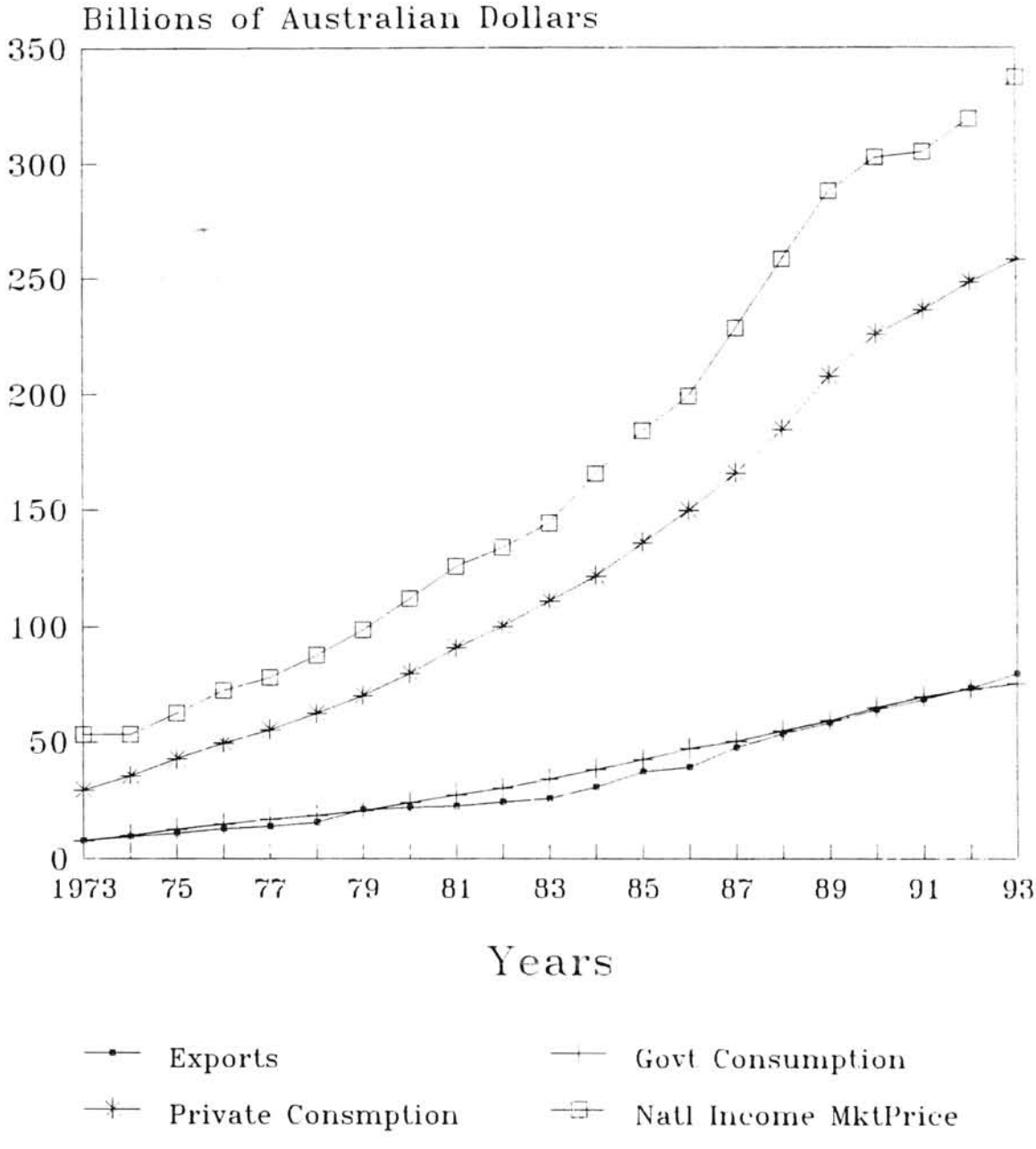
Source: International Financial Stats.

Figure 13. Australian Investment and Consumption as Percentages of GDP



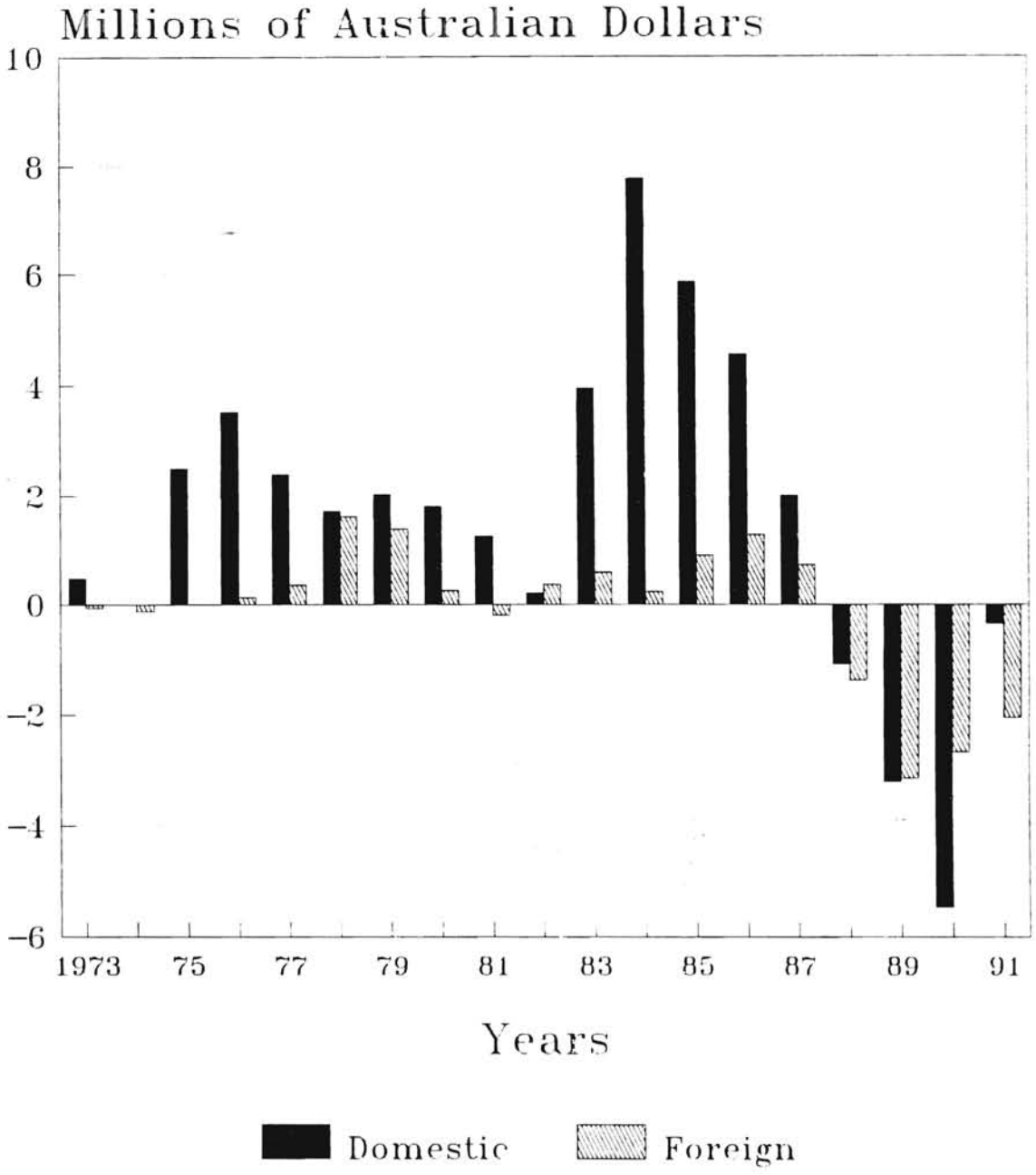
Source: International Financial Stats.

Figure 14. Australian National Accounts



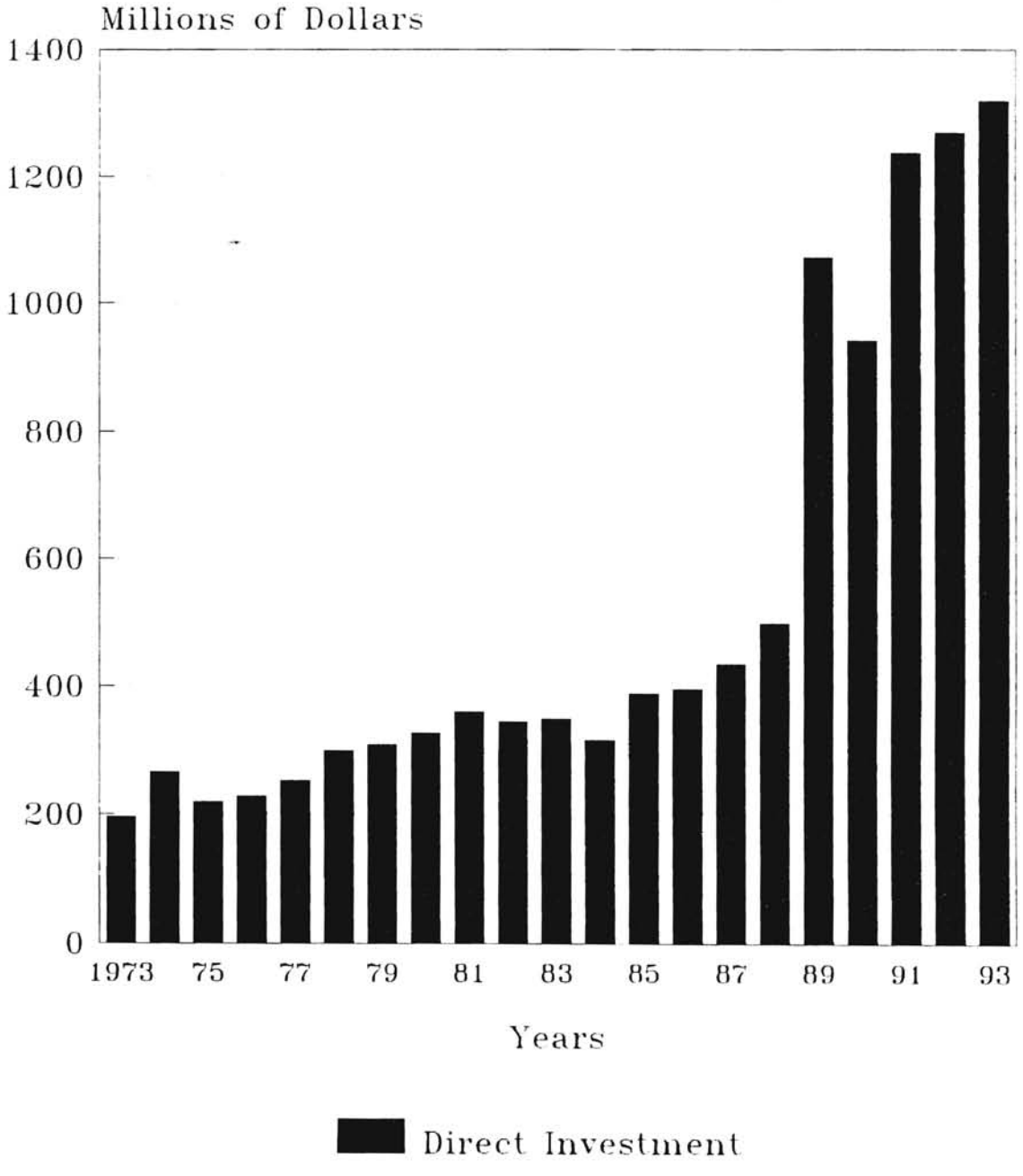
Source: International Financial Stats.

