Question

Discuss whether the construction segment of any CARICOM economy represents the natural candidate for a strategy of import substituting industrialization.

Introduction

This paper will examine the construction sector in Trinidad and Tobago during the period 1966-2002 in the context of Import Substitution Industrialization (I.S.I.) and will seek to determine whether the country is a natural candidate for the implementation of I.S.I..

Firstly, construction will be defined and the local sector outlined in terms of Gross Domestic Product, Gross Capital Formation, Mortgage rates, Employment in the sector, Imports, Exports and the cost of raw materials final products.

Thereafter, the concept of Import Substitution Industrialization will be defined, and its history examined by exploring the theories proposed by economists Raul Prebisch, Hans Singer, Arthur Lewis.

To conclude we will provide data and analysis to show why Trinidad and Tobago's construction sector is a natural candidate for I.S.I. In this regard, we will examine how industrialization in the construction sector impacts on:

i) Employment generation
ii) Gross Domestic Product
iii) Factor inputs – Value vs. weight

Construction

The construction sector in Trinidad and Tobago is one of the most critically important areas of economic activity in the country. This sector encompasses a wide spectrum of activities, for example, the building, repair and maintenance of houses, office, accommodation factory buildings, warehouses, schools, hospitals, roads, bridges, port and airport facilities, dams and sewerage systems. Construction also embraces a vast range of ancillary activities, such as the mining and manufacture of construction materials and the transport of such materials and equipment.

Construction enterprises range from self-employed individuals serving the local community to multinational firms operating on a global scale. The majority of enterprises involved in on-site construction (the 'contractors') are small and most are specialized in terms of the type of work they do and the locality where they work.

There is an increasing tendency to subcontract large parts of the construction process, from specialized services to the supply of labour. Building materials and components, plant and equipment, are generally purchased or hired from other enterprises. Design and engineering services are also generally supplied by quite separate 'professional' entities. Drawing the boundaries of the construction industry is therefore not easy. Narrowly defined, the industry comprises only those enterprises 'adding value' through production or assembly operations on the construction site. A broader definition would include firms and individuals involved in planning, design, the supply of building materials, plant, equipment, transport and other services. Some definitions also include the client, particularly the professional client or 'property developer'. The recent increase in the number of contractor-financed infrastructure projects might make it sensible to include the financial services sectors as well. [1]

In the specific context of Trinidad and Tobago, construction covers a wide range of general and special trade activities including: altering, repairing and demolishing, buildings, factories and plants, as well as highways, streets, bridges, sewers, water reservoirs, etc., gas and electricity mains, communication systems, drainage and reclamation systems (public sector). Construction businesses primarily engage in performing mining and quarrying services, such as the construction and maintenance of petroleum and natural gas mining installations on a contract or fee basis. The materials produced by the construction sector include: cement, bricks, wood, iron, steel, gravel, sand amongst others. [2]

Gross Domestic Product

Gross Domestic Product can be defined as the total value of goods and services produced within a country's geographical boundaries by both local and foreign firms. For the purpose of this essay, GDP will be examined by the looking at the average over six year periods between 1966-2002.