Figure 15. Australian Financing By Residence of Lender



Source: International Financial Stats.

Figure 16. U.S. Direct Investment in Australian Food and Kindred Products



Source: U.S. Department of Commerce

CHAPTER 2

LITERATURE REVIEW

FOREIGN DIRECT INVESTMENT

Foreign Direct Investment is the management control of a foreign enterprise through the ownership of equity or long-term debt. It is also the ownership of assets for the purpose of "controlling" the use of those assets. The U. S. Department of Commerce defines foreign investment as direct when a foreign firm has a stake of ten percent or more in a domestic operation (Vaughan 1995). Exports, franchising, licensing, royalty agreements, and portfolio investments don't have the unique combination of management rights derived from ownership (Connor 1983). Most FDI is done by multinational corporations, and once they begin to sell goods or services, FDI is called "international production (Connor 1983)."

Direct investment buys, for the investing company, a power of control over decision-taking in a foreign enterprise- the extent of which will vary according to its equity participation- particularly in relation to that of other investors (Dunning 1970). It is also accompanied by the transfer of other factor inputs, or the output of such inputs, in the form of knowledge or ideas (Dunning 1970). Direct investment is more likely to promote world economic growth than portfolio investment, because it tends to be

concentrated in the dynamic and technologically advanced sectors where the knowledge content of the investing firm is superior to that of local competitors (Dunning 1970). The growth of direct investment represents the horizontal or vertical extension of business enterprise across national boundaries, motivated by purely commercial considerations, and these capital exports (including reinvested profits) are directed mainly towards industrially advanced countries or to countries rich in natural resources (Dunning 1970). Australia in the early 1970s was a rapidly expanding country rich in natural resources, with a high income per head and a substantial industrial sector, thus making it attractive for business investment in both manufacturing and resource exploitation (Dunning 1970).

HISTORY OF U.S. FDI

United States direct investment abroad grew rapidly during the 1960s and 1970s, but its growth slowed down during the late 1970s and early 1980s. U.S. direct investment in manufacturing of food and kindred products in 1983 was $9 billion invested overseas, $6.8 billion of which was in developed areas (Henneberry 1986). The U.S. has long been the leader in making private foreign direct investments abroad, and is now also the world's largest host country for foreign direct investment. In 1980, U. S. foreign direct investment abroad was $213 billion. At the end of 1981, U.S. companies owned 45 percent of the world's FDI, dropping from over 60 percent in the early 1950s (Connor 1983). Before World War II, most FDI was concentrated in public utilities and raw

materials ventures in the less developed countries, but by the mid 1970s almost half of all FDI was in manufacturing, most located in highly industrialized countries U.S. FDI (also called outward investment) in food manufacturing totaled $9.1 billion at the end of 1981, 10 percent of total U.S. FDI in manufacturing , as reported by the U.S. Department of Commerce, Survey of Current Business. In 1979, the U.S. Department of Commerce reported that 87 percent of new FDI in food industries was by acquisition, and in 1980, new entry was completely by acquisitions (Pagoulatos 1983). In 1985, of the 100 largest agribusinesses worldwide, the parent firms of 38 were located in the U.S. (Vaughan 1995).

In 1989, total United States investment abroad was $373,436 million, with $14,495 million total in all Australian industries, and in total food and kindred products abroad for 1989, $15,783. Reinvested earnings in Australian food and kindred products by the United States went from $14 million in 1982 to $25 million in 1983 and then dropped to $19 million in 1984 and 1985, and increased dramatically in 1987, to $43 million, and to $53 million in 1988. The income for Australian food and kindred products grew from $42 million in 1982 to $58 million in 1984, dropped in 1985 to $43 million, and reached $68 million in 1988 (Survey of Current Business, August 1990 Vol. 70 pt.2). The United States' direct investment position abroad valued at historical cost increased ten percent in 1993, driven by record capital outflows (Survey of Current Business, June

1994, Vol.74). About half of the total was due to reinvested earnings The United States' share of Australian FDI was 3.4 percent in 1993.

THE DECISION TO ENGAGE IN FOREIGN DIRECT INVESTMENT

Foreign direct investment is not a firm's only choice. Before deciding on FDI to establish local production, the firm must also consider exporting to the foreign country or licensing a firm in the foreign country to produce and sell locally. FDI internalizes the international transactions within the firm and the firm achieves administrative control over the foreign operations (Pugel 1983). If the firm has unique intangible assets, investment may be the only alternative. FDI may be induced by restrictions (actual or feared) to international trade imposed by the host country. This is a "defensive" investment: subsidiary production is established in order to protect markets which are threatened by tariffs, other import restrictions, or a depreciation of the host country's currency (Pagoulatos 1983). Foreign direct investment tends to move into areas and industries where international trade will not. It is a preferred alternative to exporting, and is most concentrated in industries characterized by product differentiation. It is these industries, in which national marketing and advertising are an important source of differentiation, that are less susceptible to effective import competition.

The primary factors favoring the use of exports are usually economic: whether a target market is too small to support local production, or whether delivery cost is too high

relative to the value of the product. If conditions are right, exporting can be a relatively low risk means of establishing a foothold in a foreign market (Vaughan 1995). Multinational food firms often progress from exporting to local production, which is the most preferred method of supply since it offers the greatest control over the development, marketing, and delivery of firms' products.

Foreign investment seems to be dominated by firms that are relatively large and possess substantial market shares in the parent country. This is because they have to undertake the large costs of search and information required before entry and the firm must be able to make the necessary investments in plant and equipment and establishing marketing and distribution channels. Firms that have established a substantial position in the parent market and can more easily generate funds through external or internal financing are the most likely foreign investors (Pagoulatos 1983). Without intangible capital, such as firm-specific advantages in production, management, or marketing, a firm cannot offset disadvantages inherent in investing and operating in a foreign country, and it will not be able to compete with indigenous firms that do not have such disadvantages (Lee 1984).

According to the eclectic theory of FDI (Pugel 1983) a firm has two choices: 1. to decide between licensing and FDI to establish a preferred mode of foreign local production, and 2. to decide between exporting and FDI if licensing has been ruled out.

The first decision is influenced by whether or not the competitive advantage is an intangible asset, such as technology or marketing know-how. Ownership-specific advantages can be transferred to foreign production at low opportunity costs. The second decision is where to produce and depends on location-specific factors: comparative production costs, transportation costs, government policies towards trade and investments, comparative taxes, scale economies in production, and political stability. The need to adapt the product to foreign economic conditions may favor foreign production to monitor consumer reactions more effectively (Pugel 1983).

FDI AND TRADE

There may be a direct relationship between foreign direct investment and international trade. M.T. Rock described trade and FDI as sequential events: firms use exports to obtain a toehold and then, if market conditions warrant, shift to local production; Reed and Ning found FDI and exports to be substitutes, and Handy and Henderson concluded that the available evidence on the net effect of FDI on trade is mixed (Malanoski, Handy, and Henderson 1995). In some cases firms lead FDI with exports, but not so in other cases, and sometimes FDI precedes exports (Malanoski, Handy, and Henderson 1995). In "Assessing the Role of FDI in the Food Manufacturing Industry," by C.R. Handy and D.R. Henderson, 1994, it is stated that the U.S. has a policy objective of increasing exports, while the preferred international marketing strategy of the

leading U.S. food firms, and of leading firms regardless of nationality, is sales through foreign affiliates (Malanoski, Handy, and Henderson 1995).

Mundell, using neoclassical trade theory with unequal factor endowments and treating FDI as the international transfer of factors, demonstrated that trade and FDI are perfect substitutes when factor price equalization is obtained (Malanoski, Handy, and Henderson 1995). The Rybczynski theorem is consistent with this, stating that as two countries become more alike, from international factor mobility or FDI, trade contracts; thus it would be expected that an increase in FDI would lead to a decrease in trade (Malanoski, Handy, and Henderson 1995). Markusen (Malanoski, Handy, and Henderson 1995) showed that, if differences in relative prices in two countries under autarchy are due to differences in technology rather than in factor endowments, trade in goods will generate rents to the technology-advanced industry in each country. These rents, in turn, attract international factor movements, resulting in complementary trade and FDI; an increase in trade leads to an increase in FDI (Malanoski, Handy, and Henderson 1995).

BARRIERS TO TRADE

Tariffs, other trade barriers like quotas, and non tariff barriers like regulations for imported goods are regarded as a major cause of direct investment. An increase in trade barriers or an expectation that they will rise may be an incentive for firms to establish a subsidiary inside the protected market, instead of export to it. The market must be large

enough to allow the firm to recover the costs of its initial foreign investment (Calvet 1981).

Laws and regulations of a country often restrict trade flows. The domestic agriculture of most developed countries is protected by: quantitative restrictions, licensing requirements, variable levies, export subsidies, minimum import prices, and health and sanitary regulations, all of which are non-tariff barriers to trade. A non-tariff barrier is any governmental device or practice other than a tariff which directly impedes the entry to imports, or exit of exports, and which discriminates against imports or exports. Non tariff barriers distort or interfere with trade by restricting imports, providing assistance to domestic production in order to substitute for imports and promote exports, and provide direct assistance to exporters. Producers in many countries refuse to initiate the process of production and distribution necessary to penetrate markets which may be currently unrestricted because of the uncertainty of commercial policy in the countries where the markets are located. A country may restrict very little by laws, but there may be deep sentiment against foreign competition and for protection, which may impede markets once trade begins (Hillman 1978) Dormant or temporarily unenforced legislation and regulations can also cause problems when they suddenly become enforced. This frequently happens with perishables such as shortages of meat and poultry and when prices are abnormally high. Local inspection and conditions of sale in certain markets

relax only to be much more stringent later.

Administrative devices used to restrict trade range from fees and selective issuing of licenses to the use of regulatory measures like veterinary, health, quarantine, inspection, allocation of quotas, or valuation of imports. Quantitative restrictions include quotas, license fees, and exchange controls. However, interpretations for certain regulatory activities are difficult to discover. There are thousands of national laws and regulations that affect the movement of agricultural products across international boundaries. Many are trade-facilitating and trade-enhancing, and are necessary to the commerce of a modern society (Hillman 1978). The fivefold growth in trade volume since World War II would have hardly been possible without regulations, standards, and public direction. Prohibition of foods unfit for consumption and of articles dangerous to the health of humans, animals, or plants are just a few examples.

GATT, the General Agreement on Tariffs and Trade, has a basic inventory of measures affecting agricultural imports of major trading countries, which includes tariffs, quantitative restrictions, and other non tariff barriers to trade (Hillman 1978). GATT has detailed summaries of data covering countries for which information on all types of restrictive measures are available. From these reports one is able to derive import restrictions by country and general product categories prepared in the GATT for non tariff restrictions. Processed meats, processed cereal products, fruits, and vegetables have a

high frequency of restrictions. Import quotas and licensing are the most frequently used non tariff restrictions. Australia has very few import restrictions compared to the rest of the world.

IMPACTS OF FOREIGN DIRECT INVESTMENT

FDI inflows can affect the current capital account of balance of payments, generate domestic income and employment in particular regions (depending on takeover or de novo), and provide a vehicle for introduction of new technology and managerial expertise, thus boosting domestic production. It can also affect the extent and quality of competition in specific markets Macro economic issues affect the national economy of the host country, such as the balance of payments. FDI is often the result of a well developed export market. Firms with a history of export sales have already established marketing outlets and estimated the size of the foreign market. Knowing this greatly reduces the risks associated with an overseas production facility (Henneberry 1986). Production in the nation would cause imports to be replaced by locally produced products, and this import substitution would have a positive impact on the balance of trade. Host country unemployment is not solved with foreign investment, because the firm would hire skilled workers, not unskilled and unemployed workers. However, training programs will help the host country and will foster better relations (Henneberry 1986)

A large benefit a foreign firm offers a country attempting to expand exports is the

opportunity to penetrate markets in developed areas Products produced in a foreign market can be imported to the home country and sold because of their recognizable brand name. Other potential benefits are: foreign investment may help transfer technology and skills, provide management and training of local workers, aid in the creation of indigenous skills in administration, marketing, and other business techniques, and "with appropriate safeguards" it can contribute to the growth of local entrepreneurship. It may make more competitive markets, provide access to international markets, contribute to tax revenues, help fill foreign exchange gaps, and may create employment opportunities and raise domestic wages (Kobrin 1977).

There is also a list of potential negatives of foreign investment: excessive cost of resources transferred, decreases in competitiveness of domestic markets, inefficient resource use vis-a-vis development goals and inappropriate technology transfers to increased dependence on industrialized countries, a loss of political and economic sovereignty, and a strengthening of imperial or exploitative relationships (Kobrin 1977).

STUDIES ON WHAT INFLUENCES FDI

Four statistical studies done by Baldwin; Call; Dunning, and Bergsten, Horst, and Moran all used the same data source to calculate FDI propensity (Connor 1983). They showed that technological levels in the U.S. industry: R&D (research and development) or highly skilled industry labor positively influence FDI propensity. Product differentiation

also has a positive impact. All four supported the contention that FDI propensity is highest where ownership-specific advantages arising from technology, marketing skills, or market power are greatest. FDI also flows in the direction of countries that are relatively rich, have industry compositions resembling the United States, and receive U.S. commodity exports. Horst (Connor 1983) stated that FDI is directly explained by firm asset size, advertising intensity, and the degree of geographic concentration of the industry. In 1975, Connor and Mather said the determinants of FDI are firm sales size, global sales diversification, advertising intensity, and R&D expenditures (Connor 1983). Connor and Pagoulatos stated that outward FDI from the U.S. is positively related to the firm's intensity of R&D and intensity of advertising (Pugel 1983). FDI is also positively related to internal transfers of intangible assets, like new technology developed in R&D and marketing know-how. Size of firm and extent of product diversification are also positively related to FDI. Connor believed that advertising intensity, per capita advertising in the home country, and firm-specific factors like size of firm sales, degree of product diversification, and firm's experience in food marketing are all positively associated with FDI in the U.S. (Pagoulatos 1983).

Product differentiation in the home market is the critical element leading to FDI (Calvet 1981). A successful firm producing a differentiated product controls knowledge about servicing the domestic market that can be used at little or no cost in other national

markets. This provides the motivation for investing abroad as long as protection such as patents and copyrights exist.

Aharoni felt that the first thing considered in the FDI decision was "political and economic" stability, and that market opportunity and political risks are the dominant factors in most investment decisions (Kobrin 1976). In a 1970 mail survey, restrictive economic policies and political instability were the most important problems confronting U.S. investors in Latin America (Kobrin 1976). GDP per capita, measures of social development, the degree of homogeneity of society, and measures of the communications and transportation infrastructures all influence FDI. Market size and potential (GDP and population), economic growth (annual growth rates for GNP and GNP per capita), and unstable growth also affect the FDI decision. According to Kobrin, of these variables, size of market and level of development are the primary determinants of FDI.

Scaperlanda and Mauer, (1969), believe there are three principal hypotheses related to the motivation behind foreign investment: size of market in the receiving area, economic growth, and tariff discrimination. Foreign investment will take place when the market is large enough to capture economies of scale. To avoid obstacles to trade such as tariffs, quotas, and transportation costs, foreign investment is undertaken in the country to which it is difficult to export because of the obstacle. As the obstacles change, foreign investment flows change. Scaperlanda and Mauer concluded that size of market is the

only significant variable, which they determined statistically.

Pagoulatos and Sorensen, studying 88 US manufacturing industries, found exports positively related to scale economies, product differentiation, and research and development; Marvel, with a similar study, also found a positive R&D-export relationship, a positive relationship to managerial intensity, and a negative association between home market power and exports (Malanoski, Handy, and Henderson 1995). Trade is positively associated with managerial intensity, as was found by Baldwin, and negatively related to seller concentration; he also found a negative product differentiation-trade link (Malanoski, Handy, and Henderson 1995). Koo and Martin, using 288 US industries, confirmed the negative market power-export relationship, and found a positive impact of product innovation on exports and a negative home market advertising-export link (Malanoski, Handy, and Henderson 1995).

Lyons found a negative advertising-export relationship and positive effects on exports of scale economies and R&D, while Lipsey confirmed positive effects of managerial intensity and R&D on exports and a negative impact of advertising (Malanoski, Handy, and Henderson 1995). Handy and MacDonald documented positive R&D and negative advertising impacts on exports, and Henderson and Frank reported negative export impacts of advertising, home market power, and trade barriers and confirmed positive impacts of scale economies and R&D (Malanoski, Handy, and Henderson 1995).

Glejser, Jacquemin and Petit also documented negative impacts of market power on exports but reported a negative R&D-trade relationship (Malanoski, Handy, and Henderson 1995).

Firms undertake FDI when their firm-specific advantages outweigh any disadvantages associated with operating in the foreign market. Food firms seek foreign markets to achieve growth and maximize profits. According to Vaughan, (1995) the primary determinants of FDI in food manufacturing are economic and strategic Multinational food firms choose local production over exports to maintain control over and exploit their intangible assets like trademarks, technology, and skills. Location advantages are also important, such as size of target market, cost of delivery and imputs, and risk. Multinational food firms prefer to serve target markets with completely owned local production. Producing in the host region and having full control over the management of a business, firms can most successfully exploit their advantages. They can ensure product quality, timely delivery, and superior customer service, thus allowing firms to maintain and enhance the value of their trademarks. Food demand is often characterized by strong regional preferences. The ability to tailor products to local tastes can be a crucial asset for success in foreign food markets and can require producing in the target region. Strong consumer preferences for domestically produced foods can also influence production location decisions (Vaughan 1995).

Yu found positive impacts of firm size, R&D, and home-market advertising on sales by foreign affiliates; Handy and MacDonald, using data on 32 US manufacturing industries, also found positive impacts of R&D and home advertising on FDI (Malanoski, Handy, and Henderson 1995). Ray, studying 32 industries in 5 countries, found strong evidence that FDI is positively influenced by specialized human capital, managerial intensity, and host market growth, and weak evidence of positive influences by seller concentration in the host market and trade barriers (Malanoski, Handy, and Henderson 1995). Baldwin found product differentiation, managerial intensity, and seller concentration positively affect FDI (Malanoski, Handy, and Henderson 1995).

A study of 300 US-based multinational firms by Grubaugh (Malanoski, Handy, and Henderson 1995) found ties between FDI and relative levels of firm expenditures on both R&D and advertising; Dunning reported a positive relationship between value of intangible assets and FDI. Veugelers, in a study of FDI patterns in OECD countries, found effects on FDI of cultural similarity between host and home countries and confirmed the importance of host market growth, while Connor documented positive impacts of firm size, advertising, R&D, and home market share on FDI (Malanoski, Handy, and Henderson 1995). A study of 628 food manufacturers in 16 countries by Henderson, Voros, and Hirschberg found intangible assets, product differentiation, firm size, and home market power positively associated with FDI (Malanoski, Handy, and Henderson

1995).

Firms decide to locate or remain in a country based on location-specific advantages. These factors that most strongly influence multinational food firms are economic in nature and often are associated with characteristics of the market, such as size of market, scale economies, delivery costs, input costs, market structure, and level of risk. Public policies like legislation concerning FDI, market regulation, import quotas, and tariffs are also factors to be considered (Vaughan 1995) Cost and availability of raw ingredients are an important consideration for food manufacturers and can influence production location decisions, as can market regulations. Labor and environmental regulations can influence locations as well.

In the food industry, the major determinants of FDI are the internalization of intangible assets, such as trademarks, technology, and skills, in order to maintain control over and fully exploit these advantages. Location advantages like market size, cost of delivery relative to the value of the product, availability and cost of raw ingredients, and market and political risks are also important (Vaughan 1995).

Industry or firm-specific issues a firm is concerned with are high profits. repatriation, intra-firm transfer pricing, brand names, foreign market access, production technology, the patent system, government-corporate joint ventures, nationalization and expropriation, wage rates and labor relations, and local entrepreneurship. Foreign

investment will not be attracted unless the firm is reasonable certain that the initial investment plus a return on capital will be repatriated. Firms are more likely to reinvest profits in low-risk areas and to repatriate profits where risks are high (Henneberry 1986). FDI may be attracted to areas where the average rates of profit are higher. This is the capital markets disequilibrium hypothesis: for a given level of risk, rates of return on assets are not equalized internationally by portfolio capital flows, due to inefficiencies in securities markets. Thus the only way rates of return on real assets can be brought to equilibrium is by flows of direct investment (Calvet 1981). FDI flows from high labor cost countries to low-cost countries to pursue cost minimization. Firms in countries where technology is relatively advanced would find profitable opportunities abroad and would have incentive to invest overseas.

A summary of this research can be found at the end of this literature review in Table 1, which compares the numerous studies and the determinants the authors feel are most influential in foreign direct investment.