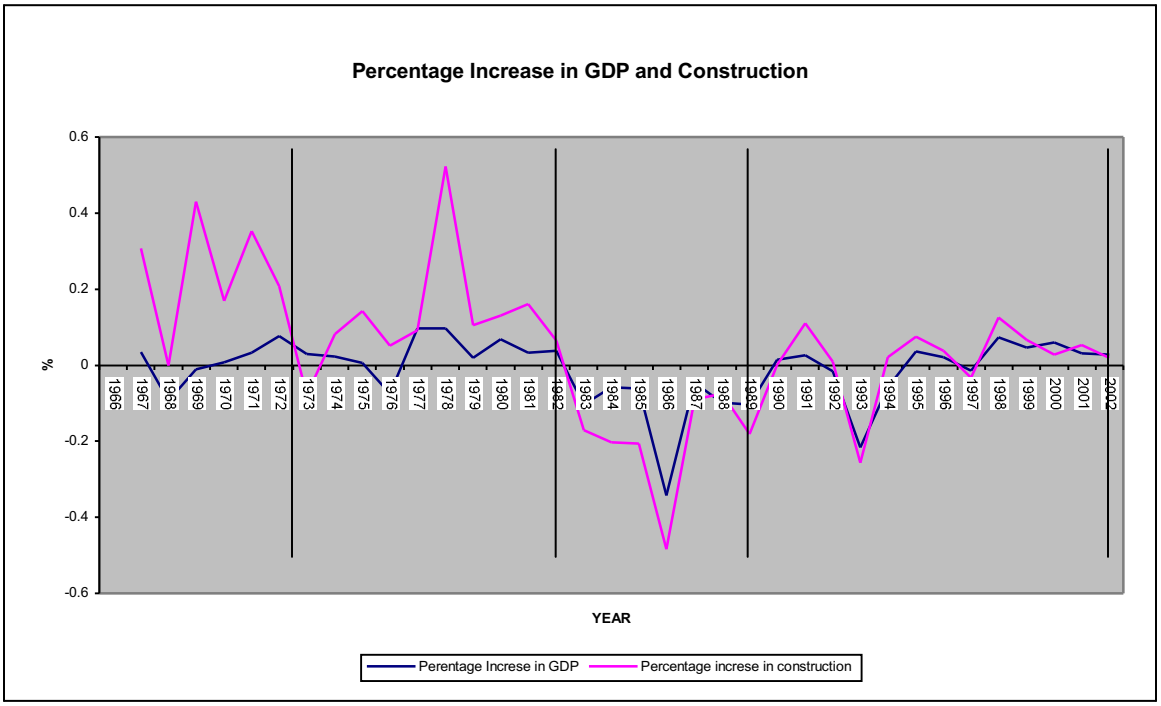


TABLE 1.1

GROSS DOMESTIC PRODUCT BY EXPENDITURE (CONSTANT PRICES) - ISIC - $ US - MILLION

YEAR	GDP	CONSTRUCTION	% Inc. GDP	%Inc. Construction	YEAR	GDP	CONSTRUCTION	% Inc. GDP	%Inc. Construction
1966	6485.5	143.1			1984	7853.3	1039.5	-0.06	-0.20
1967	6712.0	187.1	0.03	0.31	1985	7376.0	824.9	-0.06	-0.21
1968	6086.2	186.8	-0.09	0.00	1986	4855.1	425.8	-0.34	-0.48
1969	6022.2	267.1	-0.01	0.43	1987	4633.6	387.3	-0.05	-0.09
1970	6064.8	312.4	0.01	0.17	1988	4173.8	358.1	-0.10	-0.08
1971	6268.9	422.8	0.03	0.35	1989	3740.0	293.6	-0.10	-0.18
1972	6752.9	510.7	0.08	0.21	1990	3796.3	294.0	0.02	0.00
1973	6949.6	470.9	0.03	-0.08	1991	3898.2	326.5	0.03	0.11
1974	7109.6	509.4	0.02	0.08	1992	3834.0	329.2	-0.02	0.01
1975	7157.1	581.6	0.01	0.14	1993	3007.0	244.9	-0.22	-0.26
1976	6619.8	611.8	-0.08	0.05	1994	2833.1	250.2	-0.06	0.02
1977	7257.0	668.1	0.10	0.09	1995	2935.1	268.8	0.04	0.07
1978	7961.3	1017.5	0.10	0.52	1996	2996.7	278.9	0.02	0.04
1979	8111.7	1125.4	0.02	0.11	1997	2953.0	269.9	-0.01	-0.03
1980	8667.2	1272.6	0.07	0.13	1998	3167.2	303.9	0.07	0.13
1981	8949.8	1477.9	0.03	0.16	1999	3311.5	324.3	0.05	0.07
1982	9290.6	1574.5	0.04	0.07	2000	3509.0	333.3	0.06	0.03
1983	8332.5	1304.9	-0.10	-0.17	2001	3618.4	350.9	0.03	0.05
					2002	3716.2	357.4	0.03	0.02

SOURCE: Central Statictical Office

A review of the data of GDP and construction between 1966-2002 as illustrated in the above graph and Appendix 1, indicates that as GDP increases there was a more significant percentage increase in construction. During the initial boom years 1997-1998, GDP increased from 7257 to 7961, in contrast the construction sector as a contributor to GDP increased by 52.3 % in 1978.

In a similar manner, when GDP for sectors declined, the effect on the percentage of construction was greater and this is evidenced most significantly in the recession years (1983-1989).

Compensation

Compensation of employees comprises all payments in cash of in kind to their employees, it consists of:

Wages and Salaries in cash or in kind, employer's contributions to social security schemes in the account of their employees and employers contributions to private pensions, family allowance, health and other casualty insurance, life insurance and similar schemes in respect of their employees.

TABLE 2.1

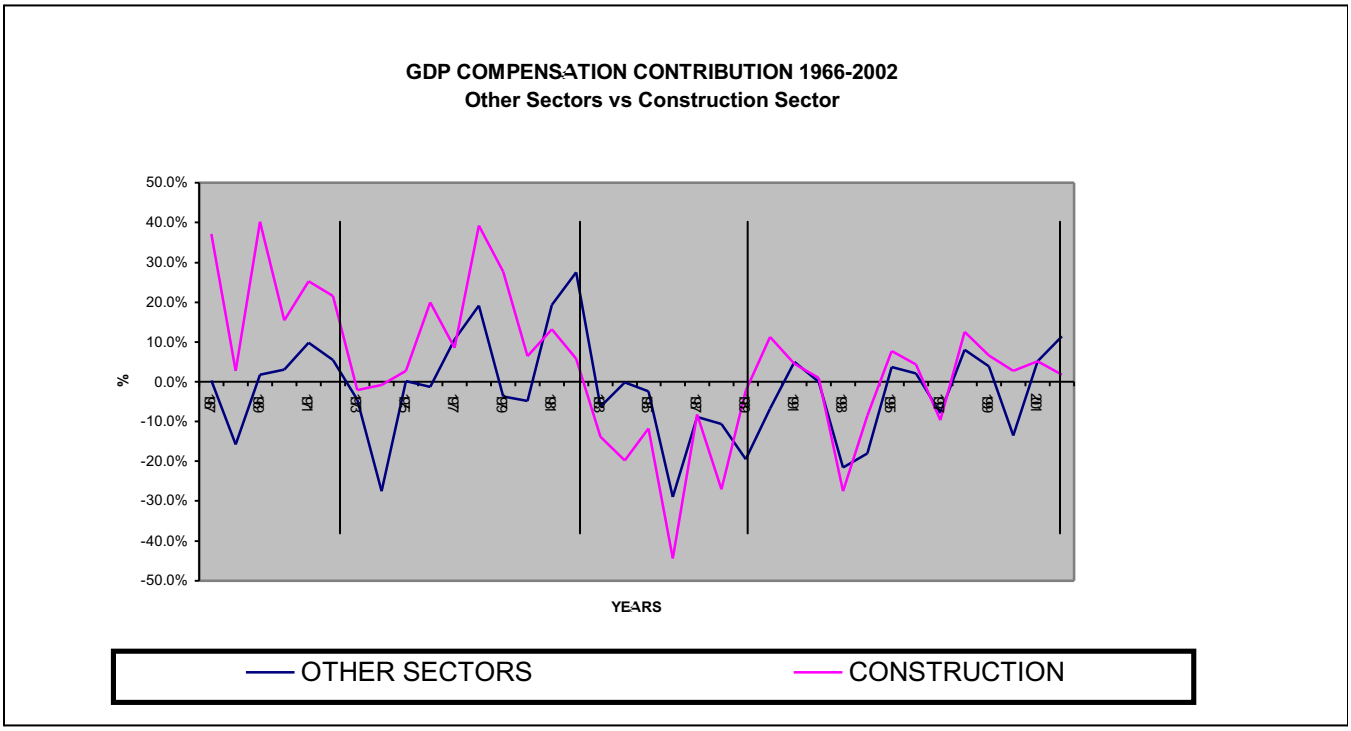
GDP Compensation Activity - All Sectors vs Construction (Constant Prices) 1966-2002