DETERMINANTS OF FDI

Firms produce abroad where the market growth and or profit potential is favorable relative to alternative methods of market servicing, such as exports. Market size is an important feature in a firms' decision regarding local production, since a large market size allows the firm to achieve lower marginal costs of production through economies of scale

and integration. Relative costs, including wage costs, seem to have some influence on the choice between exporting and overseas production (Buckley and Dunning 1976).

Control and market power are the distinguishing characteristics of most multinational enterprises and foreign direct investment. Firms that establish production facilities abroad are at an initial disadvantage in terms of knowledge of consumer tastes, laws, language, and customs relative to national firms in the markets they enter. Pugel also feels that FDIs also are at a disadvantage with other "local information" on social, legal, cultural, and economic conditions of the country. The firm must have an advantage over locals in order to be successful. If a foreign firm is to overcome inherent disadvantages relative to national firms in entering markets, two conditions must be present. First, the firm must possess a unique asset that enables it to enter the foreign market and earn rents in spite of its disadvantages relative to national firms. Second, the asset must possess some characteristics of a public good such that it can be easily transferred and utilized in other markets without impairing its value in the home market. The set of assets include some intangible assets in the form of firm-specific advantages: the firm's possession of name brands, patents, trademarks, specialized products in technology or design, and or managerial knowledge and expertise in the adaptation, modification, and marketing of products in specific markets (Pagoulatos 1983). Modes of entry by firms are crucial to understanding FDI.

Potential foreign investors evaluate the profitability of foreign investment in three steps, according to Connor. First is profitability relative to its domestic rivals in the same industry by evaluating ownership-specific advantages. These firm-specific assets include patents, trademarks, and consumer loyalty to brands. Second are industry-specific advantages such as stable or growing demand, open distribution systems, market information for purchase, and special industry subsidiaries for exporting. Third are location-specific advantages: worker education levels, climate, language, knowledge of business and general customs, and barriers to trade effectively protecting domestic commerce.

FDI decisions are usually discrete and are rarely independent of the firm's past activities or industry interactions, and are often taken in response to a specific exogenous stimulus (Kobrin 1976). It is often difficult or impossible to identify the separate effects of political, social, cultural, legal, and economic variables on the investment decision. The investment climate must be analyzed in terms of all of the conditions that affect business operations within a country. economic, political, administrative, and social climates. The firm must be concerned with environmental factors which "condition" or affect the achievement of enterprise goals. The ease of capital mobility and government policy are the two most important factors influencing the level and structure of domestic investment and thus indirectly influence the level and direction of investment overseas. Domestic

economic conditions do influence the rate of investment abroad (Dunning 1970).

Foreign direct investment is an equilibrating force among segmented markets which eventually comes to an end when equilibrium is re-established, when rates of return are equalized among countries. Disequilibrium conditions that provide incentives to invest abroad are numerous. They apply to factor markets and foreign exchange markets. Currency over-valuation creates opportunities for profit-making by holding assets in undervalued currencies, except that with re-establishment of equilibrium, capital gains will be realized. Once the exchange rates return to equilibrium, the foreign direct investment should stop (Calvet 1981).

Most literature dealing with the theory of foreign direct investment is concerned with determinants rather than the objectives, many of which are common to domestic investments (Dunning 1970). Certain considerations must be taken with foreign investment, such as the difference between a market with free trade like the United States and tariffs on imports into foreign countries, or the potential for alterations in currency exchanges, or certain political factors which are not present in the domestic market (Dunning 1970).

The determinants of foreign direct investment, as found in previous studies, fall into three groups. First are those which evaluate, from data supplied by individual businesses, the main factors influencing the decision to invest in a particular country or

industry, and try to rank the influences according to their importance (Dunning 1970). Dunning believes it is difficult to summarize the findings of this type of approach, especially when the variables considered are loosely defined or are interdependent of each other. The second type of approach is macro-oriented. Published data available on direct investment by one country in various countries abroad or in particular industries are studied to try to establish a functional relationship between this and possible determinants (Dunning 1970). The third approach seeks to explain why foreign investment is preferred to other forms of resource allocation, such as direct rather than portfolio investment. It also questions why direct investment is preferred to other ways of exploiting a foreign market, such as exports or licensing agreements (Dunning 1970) When an investing company possesses some advantages over its foreign competitor which are not readily available to it and are sufficient to compensate for the disadvantage of operating a subsidiary at a distance, the firm will exploit those advantages rather than share them with a competitor, and is thus encouraged to engage in direct investment rather than portfolio investment (Dunning 1970).

CONCLUSION

A firm does not automatically decide on direct investment abroad; it must first determine whether or not FDI is the best method for that particular company. Exporting and licensing must also be considered before a firm decides to invest abroad. Exporting

first may be a good way for a firm to get a foothold in a foreign market and then move on to FDI.

There are many factors that must be carefully analyzed after deciding on foreign investment. Market size, barriers to trade, language, R&D, skilled labor, advertising, product diversification and differentiation, risk, location-specific, and firm-specific advantages are the most common factors that a firm must consider when deciding where to invest. Of these, the most important few should be selected by each individual firm for each specific case of foreign investment, to best take advantage of the opportunities provided by foreign investment.

TABLE 1 STUDIES OF DETERMINANTS OF FDI MOST COMMON VARIABLES

AUTHOR: * denotes variable(s) chosen by author	R&D	Product Differen -tiation	Adver- tising Intensity	Skilled Labor	Market Growth/ Opp	Market Size
Baldwin	*	*		*		
Call	*	*		*		
Dunning	*	*		*		
Bergsten	*	*		*		
Horst			*			
Connor & Mather	*		*			
Connor & Pagoulatos	*					
Connor	*	*	*			
Calvet		*				
Aharoni					*	
Kobrin						*
Scaperlanda & Mauer	*	*				*
Marvel	*					
Lyons	*					
Lipsey	*					
Handy & MacDonald	*					
Henderson & Frank	*					
Vaughan	*					*
Yu	*		*			
Ray					*	
Grubaugh	*		*			
Henderson & Voros		*				

Source: Taken from numerous authors used in Literature Review Chapter and referenced in References at the end of this paper.

CHAPTER 3

THEORY

UNDERSTANDING FDI

Understanding the economics of direct foreign investment requires a different theoretical orientation than that of traditional trade theory (the so-called Heckscher-Ohlin-Samuelson model of international trade), with its assumption of international mobility of factors of production and complete mobility of technical knowledge (Johnson 1972). The essence of direct foreign investment is the transmission to the 'host' country of a 'package' of capital, managerial skill, and technical knowledge.

Major issues for theory are the reasons why the transmission of such a 'package' of capital and knowledge is more profitable than the alternative of transmitting either the capital or knowledge or both separately, and what the welfare implications are for the 'home' and the 'host' countries. Two approaches to these questions are the theory of industrial organization (microeconomic) and that of traditional trade theory (macroeconomic) (Johnson 1972).

THEORY OF INDUSTRIAL ORGANIZATION

Stephen Hymer is responsible for the industrial organization approach, emphasizing the competition for market shares among oligopolists; Raymond Vernon's

group at Harvard used a modified approach, with an emphasis on the economics of new product development (Johnson 1972). This was then elaborated by R.E. Caves, which also uses empirical evidence and synthesizes the industrial organization and trade theory approaches (Johnson 1972).

Caves's central theme is the parallelism between direct international investment and horizontal and vertical integration of firms in a geographically segregated market. The firm must possess some asset in the form of knowledge of a public-goods character (production technology, managerial or marketing skills) which is transferable at low cost to a new location, in order to be able to invest successfully in production in a foreign market (Johnson 1972). This is necessary for it to be able to surmount the excess costs of production in a new location. For a firm to produce abroad versus license its know-how, the rent it can obtain from its knowledge must be tied to the actual process of production and distribution, and the firm must be large enough to undertake the required investment. Thus Caves argues that direct foreign investment is associated with product-differentiated oligopoly, a hypothesis broadly consistent with Vernon's emphasis on new product development.

'Vertical' direct foreign investment, in the extraction of raw materials is similarly associated with oligopoly, differentiated or not, and the corresponding incentives to reduce uncertainty and to forestall potential competition (Johnson 1972). An important

theoretical consequence of 'horizontal' direct foreign investment is the tendency towards the equalization of profit rates in the same industry across nations, but not across industries within the national economy. Other implications are 'cross-hauling' in investments by national corporations in each others' markets, and a tendency towards overcrowding of the smaller markets by an excessive number of relatively inefficient firms. An alternative theory of direct foreign investment in terms of exchange risk, according to which investors in the strongest-currency country have an advantage over investors elsewhere because their investment converts local into internationally desirable assets, was offered by R.Z. Aliber (Johnson 1972).

TRADE THEORY

Trade theory, as developed by Vernon, Caves, Drysdale, and others, (Johnson 1972) contributes to this the notion of national comparative advantages and disadvantages in the generation of new differentiated products, and in the attraction of direct foreign investment. The question is raised of the effects of such investment on the distribution of income within the home and the host country and on their respective economic welfare Inward direct investment can benefit domestic capital at the expense of labor, but also the attraction of foreign investment by a tariff can benefit domestic labor, as was developed in a model of international, but not inter-industrial mobility of capital, by R.W. Jones (Johnson 1972).

With regards to the welfare effect, it has been assumed that the impact of a package of capital, technology, and managerial skill must be beneficial to the host country. However, gains are not necessarily inevitable or significant. If the foreign firm simply replaced imports by domestic output, charging the same price and paying the going wages for domestic labor, and remitting the interest on its capital and the rent on its superior knowledge as profits, the host country would gain nothing. If the foreign investment were attracted by a tariff or by fiscal subsidies, the host country might lose (Johnson 1972)

GAINS TO THE HOST COUNTRY

Under existing double-taxation agreements, the host country has the right to tax the profits of the foreign enterprise, and captures a share of both the earnings of the foreign capital and the rents of the foreign knowledge. This source of gain from inward foreign investment may be very important for developing countries because the foreign corporation affords a target for the tax-collector easier to hit than most others, and because the corporation may need very little compensation for its taxes in the form of public expenditure on infrastructure and other public services (Johnson 1972).

Host countries depend on the inability of the investing corporation to capture all the social benefits form its investment. Spillovers include a reduction of prices or improvement of product quality for consumers, or an increase in wages and the prices of other local inputs into the production process (Johnson 1972). Caves suggests two

possibly important sources of gain to the host country. First is the training of labor which becomes available to the economy, if the firm finances the training, and over-provides training in relation to its actual needs for skills, as happens in a developing country when starting a new type of operation. Second is productivity gains in domestic firms induced by the behavior of the foreign firm's subsidiary, resulting from migration of executive talent to domestic firms from the foreign firm (Johnson 1972).

There are likely to be significant gains to a host country from direct foreign investment in it, and these gains are at no cost to the country whose corporations are doing the investing, except for the loss of profits-tax revenue. Caves states that since profits tax rates are basically the same in most countries, the allocation of capital is not distorted from a globally efficient pattern by the existence of profits taxes, but will be distorted by fiscal incentives (Johnson 1972).

A marginal approach to the impact of direct foreign investment on the home and host countries would lead one to expect a significant and sustained inflow of foreign direct investment to have an end result of raising real wages and real incomes in the host countries. There would be an increase in the overall capital-to-labor ratio, and even though knowledge can't be permanently monopolized, it ultimately becomes a free good. On a non-marginal basis, the outflow of capital and knowledge to the less advanced and less developed parts of the world would have adverse consequences for the real wages of

labor in the advanced-country sources of direct foreign investment. Thus there is fairly solid theoretical basis for concern by labor groups in the advanced countries about the implications for them of large-scale outflows of direct foreign investment. This can be disputed on the grounds that the foreigners would otherwise have raised the capital and invented the knowledge themselves, or that the direct foreign investment has such a powerful catalytic effect in energizing the indigenous potentialities for economic growth that the losses to home labor from relatively less capital per head and loss of monopoly in the exploitation of knowledge are more than compensated for (Johnson 1972)

Johnson writes that concern about balance-of-payments reflects the propensity of the investing countries and the recipient countries of foreign investment to adhere to an over-valued exchange rate. Government economists, Johnson believes, are concerned with financial flows of investment and the remittance of earnings, without recognizing the real investment process by which investments create the productive capacity to earn profits and pay dividends. Adhering to an over-valued exchange rate creates artificial incentives to both invest abroad and to remit earnings rather than reinvest them, for corporations investing in countries with over-valued currencies (Johnson 1972).

AMBIGUITY OF FDI

According to Mark Casson, in 'The Theory of Foreign Direct Investment, 1982,' the concept of foreign direct investment is ambiguous. He defends this argument with

three reasons he feels FDI is ambiguous. First: is the foreign investor the individual whose postponement of consumption enables the investment to be financed, or is the investor the firm whose shares are owned by the individual concerned, and which owns the real assets on his behalf? If it is the firm, how is it established that the firm is foreign, and is there a meaningful economic criterion for the nationality of a multinational enterprise (Casson 1982)? A second question is whether the investment is in terms of real or financial variables. Does it consist of just imports of producer goods into the host-country, or does it also include management services, human capital, and transfers of proprietary knowledge? Third, what is the significance of the 'directness' of investment (Casson 1982)? With direct investment, the investor acquires outright control of the asset, but control can also be maintained while hiring out the asset, without having day-to-day control over it. A producer may not own any assets by renting land it uses, making it a foreign producer, but if it buys the land, it is a foreign investor (Casson 1982).

Theoretical literature shows various ambiguities. Orthodox trade theory approaches FDI through the MacDougall model (MacDougall, 1960; Kemp, 1962), the theory of finance approaches it through the Grubel theory of international portfolio diversification (Grubel 1968, Friend and Losq 1979; Rugman 1979), and the students of the MNE approach it through both the theory of industrial structure (Lall and Streeten 1977) and the Coasian theory of the firm (Buckley and Casson 1976; McManus 1972,

Magee 1977, Swedenborg 1979) (all from Casson 1982). Some of these theories emphasize the financial aspects, others the firm, real aspects, or the issue of control.

COMBINATION OF THEORIES

It is argued that the theory of FDI is a combination of three distinct theories: the theory of international capital markets, the theory of the international firm, and the theory of international trade (Casson 1982). The theory of international capital markets focuses on the international allocation of 'waiting' and 'risk-bearing' between individuals, on the ultimate sourcing of investment. The theory of the international firm is concerned with the optimum size and structure of firms in the international economy. The firm is regarded as a unit of ownership and control, to minimize transaction costs in international markets. Trade theory focuses on the interplay of production technology and consumer tastes in determining the optimal location of each type of asset used in production. Integrated, these theories provide a comprehensive analysis of the issues discussed with FDI (Casson 1982). Recently, the focus has been on the theory of international capital markets and the theory of the international firm.

The theory of international capital markets distinguishes three economic functions involved in the creation and exploitation of foreign assets: funding, ownership, and utilization (Casson 1982). Funding involves postponing consumption so that the asset can be produced. Risk-bearing is involved in both the ownership and utilization. The legal

title to the asset is held by the owner, and he bears the risk of a speculative nature, arising from permanent changes in the economic environment which alter the future value of the asset. The utilizer hires the asset from the owner and bears short-term risks, arising from transitory changes which affect the value productivity of the asset while it is rented to him Each of these functions is separable and individuals should specialize in the function in which they have a comparative advantage. Functional separation is effected by financial markets in which equities and debentures are traded (Casson 1982).

The theory also distinguishes between international capital movements which are pure consumption loans and those which involve adjustments of the physical capital stock in the two countries (Casson 1982). It is possible for a country to finance another through a purchase of debentures, even if physical capital is fixed, such as land and natural resources. A necessity is that the debenture claims are internationally enforceable, and that there is at least one tradable good through which real interest payments can be effected (Casson 1982).

CAPITAL FLOWS

With adjustable physical capital stock, there are two possible situations. First is immobile capital stock, which is producible and circulates or depreciates, so that both positive and negative net investment are possible. According to Casson, net investment in one country may be financed by net disinvestment in another country, without movement

of physical capital. Replacement investment is decreased in the source-country to provide increased consumer goods for export, and these goods are used in the host-country to maintain consumption standards while indigenous resources are switched into capital goods production. The net effect is a transfer of physical capital between two countries, through an export of consumer goods rather than capital goods

The second case presented is, with mobile physical capital, capital stock is effected in the two countries by the export of physical capital from one to the other. The theory is loosely based on Fama's model (1976), which integrates inter-temporal consumption choice with portfolio choice between risky assets This example is taken from Mark Casson's *The Theory of Foreign Direct Investment*, 1982. The model is adapted to analyze international equilibrium in a two-country would. The assumption is that there is just one kind of physical asset, infinitely durable, and generates a homogeneous tradable consumption good, with no labor input (Casson 1982). The analysis is short-run, because new production of the asset is not possible. The physical capital stock in each country is adjustable only when the real asset is mobile, therefore it is assumed that the real asset is immobile. Identical endowments are held by all individuals in the same country, whom all share the same preferences. With these assumptions, international economic relations between the two countries can be analyzed in terms of the relations between two representative individuals, one from each country (Casson 1982).

Each country has a given initial endowment of the real asset, each unit yields a known output in the current period, and in the future an uncertain flow of output. Outputs will change due to the location of the output. Residents of the two countries have different perceptions the future outputs, related to their means and standard deviations, and correlation between them.

Separate firms own each unit of the asset, offering both equity and debenture claims secured against it. A debenture offers a certain future real income; inflation risk, exchange risk, and the risk of default are all ignored (Casson 1982). The residual income accrues to the equity-holders Individuals hold not only equity and debenture claims, but also claims against current output, which may be regarded as interest and dividend payments distributed during the current period. Individuals may use up his or her claims on consumption, or invest them by purchasing equities or debentures Individuals can not hold any of the three claims in negative amounts, and cannot increase their equity holdings by issuing their own debentures once their holdings of corporate debentures are exhausted (Casson 1982).

The representative individual's preferences in each country are given by a well-behaved utility function over current consumption, expected future consumption, and the standard deviation of future consumption (Casson 1982). There is a uniform and parametric price for each claim. Given these prices and his initial endowments, the

individual's demands for equities and debentures issued in each of the two countries are determined by the maximization of utility subject to a budget constraint The resulting demands are functions of equity and debenture prices, initial endowments and perceptions of the uncertain equity income streams.

These demands are sometimes expressed in terms of the capitalization rate, which, for a given debenture, is the rate of discount which when applied to the income steams, values the stream at its prevailing price. To a first approximation, the capitalization rate is equal to the ratio of the debenture payment to the debenture price Because both types of debenture offer risk-free incomes, when debentures are internationally tradable, the demand for each type of debenture will be infinitely elastic whenever the capitalization rates are equal (Casson 1982).

It is assumed, when deriving the supply functions, that there is no change over time in the global stock of real assets. The actual form of the supply conditions depends upon whether or not the real asset is internationally mobile. Each type of equity is in completely inelastic supply if the asset is immobile. This gives a total of four market equilibrium conditions: for current output, for total debenture income and for each type of equity (Casson 1982). Because of Walras Law (which is obtained by summing the budget constraints of all individuals), only three of these equations are independent. This gives three independent equations in three unknowns: the international capitalization rate, and

the prices in each country's equity (Casson 1982)

Substituting the equilibrium values into the demand function and comparing these demands with the initial endowments determines the international pattern of ownership and finance. Net international investments in equities and debentures are functions of the initial international endowment of claims (which reflects the underlying endowments of real assets), and the perceptions of equity income streams (Casson 1982)

THEORY OF FDI

According to Casson, the theory of Foreign Direct Investment is obtained by integrating the theory of international capital markets, the theory of the firm, and the theory of trade. The integration of the theory of international capital markets with the theory of the firm is straightforward. The firm is an intermediary through which the income generated by various assets is channeled to the individual investor. The firm holds a portfolio of claims to the income obtained by owning or utilizing the various assets. The nature of each firm's portfolio is determined by the economies which arise when particular groups of assets share the same utilizer. The individual investor holds a portfolio of claims against the firms. The composition of this portfolio reflects the investor's attitude towards risk, the potential gains from diversification, and his confidence in taking a position with respect to particular firms (Casson 1982).

Factors which influence the sources of finance and risk-bearing are independent of

the factors which influence the nationality of the firm. However, the nationality of the firm may be influenced by individual investors' perceptions of the risks associated with corporate debt. Perceptions of equity-risk will depend on the location of the real assets utilized by the firm, and on investors' confidence in the management's ability to manage. This confidence may depend on the nationality of the corporate culture and the country from which the management is mostly recruited. Investors' perceptions of both equity- and debenture-risk are dependent on their confidence that corporate debt will not be repudiated. Confidence is dependent upon the country in which the firm is registered Most investors have confidence in their own nationality, and there will thus be a tendency for firms to adopt the nationality of countries which offer the largest supplies of finance and risk bearing (Casson 1982).

Integration of the theory of the firm with the theory of trade has some problems. The relevant theory of the firm is an institutional one in which market imperfections have a central role, while the theory of trade, assumes efficient markets. The easiest integration of these two theories is to assume that while alternative institutional arrangements differ in efficiencies, for each problem there is just one institutional arrangement which is best, and is perfectly efficient (Casson 1982). The type of institution that is used in each instance is determined by relative efficiency, as described by the institutional theory, while the allocation of resources can be predicted from the theory of efficient markets. The growth

of firms by internationalization of markets proceeds only as long as internationalization increases efficiency, and that the allocation of resources is always efficient (Casson 1982).

Integrating the three theories can help answer issues involved with foreign direct investment. The justification for the theory of FDI lies in the fact that a general analysis based on integrated theory may yield different predictions than would a series of partial analyses of each issue (Casson 1982).