US$ Millions ISIC - 100=1985

Yr	Other Sectors	Construction	% Increase Oth. Sectors	% Increase Construction	Yr	All Sectors	Construction	% Increase Oth. Sectors	% Increase Construction
1966	3296.7	88.0			**1984**	3958.4	623.0	-0.3%	-19.9%
1967	3302.6	120.8	0.2%	37.2%	**1985**	3862.7	549.6	-2.4%	-11.8%
1968	2781.3	124.2	-15.8%	2.9%	**1986**	2744.2	305.3	-29.0%	-44.5%
1969	2832.0	174.1	1.8%	40.1%	**1987**	2500.0	280.1	-8.9%	-8.3%
1970	2919.4	201.0	3.1%	15.4%	**1988**	2233.7	204.5	-10.7%	-27.0%
1971	3206.6	251.7	9.8%	25.2%	**1989**	1798.5	199.9	-19.5%	-2.3%
1972	3386.0	305.9	5.6%	21.6%	**1990**	1675.5	222.3	-6.8%	11.3%
1973	3229.3	299.2	-4.6%	-2.2%	**1991**	1761.1	232.4	5.1%	4.5%
1974	2342.9	296.5	-27.4%	-0.9%	**1992**	1759.0	234.6	-0.1%	0.9%
1975	2343.8	305.0	0.0%	2.9%	**1993**	1379.7	170.1	-21.6%	-27.5%
1976	2311.4	365.7	-1.4%	19.9%	**1994**	1130.6	155.3	-18.1%	-8.7%
1977	2557.0	397.3	10.6%	8.6%	**1995**	1172.9	167.5	3.7%	7.8%
1978	3046.3	553.2	19.1%	39.2%	**1996**	1198.1	174.7	2.1%	4.3%
1979	2929.1	706.8	-3.8%	27.8%	**1997**	1103.2	157.9	-7.9%	-9.6%
1980	2785.5	752.8	-4.9%	6.5%	**1998**	1193.4	177.8	8.2%	12.6%
1981	3324.3	853.1	19.3%	13.3%	**1999**	1239.6	189.7	3.9%	6.7%
1982	4240.5	903.7	27.6%	5.9%	**2000**	1072.0	195.0	-13.5%	2.8%
1983	3970.3	777.5	-6.4%	-14.0%	**2001**	1127.9	205.2	5.2%	5.3%

					2002	1257.7	209.1	11.5%	1.9%

National Income Accounts of Trinidad & Tobago



The wages in the construction sector appear to be more greatly affected by the changes in the GDP than other sectors. During the initial boom years, compensation in the construction sector was at the highest and during the recession period at the lowest.

Gross Capital Formation

Gross Capital Formation: Acts as an indicator in the measurement of economic growth and reveals the potentiality of the investments in the public as well as the private sectors and gives net addition of the assets created during the year.

An import substitution strategy of development can be profitable but it must be focused on the crucial link between capital formation, import capacity and domestic saving.

First it is important to look at Output.

Equation (1) establishes the relationship between output and primary inputs (Labour and Capital).

$$O = f(K,L) \ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where O = total output of good and services

K = the capital stock

L = the labour force

So in a developing economy whose import content of capital formation is significant primarily on account of non-existence of its own local capital goods producing sector, here foreign exchange availability represents a significant limitation on the growth of output.

Chenery justifies the use of a single input production function by maintaining that where inputs are complementary, output is limited by whichever input is capital. This assumption weakness is recognized when applied to a short-run situation, but by concentrating the production function to capital, the problem in the development process is highlighted.

Next it is important that you look at Capital Formation Equation (2), it represents the relationship between capital and imports.

$$I = I\delta + M_I \ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

Where I = gross fixed investment

$I\delta$ = locally produced capital goods

M_I = capital goods imports comprised of machinery and equipment as well as intermediate goods used in capital formation.

So from the equation with a fixed investment, the import content of capital formation rises or falls depending on whether the domestic capital goods industry expand faster or lags during any particular period.

Saving is important by identifying the availability of foreign exchange as a main constraint on the growth of output and domestic savings is a major contributor.

The supply of domestic savings is defined by equation (3).

$$St = St\text{-}1 + p\,(yt - yt\text{-}1) \quad \ldots\ldots\ldots\ldots\ldots\ldots(3)$$

Where St = total saving in the current period

St-1 = total savings in the previous period (household plus business plus gov't savings)

P = the marginal propensity to save.

Kennedy maintain that "the orthodox notion that domestic saving should replace foreign borrowing is both muddle and mistaken: muddled in suggesting that domestic saving is a straight line – forward alternative to foreign borrowing; mistaken in implying that higher domestic savings makes foreign borrowing less necessary or desired – the opposite is the truth."

Kennedy believes that although domestic saving allows for "scarce resources, especially imports for use in investment," foreign borrowing facilitates imports of both of both consumption and investment goods.

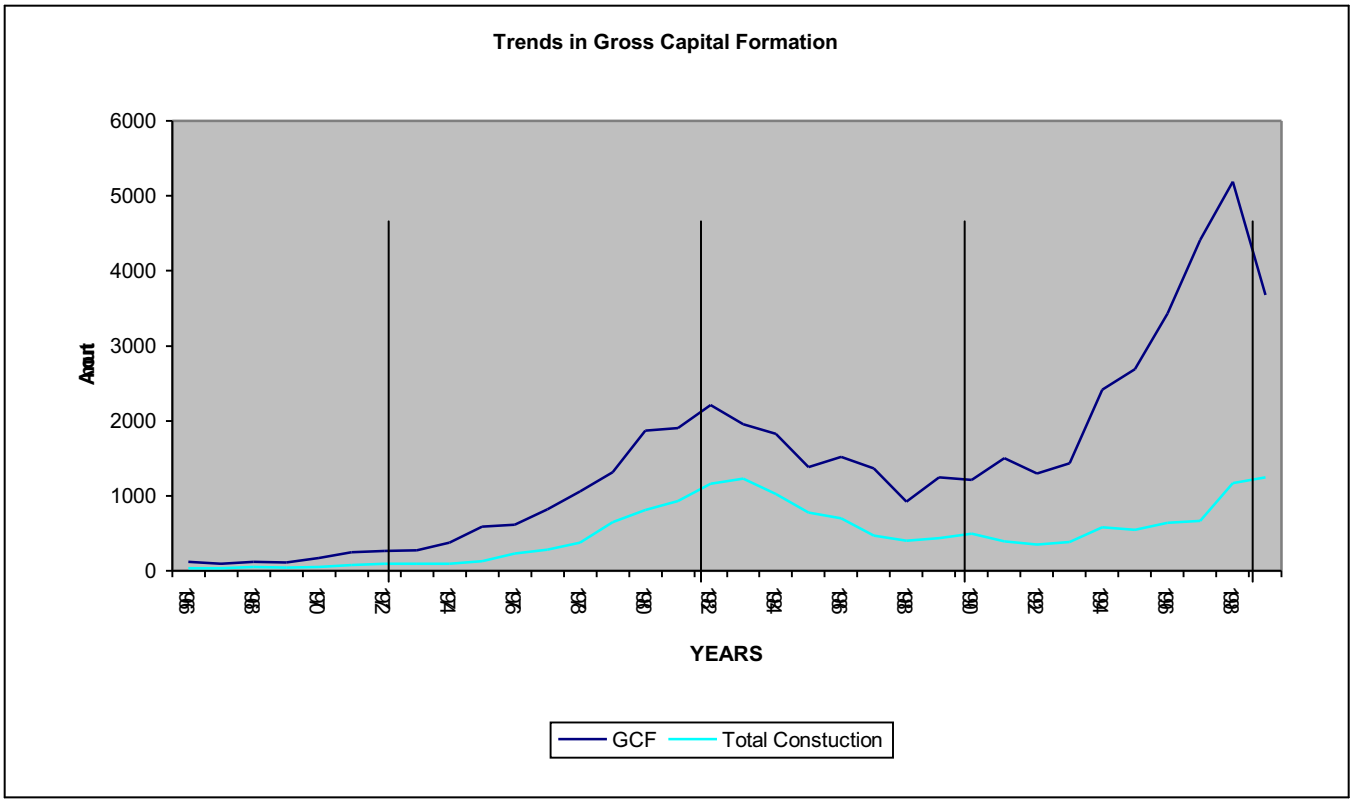
Foreign borrowing cannot therefore be replaced by domestic saving without some sort of inflation unless the increase domestic saving is absorbed by an increase in the level of investment, which is not compatible with a reduction in foreign borrowing.