ISSUES IN FDI

Issue	Relevant theory
Origins of finance	Theory of international capital
Funding	markets
Risk-bearing	
Ownership risks	
Utilization risks	
Location of Control	Theory of the firm
Country of registration	
Location of headquarters	
Cultural affiliation	
Source of management	
Location of production	Trade theory
(includes the location of each individual asset)	
Destination of final sales	
(taken as given in the market servicing decision)	

Source: Mark Casson, *The Theory of Foreign Direct Investment, Table 6.1, 1982*

CHAPTER 4

DATA AND METHODOLOGY

The variables likely to determine foreign direct investment are income, exchange rates, wages, and interest rates. The theory chapter provided an intellectual framework for the inclusion of each of these variables. This chapter covers the more mechanical aspects of data selection and estimation methodology. Table 2, which is found at the end of this chapter, lists the data for all of the variables used in the regression.

REAL PER CAPITA GDP

The first variable which may have a causal influence on explain foreign direct investment is income. Income from both United States and Australia may matter, and can be broken down into per capita income or aggregate income. It can also be presented in either real or nominal terms. For this model, per capita real GDP, gross domestic product, was used. GNP, gross national product, or NNP, net national product, or other options to measure income were available, but GDP was the one chosen for this model.

Real Australian per capita GDP shows Australian per capita income. The data for this variable was obtained from *International Financial Statistics*. First, the GDP in billions of Australian dollars was taken from the tables, and was then divided by the Australian population in millions, to calculate per capita GDP of Australians from 1973 to

1993. The following example calculates the entry for 1973:

Australian GDP (billions Australian $) / Australian population (millions)

= Per capita Australian GDP

Using the actual values gives:

$51.65 B / 13.38 M = $3860.24 Australian per capita GDP

These calculations provided the nominal per capita Australian GDP. To obtain real values the per capita Australian GDP values calculated were then divided by the Australian consumer price index (also taken from *International Financial Statistics*) to calculate the real Australian per capita GDP, with a base year of 1985 The consumer price index is the most frequently used indicator of inflation and reflects changes in the cost of acquiring a fixed basket of goods and services by the average consumer (*IFS Yearbook* 1993).

Australian per capita GDP / Australian consumer price index =

real Australian per capita GDP

1973 $3860.24 / 0.31 = $12,452.39 real Australian per capita GDP

For United States per capita GDP, the same basic calculations were performed, with 1985 the base year. The U.S. GDP in billions of U.S. dollars was divided by the United States population in millions, to give the per capita GDP of Americans for the years 1973 to 1993. These values are in nominal terms, and therefore the United States

consumer price index was used to deflate the numbers, resulting in the real U.S. per capita GDP. These calculations were done for all of the years from 1973 to 1993.

REAL EXCHANGE RATE

The second variable expected to have a causal relationship with foreign direct investment is the exchange rate. For this, a market rate such as SDR could have been used, which stands for special drawing right, the value of which is determined daily on the basis of a basket of currencies with each currency assigned a weight in the determination of that value, the currencies of the basket are valued at their market exchange rates for the U.S. dollar, and the U.S. dollar equivalents of each of the currencies are summed to yield the rate of the SDR in terms of the U.S. dollar (*International Financial Statistics Yearbook* 1993). U.S. dollars per Australian dollar could also have been used, but the real effective exchange rate index is the variable which provides a useful application for this research.

The exchange rate index has a base of 1985=100, and represents the number of U.S. dollars per 1 Australian dollar. The real effective exchange rate index is defined as a nominal effective exchange rate index adjusted for relative movements in national price or cost indicators of the home country and its partner- or competitor- countries (*IFS Yearbook* 1993). An increase in the index reflects an appreciation. Indexes of exchange rates are superior to bilateral currency quotes for research purposes because they can

incorporate movements against a full basket of currencies.

The real exchange rate data was taken from *International Financial Statistics*. The values listed were already in real terms, so there was no need to calculate any changes for the data listed. However, not all of the data had been reported. The years 1973, 1974, 1975, 1976, and 1977 were missing from the data reported. Therefore, the data for those years was generated. This was done by using the MERM effective exchange rate, which was also taken from *International Financial Statistics*. The MERM rate was used because it followed the same patterns of movement over the years as the real effective exchange rate. The percentage change in the MERM rate was applied to the data to extend the series from 1977 back to 1973. The following calculations were used to extend the Australian real exchange rate values for the years 1973 through 1977:

1978 MERM % change= (1978-1977) / 1977 =

(125.9-128.8) / 128.8 = -0.0225

-0.0225 * 111.3 (exchange rate value given for 1978) = 2.5

2.5 + 111.3 = 113.804 => real exchange rate index value for 1978

REAL LENDING RATE

The third variable that may explain foreign direct investment is the lending rate. The lending rate is one of several options for measuring the interest rate. Others include the discount rate, treasury bill rate, and the money market rate. These are all presented as

a percent per annum. The lending rate was chosen in this case due to potential borrowing by investors coming into Australia, to determine if the cost of borrowing money in Australia would effect the decision to invest there. The lending rate is expressed as a percent per annum.

International Financial Statistics describes the lending rate as that rate which meets the short- and medium- term financing needs of the private sector. These rates are normally differentiated according to credit worthiness of borrowers and objectives of financing (*IFS Yearbook* 1993).

The real lending rate data values were taken from *International Financial Statistics*. They were listed in nominal values, so the data had to be converted into real terms. Three years of values were also missing, for 1973, 1974, and 1993. These numbers were extrapolated from the Money Market Rate (an alternative interest rate variable) listed in *International Financial Statistics*. To extend the series, the percentage change in the Money Market Rate was used.

(1975-1974) / 1974= (9.49-7.52)/ 7.52 = 0.262

1975 lending rate value taken from *IFS* = 11.5

11.5 * 0.262 = -3.0126

-3.0126 + 11.5 = 8.49 => lending rate percent per annum for 1974

The above calculation was also done for the years 1973 and 1993. To convert

these nominal lending rate values into real terms, the Australian inflation rate had to be generated. It was not listed in *International Financial Statistics*, and taking the data from another data source might not have been consistent. To calculate the Australian inflation rate, the Australian consumer price index was used (also found in *International Financial Statistics*). The inflation rate was calculated by taking the new rate minus the base, all divided by the base, as is shown in the following calculations for 1975:

Australian inflation rate (1975-1974) / 1974

(41-35) / 35 = 17.1 % inflation for 1975

The above calculation was performed to get the Australian inflation rate for the years 1973 through 1993. The above calculated Australian inflation rate was subtracted from the nominal Australian lending rate listed in *International Financial Statistics*, to calculate the real Australian lending rates from 1973 to 1993. Below is the calculation of the real lending rate for 1973:

lending rate - inflation = real lending rate

4.16-17.1= -12.94 real lending rate percent per annum for 1973

REAL WAGES/WEEKLY EARNINGS

The final variable used to explain foreign direct investment is wages. Wages/weekly earnings represents wage rates or earnings per worker employed per specified time period. The data is presented as an index, with 1985=100.

Wages was used as a variable, as opposed to others listed in the same category of Prices, Production, and Employment (such as share prices or consumer prices), because if the wage rate was higher than in other countries, investors might decide to invest elsewhere, where they could pay less to the employees and generate a larger profit for shareholders.

The real wages/ weekly earnings data was also obtained from *International Financial Statistics*. The data listed was in nominal terms, so the data had to be converted into real terms. To do this, the wages/ weekly earnings in billions of Australian dollars was divided by the Australian consumer price index, resulting in the real Australian wages/weekly earnings. The calculations for real wages in 1973 are as follows:

$26.9 Billion Australian / .31 Australian CPI= $86.77 real wages/weekly earnings

The above calculation was performed on the data for all the years from 1973 to 1993.

FOREIGN DIRECT INVESTMENT

Foreign direct investment is the dependent variable in this model. The data for United States foreign direct investment in Australian food and kindred products from 1973 to 1993 was taken from the publication *Survey of Current Business*. The data was listed in nominal terms. To convert it into real terms, nominal foreign direct investment

was divided by the United States consumer price index percentage (taken from *International Financial Statistics*). For example, to convert the 1973 figure to real terms the following procedure is used:

nominal FDI / US CPI = real FDI Position

FDI= $195 million U.S. U.S. CPI= 41.3

$195 M/ .413= $472.15 million U.S. real foreign direct investment

"Other FDI" was also a variable, which was the sum of all foreign direct investment in Australia by the United States, excluding food and kindred products. To calculate this variable, the data "total United States direct investment position abroad" was taken from the *Survey of Current Business* for the years 1973 to 1993. The data was listed for all industries, so to calculate the foreign direct investment other than food and kindred products, the values for food and kindred products were subtracted from the "All Industries" data. The difference between the two values gave the "Other FDI" variable data values. The data was in nominal terms, so the data was deflated by the U.S. consumer price index to calculate the real "Other FDI" by the United States in Australia from 1973 to 1993.

MODEL TO EXPLAIN FDI

From these variables, a model was created to explain United States foreign direct investment in Australian food and kindred products from 1973 to 1993. The model is:

$$Y=B0 + B1 (GDP) + B2 (ER) + B3 (LR) + B4 (Wages) + B5 (USGDP) + e$$

There were several options for running the model in a statistical program GLS, generalized least squares, OLS, ordinary least squares, log, and semi-log were all options that could have been used. However, the OLS method was used because it was very simple and gave the t-values, coefficients, and R-squared value that were necessary to create the final model.

While researching previous studies in foreign direct investment for the literature review portion of this paper, only two works directly stated which type of regression was used. John M. Connor, in his paper "Determinants of Foreign Direct Investment by Food and Tobacco Manufacturers," makes reference to the work of Thomas A. Pugel, who used a two-stage least squares to support his ordinary-least squares results (Connor 1983) Scaperlanda and Mauer, in their 1969 study "The Determinants of U.S. Direct Investment in the E.E.C.," state that "in order to provide a more comprehensive empirical estimate of the determinants of direct foreign investment, this article used the least-squares regression technique." Thus looking at these two previous studies using regressions to analyze foreign direct investment, using least-squares in this paper seems to be a reasonable method.