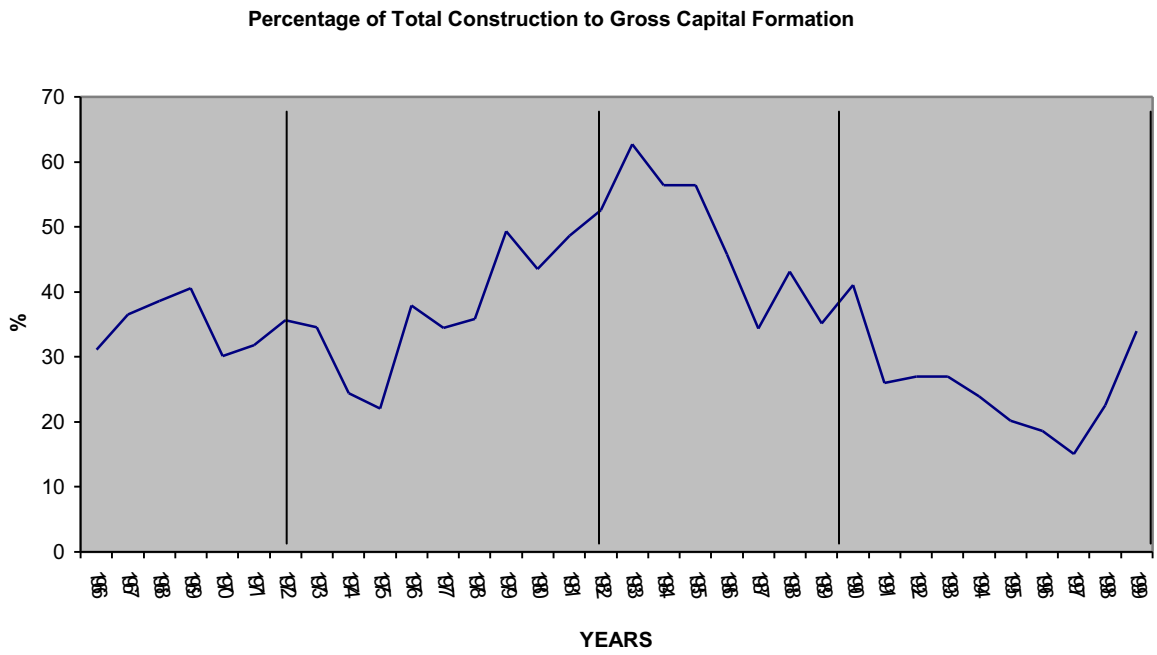
TABLE 3.1
GROSS CAPITAL FORMATION - Current Prices -ISIC- US$ - Million
Base year 1985 - 2.45 TT$

YEAR	Gross Capital Formation (1)	Value of Building (2)	Value of All other Construction (3)	Value of Total Construction (4)	(4) as a % of (1)	YEAR	Gross Capital Formation (1)	Value of Building (2)	Value of All other Construction (3)	Value of Total Construction (4)	(4) as a % of (1)
1966	116.8	26.5	9.9	36.4	31.14	1983	1955.1	837.3	388.4	1225.7	62.69
1967	95.2	25.3	9.4	34.8	36.54	1984	1822.5	821.8	206.0	1027.8	56.40
1968	122.7	36.4	11.0	47.4	38.62	1985	1384.0	667.2	113.3	780.5	56.39
1969	109.3	28.5	15.9	44.4	40.59	1986	1521.6	442.7	254.1	696.7	45.79
1970	173.5	37.0	15.3	52.3	30.16	1987	1362.5	311.8	155.9	467.7	34.33
1971	245.6	49.5	28.7	78.2	31.82	1988	920.6	279.3	117.7	397.0	43.12
1972	266.1	61.6	33.1	94.7	35.60	1989	1242.9	352.3	85.0	437.3	35.18
1973	271.6	60.3	33.6	93.9	34.58	1990	1214.2	387.6	111.3	499.0	41.10

1974	373.6	69.9	21.5	91.4	24.46	1991	1502.0	285.6	104.1	389.7	25.95
1975	591.6	102.0	28.5	130.5	22.07	1992	1301.6	279.9	71.7	351.6	27.02
1976	610.4	169.1	62.5	231.6	37.95	1993	1435.0	287.1	99.8	386.9	26.96
1977	819.4	190.0	92.3	282.2	34.45	1994	2416.9	469.5	109.0	578.5	23.93
1978	1054.5	230.7	146.9	377.6	35.81	1995	2688.6	391.3	151.9	543.2	20.20
1979	1311.6	429.1	217.8	646.9	49.32	1996	3426.8	465.7	171.3	637.0	18.59
1980	1869.5	513.2	300.1	813.3	43.50	1997	4409.0	400.2	265.2	665.4	15.09
1981	1906.9	635.9	291.8	927.8	48.65	1998	5186.6	239.4	930.0	1169.4	22.55
1982	2211.1	854.8	307.3	1162.1	52.56	1999	3677.9	243.8	1004.1	1247.9	33.93

Source: National Income Accounts of T&T (Various Issues)





A review of the pre-boom, boom, recession and post recession periods as indicated in the above Gross Capital Formation graph and table illustrate (1966-1999) that construction GCF peaked during the boom period and maintained this trend.

Employment

TABLE

Unemployment Rate Levels 1966-2002

Yr	NationWide	Other Sectors	Construction Sector	Yr	Construction Sector	Mortgage Rates	% Increase Constr. Sector
1966	13.9%	12.2%	24.8%	**1984**	13.4%	9.9%	25.2%
1967	14.7%	12.5%	28.5%	**1985**	15.6%	11.8%	29.9%
1968	14.9%	13.1%	25.8%	**1986**	17.2%	12.8%	34.9%
1969	13.2%	11.8%	21.3%	**1987**	22.3%	17.1%	42.1%

1970	12.8%	11.4%	21.0%	**1988**	22.1%	16.9%	44.8%
1971	12.6%	11.0%	21.0%	**1989**	22.0%	17.7%	42.9%
1972	14.0%	12.4%	22.5%	**1990**	20.0%	17.2%	35.0%
1973	15.4%	13.8%	23.9%	**1991**	18.5%	15.0%	35.4%
1974	15.2%	13.3%	25.5%	**1992**	19.6%	15.2%	40.6%
1975	15.0%	13.1%	25.4%	**1993**	19.8%	15.4%	40.9%
1976	14.2%	12.0%	24.6%	**1994**	18.4%	14.3%	40.1%
1977	13.4%	11.0%	24.0%	**1995**	17.2%	13.6%	36.6%
1978	12.0%	9.2%	22.4%	**1996**	16.2%	12.7%	35.4%
1979	11.0%	8.4%	20.0%	**1997**	15.0%	12.3%	30.0%
1980	9.9%	7.8%	17.0%	**1998**	14.2%	11.6%	27.6%
1981	10.4%	8.0%	18.0%	**1999**	13.1%	10.7%	25.5%
1982	9.9%	6.9%	19.6%	**2000**	12.2%	9.7%	24.7%
1983	11.1%	8.1%	20.9%	**2001**	10.8%	9.0%	19.4%
				2002	10.4%	8.1%	21.7%

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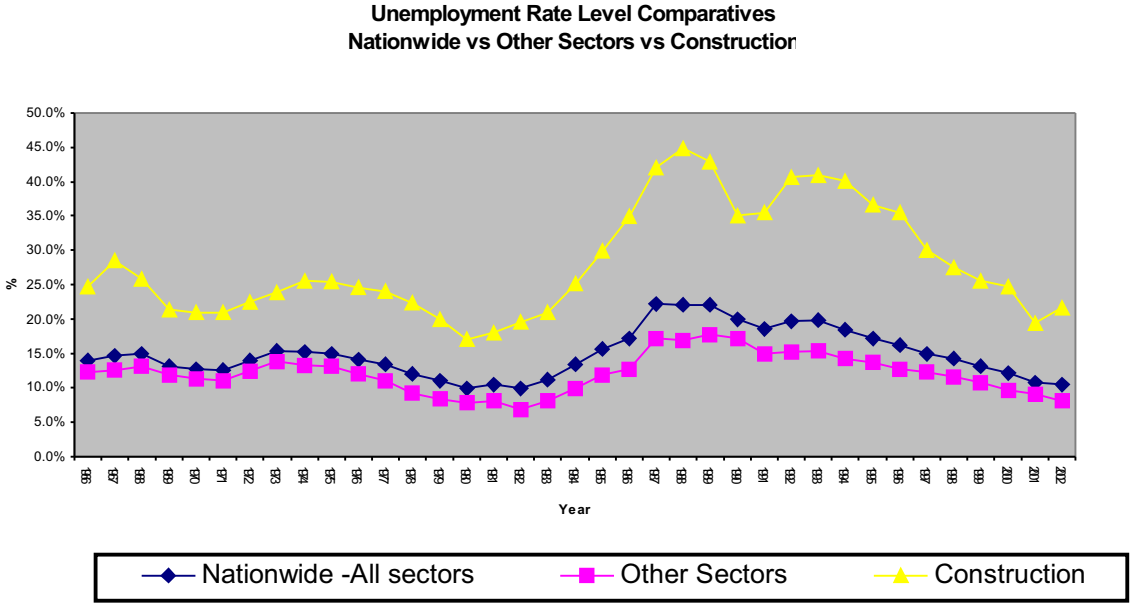


In comparison with unemployment levels in other sectors construction show more volatile changes. From the graph we can see that the impact of the recession period was greater in this sector than in other sectors.

TABLE 4.1

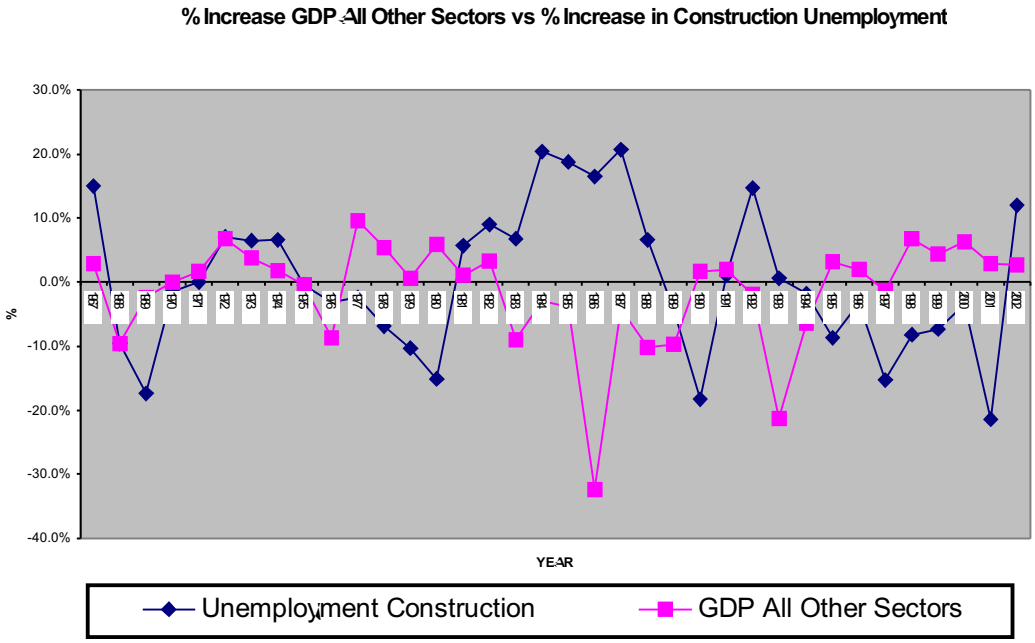
GDP All Sectors (Constant Prices) vs Unemployment within Construction 1966-2002