Table 2 Data for Determinants of Foreign Direct Investment

Year	Real FDI Position MILL $ 1	Real Per Capita GDP 2	Real Exchange Rate 3	Real Lending Rate 4	RealWages Weekly Earnings 5	Real U.S. Per Capita GDP 6
1973	472.15	12452.39	137.82	-12.94	86.77	15414.96
1974	578.60	12832.11	142.01	-4.41	94.29	14886.16
1975	438.00	12850.10	128.69	0.80	95.12	14676.12
1976	431.00	13170.54	124.95	-1.70	96.74	15320.38
1977	447.60	12552.17	113.80	-2.50	94.81	15920.78
1978	493.40	12953.89	111.30	2.76	95.89	16552.06
1979	457.78	13261.52	107.60	1.10	95.41	16382.13
1980	426.89	13560.76	108.40	0.78	97.31	15522.39
1981	426.04	13662.96	117.50	2.52	98.24	15597.59
1982	384.62	13096.50	117.80	3.75	99.02	15123.66
1983	381.21	12801.97	115.40	4.24	96.56	15694.47
1984	340.58	13784.03	118.80	10.06	101.28	16542.47
1985	389.00	14307.16	100.00	9.56	100.00	16934.46
1986	388.62	14154.90	87.50	10.85	98.90	17404.89
1987	411.54	14720.02	87.30	11.53	96.27	17686.88
1988	453.14	15203.24	96.10	10.92	95.43	18195.39
1989	930.56	15565.38	103.24	14.21	95.97	18428.02
1990	775.95	15103.55	100.62	13.18	97.12	18200.88
1991	977.09	14572.30	99.21	13.18	98.91	17889.34
1992	972.39	14808.62	90.25	11.05	101.88	18158.39
1993	974.15	15098.34	84.01	7.74	101.80	18437.63

Source: 1. Survey of Current Business 2. International Financial Statistics
3. International Financial Statistics 4. International Financial Statistics
5. International Financial Statistics 6. International Financial Statistics

CHAPTER 5

FINDINGS

FDI MODEL

The regression model was estimated using Shazam, a statistical computer program. The estimated coefficients are:

FDI= -8413.8 + 0.070324 GDP + 9.9322 ER -21.98 LR + 32.435 WAGES + 0.23296 USGDP

Table 3, found at the end of this chapter, shows the estimated regression coefficients from the various models. These models provide a reasonable explanation of United States foreign direct investment in Australian food and kindred products. The data for the five variables used in the model, Australian GDP, exchange rate, lending rate, wages, and United States GDP, as well as the data for foreign direct investment, were input into Shazam, and then the regression program was used to estimate the beta coefficients. This was done to see which model, or partial model, would best explain FDI.

Four different models were estimated, and the resulting coefficients were entered into Table 3. The determination of which model provides the best explanation of FDI is judgmental. The results were listed and compared. The R-squared value and the number of significant t-values in each model were compared, and from these comparisons, Model

1 appears to offer the most believable explanation of U.S. foreign direct investment in Australian food and kindred products. The R-squared value tells the percentage of variance in the dependent variable which is explained by the entire model Model 1 had the most significant t-values, 5 out of 6. Model 2 is probably second, because although only 2 out of 7 variables were significant, it had the largest R-squared value of all the models. Therefore, it appears that Model 1 is best for estimating the coefficients on the factors that determine U.S. FDI in Australia, while Model 2 would be preferred to predict FDI in the future. Model 2 had a higher R-squared value than Model 1, due to multicollinearity, but it lost significance across the whole model, as can be seen by the low number of significant variables. The effect of most of the variables can be determined by using Model 1, and therefore it is better with regard to explaining FDI relationships. Using Model 1, one is able to distinguish the effects of one variable from another. Model 2 is better overall to predict future FDI. The effects of individual models cannot be determined due to multicollinearity, which caused the low t-values. The F is higher in Model 2 than in Model 1 because the entire model is more significant than Model 1. If a person is interested in the future, he or she would not care about separate variables, and therefore, multicollinearity would not matter. Thus Model 2 would be the best for predicting future FDI.

VARIABLES THAT DETERMINE FDI

The variables used in the model can be analyzed to see if the results achieved in this regression coincide with what should have been expected. The results of these calculations are shown in Table 4, at the end of the chapter. The first variable is real per capita Australian GDP. It could be expected that as Australian GDP increased, foreign direct investment would also increase. As income levels increased, there would be more money to be spent on goods produced, and it would be an incentive to invest in Australia. However, as Australian GDP decreases, the value of assets in Australia would also decline, which would make it more competitive to purchase manufacturing facilities. In the four models run, income only changed signs once, which can be seen as a sign of rigor in the model. However, this variable was not significant in any of the models run in the regression.

From Model 1, if Australian real per capita income increased by 5 percent, from $15,098 Australian dollars in 1993 to $15,853 Australian dollars in the future, U.S. FDI in Australia would increase by $53.09 million, to $1,027.24 million after the 5 percent increase. This was calculated as follows:

105% * $15,098= $15,853 Australian dollars

$15,853-$15,098= $755 difference in Australian dollars

coefficient from Model 1 (0.070324) * $755= change in US FDI=

$53.09 million

$974.15 million (FDI in 1993) + $53.09 million = $1,027.24 million

Using Model 2, an increase of five percent in real per capita GDP would result in a negative change in U.S. FDI, from $974.15 million in 1993 to $950.50 million in the future.

coefficient from Model 2 (-0.03135) * $755= change in U.S. FDI=

-$23.67 million

$974.15 - $23.67= $950.50 million

The next variable was the real exchange rate. As the exchange rate index increases, it becomes more expensive to buy Australian dollars to invest in Australia. Therefore, we might not have expected this coefficient to be positive. However, a strong Australian dollar is important when repatriating profit, because the value of repatriated earnings appears larger in terms of U.S. dollars. This would result in a higher rate of return to Americans. A strong Australian dollar might indicate favorable macroeconomic events, but would lead one to expect a negative sign on the variable. Our results show this was not the case.

If the exchange rate index in Australia was to increase 5 percent, using Model 1, from 84.01 in 1993 to 88.21 in the future, U.S. FDI in Australia would increase by $41.72 million, to $1,015.87 million. A five percent decrease in the exchange rate index would cause U.S. FDI to decrease to $932.43 million in the future. The specific calculations are

as follows:

84.01 * 1.05=88.21

88.21-84.01= 4.20

coefficient from Model 1 (9.9322) * 4.20= $41.72 million = change in U.S. FDI

$974.15 million + $41.72 million = $1,015.87 million

$974.15 million - $41.72 million = $932.43 million

Using Model 2, a five percent increase in the exchange rate index would cause U S. FDI in Australia to increase to $997.00 million in the future. A 5 percent decrease in the exchange rate index would result in a U.S. FDI position of $951.30 million in the future. This was calculated as:

coefficient from Model 2 (5.4405) * 4.2 = $22.85 million = change in U.S FDI

$974 15 million + $22.85 million = $997.00 million

$974.15 million - $22.85 million = $951.30 million

The third variable used in the model was the real lending rate. It could be expected that the sign on the lending rate coefficient would be negative, because investors may be borrowing money. The higher the lending rate the less they would be inclined to borrow.

Using Model 1, if the real lending rate percent per annum decreased, from 7.74 in 1993 to 7.353 in the future, U.S. FDI in Australia would increase to $965.64 million in the future. For example:

7.74 * 0.95 = 7.353

7.353 - 7 74 = -0.387

coefficient from Model 1 (-21.98) * -0.387 = $8.5063 million = change in U.S. FDI

$974.15 million + $8.51 million = $982.66 million

With Model 2, a 5 percent decrease in the lending rate would result in a FDI position of $975.63 million

coefficient from Model 2 (-3.8137) * -0.387=$1.4759 million = change in U.S. FDI

$974.15 million + $1.4759 million = $975.63 million

The fourth variable in the model was real wages, which had a consistently positive estimated coefficient. As wages increase, FDI also increases. This may be a signal of increased productivity in the economy, which makes it more attractive for capital coming into the country.

If the wage index increased five percent, from 101.80 in 1993 to 106.89 in the future, using Model 1, U.S. foreign direct investment in Australia would increase by $165

million, to $1,139.24 million in the future.

101.80 * 1 05 = 106.89

106.89 - 101.80 = 5.09

coefficient from Model 1 (32.435) * 5.09 = $165.10 million = change in U.S. FDI

$974.15 million + $165.10 million = $1,139.24 million = new FDI position in the future

Using Model 2, a 5 percent increase in wages would result in an increase in FDI, to $1,089.80 million in the future.

coefficient from Model 2 (22.722) * 5.09= $115.65 million = change in U.S. FDI

$974.15 million + $115.65 million = $1,089.80 million

The final variable used in Model 1 was real per capita U.S. GDP. This variable was also consistently positive. As income in the United States increases, U.S. firms may earn higher profits, and with the increased level of profit, companies can expand overseas.

If United States real per capita GDP was to increase five percent, from $18,437.63 in 1993 to $19,359.51 in the future, U.S. FDI in Australia would increase $214 million, to $1,188.95 million in the future. These values were obtained by using Model 1.

$18,437.63 * 1.05 = $19,359.51

$19,359.51 - $18,437.63 = $921.88

coefficient from Model 1 (0.23296) * $921.88 = $214.80 million = change in U.S. FDI

$974.15 million + $214.80 million = $1,188.95 million = FDI position in the future

Using Model 2, if U.S. GDP increased by 5 percent, U.S. FDI in Australia would increase to $1,081.02 million in the future.

coefficient from Model 2 (0.11591) * $921.88 = $106.86 million = change in U.S. FDI

$974.15 million + $106.86 million = $1,081.01 million = new U.S. FDI position in Australia in the future

A variable used in Model 2, but not in Model 1, was "Other FDI." This variable was consistently positive, indicating that the food industry is similar to other industries. If investors decide to invest money in other industries, they will probably invest in the food industry as well.

With a five percent increase in "Other FDI," from $12,755.09 million in 1993 to $13,392.84 million in the future, U.S. FDI in Australia would increase to $1,046.27 million. This is calculated as follows:

$12,755.09 million * 1.05 = $13,392.84 million

$13,392.84 million - $12,755.09 million = $637.75 million

(0.11308) * $637.75 million = $72.12 million = change in U.S. FDI

$974.15 million + $72.12 million = $1,046.27 million = new FDI position in the future

In summary, from Model 1, Australian real per capita GDP had a positive sign, indicating that an increase in income levels could result in more money available to be spent on goods produced, and thus would be an incentive for foreign investors to invest in Australia. The exchange rate index was also positive, which would make it more expensive to buy Australian dollars to invest in Australia, but also would result in a higher rate of return to Americans when repatriating profits. This was the only surprise in the data, since a negative sign was expected. The lending rate was negative, which was expected, because investors may be borrowing money, and with higher lending rates, investors would be less inclined to borrow money. The wages index was positive, which could signal increased productivity in the economy, making it more attractive for capital coming into the country. A positive sign was also found for U.S. GDP, showing that as U.S. income increases, U.S. firms may earn higher profits, and with increased profits, companies can expand overseas. This was discussed in the introduction chapter, when it was explained that high reinvestments overseas reflected U.S. parents' domestic profits growing, reducing their need for funds from abroad. Thus this helps strengthen the

argument for using U.S. GDP in the regression. The final variable, other FDI, was also positive, indicating that the food industry is similar to other industries, and thus if investors decided to invest money in other industries, they would probably invest in the food industry as well.