US$ Millions ISIC - 100=1985

Yr	Other Sectors	Unemployment Rate	% Increase Oth. Sectors	% Increase Construction	Yr	All Sectors	Construction	% Increase Oth. Sectors	% Increase Construction

1966	6342.4	24.8%			**1984**	6813.8	25.2%	-3.0%	20.5%
1967	6524.9	28.5%	2.9%	15.0%	**1985**	6551.1	29.9%	-3.9%	18.7%
1968	5899.3	25.8%	-9.6%	-9.6%	**1986**	4429.3	34.9%	-32.4%	16.6%
1969	5755.1	21.3%	-2.4%	-17.3%	**1987**	4246.3	42.1%	-4.1%	20.6%
1970	5752.4	21.0%	0.0%	-1.5%	**1988**	3815.7	44.8%	-10.1%	6.6%
1971	5846.2	21.0%	1.6%	0.0%	**1989**	3446.4	42.9%	-9.7%	-4.4%
1972	6242.3	22.5%	6.8%	7.0%	**1990**	3502.4	35.0%	1.6%	-18.2%
1973	6478.7	23.9%	3.8%	6.5%	**1991**	3571.7	35.4%	2.0%	1.1%
1974	6600.1	25.5%	1.9%	6.7%	**1992**	3504.7	40.6%	-1.9%	14.8%
1975	6575.5	25.4%	-0.4%	-0.5%	**1993**	2762.1	40.9%	-21.2%	0.6%
1976	6008.0	24.6%	-8.6%	-3.1%	**1994**	2582.9	40.1%	-6.5%	-1.8%
1977	6588.9	24.0%	9.7%	-2.4%	**1995**	2666.3	36.6%	3.2%	-8.7%
1978	6943.8	22.4%	5.4%	-6.9%	**1996**	2717.7	35.4%	1.9%	-3.3%
1979	6986.3	20.0%	0.6%	-10.4%	**1997**	2683.1	30.0%	-1.3%	-15.2%
1980	7394.6	17.0%	5.8%	-15.1%	**1998**	2863.3	27.6%	6.7%	-8.2%
1981	7472.0	18.0%	1.0%	5.7%	**1999**	2987.2	25.5%	4.3%	-7.3%
1982	7716.2	19.6%	3.3%	9.0%	**2000**	3175.8	24.7%	6.3%	-3.4%
1983	7027.7	20.9%	-8.9%	6.8%	**2001**	3267.6	19.4%	2.9%	-21.5%
					2002	3358.8	21.7%	2.8%	12.1%

National Income Accounts of Trinidad & Tobago



From the above graph we can glean that a decrease in overall GDP resulted in a significant decrease in the employment levels in the construction sector. Incidentally, the recession years saw a decrease in GDP that caused high levels of unemployment in the construction sector. It is therefore safe to say that unemployment levels in the construction sector are directly linked with the total GDP in the country.

Mortgage Interest Rates

Mortgage can be defined as a debt instrument by which the borrower (mortgagor) gives the lender (mortgagee) a lien on property as security for the repayment of a loan. The borrower has use of the property, and the lien is removed when the obligation is fully paid.

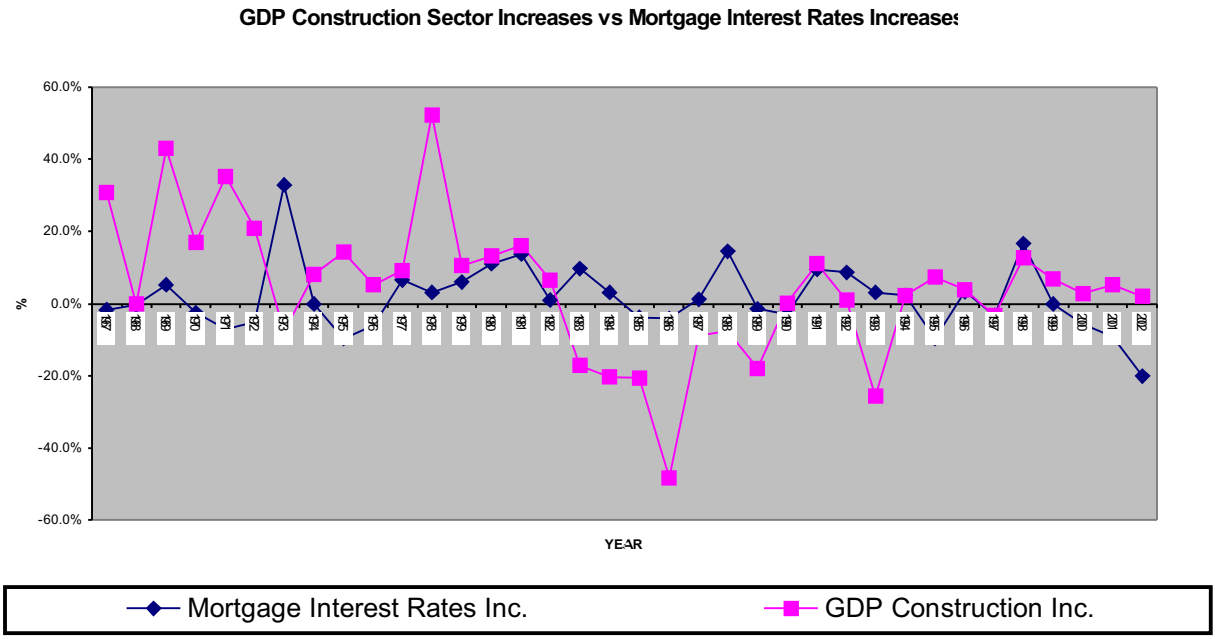
TABLE 5.1

GDP Construction Sector (Constant Prices) vs Mortgage Rates 1966-2002

US$ Millions ISIC - 100=1985

Yr	Construction Sector	Mortgage Rates	% Increase Constr. Sector	% Increase Mort. Rates	Yr	Construction Sector	Mortgage Rates	% Increase Constr. Sector	% Increase Mort. Rates
1966	143.1	7.8%			**1984**	1039.5	13.0%	-20.3%	2.9%
1967	187.1	7.6%	30.7%	-1.6%	**1985**	824.9	12.5%	-20.6%	-3.8%
1968	186.8	7.6%	-0.1%	-0.3%	**1986**	425.8	12.0%	-48.4%	-4.0%
1969	267.1	8.0%	43.0%	5.3%	**1987**	387.3	12.1%	-9.0%	1.1%
1970	312.4	7.8%	17.0%	-2.5%	**1988**	358.1	13.9%	-7.5%	14.6%
1971	422.8	7.3%	35.3%	-7.1%	**1989**	293.6	13.7%	-18.0%	-1.6%
1972	510.7	6.9%	20.8%	-5.2%	**1990**	294.0	13.3%	0.1%	-3.1%
1973	470.9	9.1%	-7.8%	32.8%	**1991**	326.5	14.5%	11.1%	9.4%
1974	509.4	9.1%	8.2%	0.0%	**1992**	329.2	15.8%	0.9%	8.6%
1975	581.6	8.3%	14.2%	-9.6%	**1993**	244.9	16.3%	-25.6%	3.2%
1976	611.8	7.8%	5.2%	-6.1%	**1994**	250.2	16.6%	2.2%	2.3%
1977	668.1	8.3%	9.2%	6.5%	**1995**	268.8	15.0%	7.4%	-9.8%
1978	1017.5	8.5%	52.3%	3.0%	**1996**	278.9	15.5%	3.8%	3.3%
1979	1125.4	9.0%	10.6%	5.9%	**1997**	269.9	15.0%	-3.2%	-3.2%
1980	1272.6	10.0%	13.1%	11.1%	**1998**	303.9	17.5%	12.6%	16.7%
1981	1477.9	11.4%	16.1%	13.8%	**1999**	324.3	17.5%	6.7%	0.0%
1982	1574.5	11.5%	6.5%	1.1%	**2000**	333.3	16.5%	2.8%	-5.7%
1983	1304.9	12.6%	-17.1%	9.8%	**2001**	350.9	15.0%	5.3%	-9.1%
					2002	357.4	12.0%	1.9%	-20.0%

National Income Accounts of Trinidad & Tobago



From the graph above, we can derive that mortgage interest rates in Trinidad and Tobago have fluctuated greatly over the years.

There was a steady increase in the recession years 1983-1999. Subsequently, it has been decreasing and now stands at 12.13% (2002). This has favourable implications for the construction sector making loans more affordable.

Table 6.1 show how the average cost of constructing a three-bedroom house has increased between 1973-1993. Construction costs and interest rates have both surged during this period.

TABLE 6.1
Average construction cost of a three- bedroom house 1973 – 1993

	1973	1978	1983	1988	1993
Construction Cost Cost of Financing	$53,000 9.04%	$140,000 9.86%	$270.000 12.63%	$183,150 12.50%	$272,866 12.255

SOURCE: A Study of Homeownership as an Investment in Trinidad and Tobago, Central Bank of Trinidad and Tobago

Table 7.1 examines the extend to which retail prices within the construction sector have increased over the period 1982-1988.

TABLE 7.1			
INDEX OF THE RETAIL PRICES OF BULDING MATERIALS			
(1980=100)			
Year	All Items	Year	All Items
1982	113.8	1989	204
1983	120.5	1990	220.9
1984	128.1	1991	214.7
1985	132.9	1992	210.8
1986	146.2	1993	224.8
1987	154.5	1994	241.9
1988	174.3	1995	248.2
SOURCE: Central Statistical Office			

Import Substitution Industrialization

Import substitution industrialization involves the establishment of new factories to manufacture goods to meet local demands, which were previously satisfied, by imported goods. It is an economic development strategy that emphasizes the growth of domestic industries often by import protection using tariff and non-tariff measures.

During the 1940 and the 1960s many Latin American Countries adopted I.S.I in an effort to develop local economies. These countries offered incentives to local industries to promote I.S.I.

One of the major benefits of I.S.I is that opens doors for employment for locals who can work in the industries. Additionally, it reduces the total cost of the country's imports by substituting home produced goods.

There are some concerns that since Government subsidize the cost of production and protect from foreign competitors (through quotas and tariff), the efficiency of production of poor and the quality of goods offered to the consumers are inferior.

Classical economists have debated for centuries over the trends in the terms of trade between primary commodities and manufacturers, their causes and their impact. They claimed that the terms of trade of primary commodities should improve over time, since land and natural resources are in inelastic supply. The view was however challenged in the early 1950's by the economist Raul Prebisch. Prebisch alleged that the terms of trade of the primary-product-producing Third World had deteriorated and would continue to deteriorate as long as they specialized in primary products. Prebisch observed this deteriorating trend from the 1860's upwards to 1940.

His reasoning of secular decline in terms of trade supported the policy move towards Third World autarky in the 1940's, 1950's and 1960's. This policy was defined as a highly interventionist industrialization choice which was eventually called imports substitution. One of the advocates of this policy was Hans Singer, who claimed that improvements in the trade of primary products, would only reduce the incentive for industrialization in developing countries. Thus while an improvement in the terms of trade would have augmented incomes in the short-run, a good thing, it would also have suppressed industrialization in the long run, a bad thing

Raul Prebisch theorises that Import Substitution is a valid developmental strategy; when there are (i) disparities in the Income Elasticities of Demand for Imports over Exports, (ii) essential Industrial Imports, and (iii) limitations on the ability to Increase Imports.

Hirschman stated that "Imports are reliable indicators of domestic market size, and as such they engender confidence in a wide range of industrial products". His approach was to adopt an I.S.I. Strategy so as not to impose excessive restrictions on imports.

Seers suggests that in order to prevent the dissipation of a country's export earnings and to improve the indirect employment effect export development, the developing country should reduce the propensity to import by adopting I.S.I.

Trinidad and Tobago and I.S.I.

One of the major problems facing Trinidad and Tobago, as well as the other territories in the Caribbean, is that of a high rate of population growth and also a high level of unemployment. Coupled with these serious defects is the high import bill.

From World War II until the 1970's many developing countries attempted to accelerate their development by limiting imports of manufactured goods to foster a manufacturing sector serving the domestic market. The most important economic argument for the protection of the manufacturing industries is the infant industry argument. It states that developing countries have a potential comparative advantage in manufacturing and can realize that potential through an initial period of protection.

High tariffs were instituted to make foreign goods expensive and allow domestic goods to compete. Additional demand was stimulated by favouring local producers (for example in government contracts). The establishment of Government-run companies and the investment in industrial firms (for example airlines, telecommunication companies, petroleum refineries) occurred.

Value vs. Weight

In examining Trinidad and Tobago's candidacy for I.S.I, the concept of value vs. weight must be explored. The importation of materials to be used in the construction sector would incur very high shipping and freight costs.