The variable with the biggest impact given the hypothetical five percent change was U.S. GDP. Using Model 1, a five percent increase in U.S. GDP would result in a $214.80 million increase in U.S. FDI in Australian food and kindred products. It would be difficult to use any type of Agricultural or governmental policy to try to influence this variable or consequentiy FDI. Real per capita U.S. GDP might be increased by raising the minimum wage rate, but this would probably have no impact on the amount of money directed towards foreign investment.

WEAKNESSES

This paper may have a few weaknesses. The lack of previous studies in this area, U.S. Foreign Direct Investment in Australian food and kindred products, makes it difficult to determine whether or not the best variables to determine U.S. FDI in Australia were used in this paper. There may be additional variables that are important which were omitted from this study.

Table 3: Estimated Regression Coefficients

	B_0	GDP	ER	LR	WAGES	USGDP	OTHER FDI	R^2	F-test	Degrees of freedom
Model 1	-8413.8	0.07032	9.9322	-21.98	32.435	0.23296		0.6088	4.669	15
	(-2.975)	(0.6772)	**(1.979)**	**(-1.721)**	**(1.829)**	**(2.607)**			44.365	
Model 2	-4870.2	-0.03135	5.4405	-3.8137	22.722	0.11591	0.11308	0.7818	8.363	14
	(-2.003)	(-0.3651)	(1.325)	(-0.3382)	(1.621)	(1.496)	**(3.332)**		65.229	
Model 3	-5086		5.408	-5.8795	22.887	0.10536	0.10868	0 7798	10.622	15
	(-2.222)		(1.357)	(-0.6211)	(1.683)	(1.509)	**(3.53)**		80.744	
Model 4	-4317.1	-0.04593	5.2828		20.042	0.10688	0.11863	0.7801	10.64	15
	(-2.474)	(-0.6374)	(1.335)		**(1.787)**	(1.514)	**(4.117)**		80.855	

Source: Shazam Statistical Regressions

TABLE 4. IMPACTS ON FDI POSITION FROM A FIVE PERCENT CHANGE IN EACH COEFFICIENT

Coefficient:	MODEL 1: Change / FDI after change	MODEL 2: Change / FDI after change
GDP 5%increase	$53.09 mill / $1,027.24 mill	$-23.67 mill / $950.50 mill
Exchange Rate 5%increase	$41.72 mill / $1,015.87 mill	$22.85 mill / $951.30 mill
Lending Rate 5%decrease	$8.51 mill / $982.66 mill	$1.47 mill / $975.63 mill
Wages 5%increase	$165.1 mill / $1,139.24 mill	$115.65 mill / $1,089.80 mill
US GDP 5%increase	$214.8 mill / $1,188.95 mill	$106.86 mill / $1,081.02 mill
OTHER FDI 5%increase	not used in this model	$72.12 mill / $1,046.27 mill[1]

In all cases, mill = million
Source: calculations shown in the previous pages of this chapter

CHAPTER 6

CONCLUSIONS

UNIQUE STUDY

No similar study of United States Foreign Direct Investment in Australian food and kindred products was discovered during the literature review phase of this research. Thus, it is believed to be a unique study. In Agricultural Economics literature, it is traditional to wait for five or six published journal articles to see if the estimated coefficients consistently have values that at least have the same sign, and hopefully the same general magnitude. This paper is being offered as the first in this area, and further studies may lend more credence to the results if their coefficients bear similar signs.

RESULTS

From this study, it was concluded through statistical analysis, as well as using previous literature from other areas of Foreign Direct Investment, that United States Foreign Direct Investment is Australian food and kindred products is determined by Australian GDP, Exchange Rate, Lending Rate, Wages, and United States GDP.

Model 1 (FDI= -8413.8 + 0.070324 GDP + 9.9322 ER - 21.98 LR + 32.435 WAGES + 0.23296 USGDP) is probably the best to explain the relationships between key variables and U.S. FDI in Australian food and kindred products. It had the largest

number of significant t-values of all the models tried. Model 2 (-4870.2 - 0.03135 GDP + 5.4405 ER - 3.8137 LR + 22.722 WAGES + 0.11591 USGDP + 0.11308 OTHERFDI) is probably the best model from our estimations to predict FDI in the future, because of its high R-square. However, Model 2 has multicollinearity and thus a number of statistically insignificant coefficients with a model that has high overall significance. With Model 1, the effects of one variable can be distinguished from the others, and with Model 2, the effect of individual models cannot be determined due to the multicollinearity. If one is interested in the future, then it does not matter if there is multicollinearity, because the separate variables are not important. Thus Model 2 would be a better model for predicting future trends in foreign direct investment.

IMPORTANCE

This study was important because it estimated the impact of the variables that are believed to most influence the decision of where to invest overseas. Countries that have very low cultural distance, such as between the United States and Australia, due to their common language of English, are often preferred locations for a firm to invest. Australia's GDP, Exchange Rate, Lending Rate, and United States GDP were all variables determined to be important in the decision of foreign direct investment. A company wanting to invest overseas can look at these variables, and if it determines the variables to be important to the firm's decision, can more easily make the decision with these guidelines. Model 1,

presented in the Findings chapter, best explains the data that was used in the study, but to make predictions in the future, a company would use Model 2. This could help predict investment in the future, as well as be used to predict trends in other areas of the economy. The other variables patterns could be used to predict what conditions would be like in the future, and better enable a company to make the best decision of where to invest, and when the timing might be best.

RECOMMENDATIONS FOR FUTURE RESEARCH

To extend this study, future research studies should focus on using the variables found to be important in this study, as well as look for any additional variables to explain United States foreign direct investment in Australian food and kindred products. Model 1 found in this study only explained 60 percent of the variation in the dependent variable, foreign direct investment, and Model 2 explained only 78 percent of the variation. There may be an additional variable, or variables, that would help to explain the variation even more, and may make the model even better to explain foreign direct investment or predict FDI in the future. Therefore, the best recommendation would be to look for additional variables which may help to better explain the variation in the dependent variable. Other studies may give future researchers ideas for variables which could be adapted to fit this type of research. For this study, in the Literature Review Chapter, numerous studies were used to give guidance to the variables which might influence FDI. Skilled labor was found

in several studies, and for this paper was represented as the wage rates. High wage rates could indicate higher levels of skill or technological knowledge, and would possibly be beneficial for foreign investors. Per capita GDP was adapted from political and economic stability, as well as level of development and economic and market growth and opportunity. Political risk was used to represent exchange rate, because it could be used as a measure of government strength and stability. Thus, it can be seen from this research that previous studies are very valuable in helping to decide which variables to include in the regression. They were very beneficial to this study, and works that I was not aware of may provide further insight into expanding this study.

REFERENCES

1. "Australia." Compton's Interactive Encyclopedia: Australia, Compton's NewMedia, Inc., 1993, 1994.

2. "Australia." Internet, World Wide Web: Australia, 1995.

3. Bargas, Sylvia E. and Jeffrey H. Lowe. "Direct Investment Positions on a Historical-Cost Basis, 1993: Country and Industrial Detail." Survey of Current Business, Vol. 74 pt. 2, June 1994, pp.72-75.

4. Buckley, Peter J. and John H. Dunning. "The Industrial Structure of U.S. Direct Investment in the U.K." Journal of International Business Studies, Vols. 7-8, Fall/Winter 1976, pp.5-13.

5. Calvet, A.L. "A Synthesis of Foreign Direct Investment Theories and Theories of the Multinational Firm." Journal of International Business Studies, Vols. 12-13, Spring/Summer 1981, pp. 43-59.

6. Casson, Mark. 'The Theory of Foreign Direct Investment' in J. Black and J.H. Dunning's (eds), International Capital Movements, London, Macmillan, 1982, pp. 22-57, reprinted in The Economic Theory of the Multinational Enterprise, pp. 113-43, reprinted in Peter J. Buckley, International Investment, Edward Elgar Publishing Company, USA, 1990..

7. Connor, John M. "Determinants of Foreign Direct Investment by Food and Tobacco Manufacturers." American Journal of Agricultural Economics, Vol. 65 No. 2, pp. 395-404, 1983.

8. Dunning, John H. Studies in International Investment. George Allen & Unwin LTD, London, Great Britain, pp. 5-10, 1970.

9. FAO Production Yearbook. Food and Agriculture Organization of the United Nations, Rome, Vols. 27-47, 1973-1994.

10. Handbook of International Trade and Development Statistics 1992, United Nations, New York, pp. 31, 1993.

11. Henneberry, David M. "U.S. Foreign Direct Investment in the Developing Nations. A Taxonomy of Host-Country Policy Issues." Agribusiness, Vol.2, No.1, pp. 91-101, John Wiley & Sons, Inc., 1986.

12. Hillman, Jimmye S. "Nontariff Barriers: Major Problems in Agricultural Trade." American Journal of Agricultural Economics, Vol. 60 No. 3, pp. 491-501, August 1978.

13. International Financial Statistics Yearbook. International Monetary Fund, Vols. 42, 46, & 48, Washington, 1989, 1993, & 1995.

14. Johnson, Harry G. "Survey of the Issues." in Peter Drysdale, Direct Foreign Investment in Asia and the Pacific, pp. 1-6, The Australian National University Press, Australia, 1972..

15. Kobrin, Stephen J. "The Environmental Determinants of Foreign Direct Manufacturing Investment: An Ex Post Empirical Analysis." Journal of International Business Studies, Vols. 7-8, pp. 29-42, Fall/Winter 1976.

16. _____. Foreign Direct Investment, Industrialization and Social Change. JAI Press, USA, 1977.

17. Lee, Chung H. On Japanese Macroeconomic Theories of Direct Foreign Investment. The University of Chicago, 1984.

18. Malanoski, Margaret, Charles Handy, and Dennis Henderson. "Time Dependent Relationships in U.S. Processed Food Trade and Foreign Direct Investment." Paper Prepared for NCR-182 Conference, Foreign Direct Investment and Processed Food Trade, Arlington, VA, March 9-10, 1995.

19. OECD Economic Outlook, Vol. 49, pp.85-86, Paris, France, July 1991.

20. Pagoulatos, Emilio. "Foreign Direct Investment in U.S. Food and Tobacco Manufacturing and Domestic Economic Performance." American Agricultural Economics Association, 1983.

21. Pugel, Thomas A. "Foreign Investment in the U.S. Food-Marketing System: Discussion." American Agricultural Economics Association, 1983.

22. Scaperlanda, Anthony E., and Laurence J. Mauer. "The Determinants of U.S. Direct Investment in the ECC." The American Economic Review, Vol. 59 No. 4, 1969.

23. Survey of Current Business, Volumes 55-74, U.S. Department of Commerce, 1975-1994.

24. Vaughan, Odette S. "Implications of Foreign Direct Investment for the Canadian Food and Beverage Manufacturing Industry." Working Paper #2/95. Industry Competitiveness Group Policy Branch, Agriculture and Agri-food Canada, Ottawa, Ontario, March 1995.

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