While the local production costs may be greater than foreign production costs due to availability of resources, cost of labour and technology used in the producing country, the expenses incurred in importing the finished product, such as freight, shipping and duties must be taken into account.

When transportation costs are added to production costs it becomes unprofitable to ship some products a long distance. The resources utilized in the construction sector are generally of a high weight and can be considered to have a low value to weight ratio.

Importation of heavy weight products would mean the following:

- The volume of purchase has to exceed 3,000 MT for freight advantage
- If deliveries are made using containers, the delivery costs will be extremely high
- There is a greater cash outlay in order to meet the obligations for a 3000MT purchase.

In contrast industrialization is advantageous in light of the following:

- Daily deliveries can be achieved in small quantities for day- to-day consumption.
- Minimum inventory holdings by downstream industries
- A close direct link can be made between sales of final products and raw materials.
- There is a short lead time between order and deliver

Following is a list showing the breakdown for excavating one (1) cubic yard of gravel

COST OF EXCAVATING ONE YARD OF GRAVEL	
Cost of Land	$ 1,500,000.00
Reserves 80,000 cubic meters	$ 18.75
Cost of extraction	$ 9.50
Cost of waste control	$ 8.00
Electricity	$ 8.00
Water	$ 4.50
Cost of re-instatement	$ 6.00
Security	$ 7.00
Total cost of extracting one yard of gravel	$ 61.75

Retail Price: ½ x ½ gravel $ 75-$100 per yard.

Quite in contrast, a company interested in importing gravel would have to factor in the above costs as well as 15% duty applicable and freight charges.

I.S.I also is useful in preserving foreign exchange reserves. Countries that implement Import Substitution Industrialization have greater use of foreign exchange that would otherwise have been used in the importation. This will impact greatly on Trinidad and Tobago in particular since we are heavily reliant on foreign exchange reserves.

Another reason for I.S.I in Trinidad and Tobago can be derived from the employment data. The Construction sector currently employs some 70,000 persons and therefore directly impacts on the standard of living of them and their families. These persons would have otherwise been unemployed.

Countries that have a greater availability of resources will have a comparative advantage in the industrialization of certain products. The utilization of these resources would make industrialization more meaningful and importation unwise. In the case of Trinidad and Tobago, the availability of asphalt makes industrialization viable industry.

An analysis of the cement and iron and steel industries in Trinidad and Tobago, show how production has increased between 1980-1996 even though local consumption and exports have remained marginal.

TABLE 9
PRODUCTION AND SALE OF IRON AND STEEL PRODUCTS, 1980 -1989
/000 metric tonnes/

	1980	1983	1985	1987	1989	1991	1993	1995
DRI*								
Production	21.5	302.3	243.2	441.2	673.3	645	714.5	1039.9
Export	10	56.5	65.3	106.7	289.3	196.3	223.9	270.5
Own Consumption	-	180.7	138.5	351.2	362.3	420.3	486.8	705.9
Billets								
Production	3.2	209.6	243.2	441.2	344.1	439.7	492.1	676.1
Export	-	14.4	65.3	106.7	13.8	8.8	15.7	21
Local Sales	-	21.6	-	-	38.4	45.2	40.8	52.8
Wire Rods								
Production	-	164.2	102.9	276.2	273.2	1457.8	413	594.4

Exports	-	119.6	76.9	239.6	205.4	550.4	357.8	564.3
Local Sales	-	26.4	17.7	20.5	34.2	74.9	20.9	23.3
SOURCE: Annual Economic Survey, Central Bank Trinidad & Tobago *Note that most DRI produced isa for own consumption								

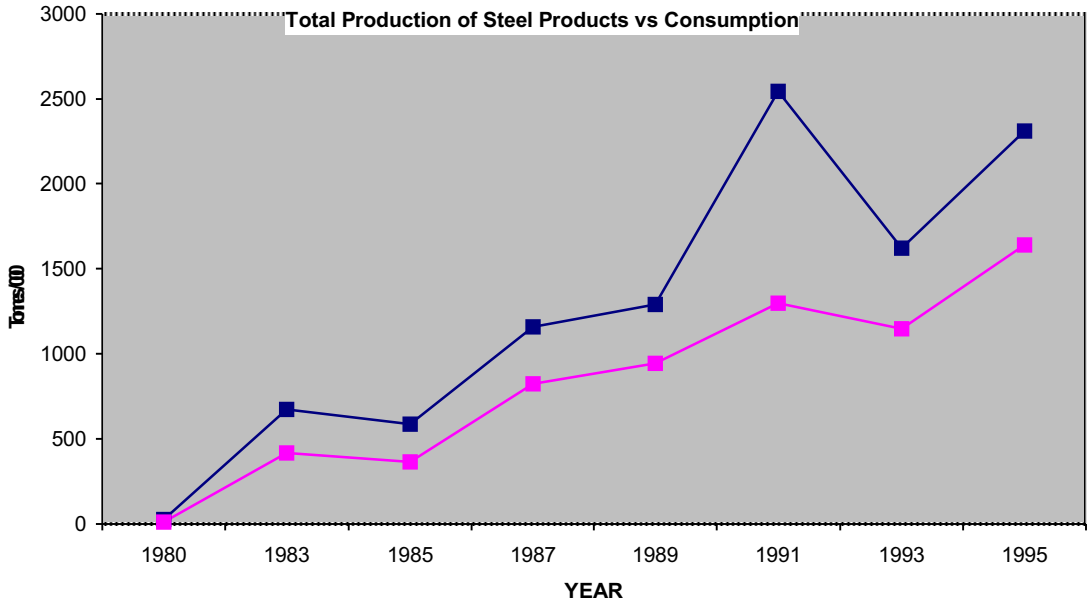


TABLE 8
PRODUCTION OF CEMENT
BY TRINIDAD CEMENT LIMITED

	Cement Production (tonnes)	Local Sales	Local Sales as a % of Production
1981	139298	389648	279.7
1982	189203	457906	242
1983	389850	469966	120.6
1984	405370	409842	101.1
1985	328476	341516	94.8
1986	337565	319958	85.9
1987	326136	280170	67.1
1988	359830	241394	56.3
1989	384246	216155	56.3
1990	437954	195126	44.6
1991	485596	232937	48
1992	482005	234448	48.6
1993	527210	230238	43.7
1994	582885	245600	42.1
1995	558500	267100	47.8

1996	617100	292300	47.4
SOURCE: Annual Economic Survey, Central Bank Trinidad & Tobago