THE VEHICLE ASSEMBLY INDUSTRY IN KENYA : AN ECONOMIC EVALUATION

BY

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DECLARATION

This research paper is my original work and has not been presented for a degree in another University.

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ABSTRACT

The manufacture and assembly of vehicles is more efficiently done in large plants where long production runs are possible. But small industrializing, developing countries have gone into both manufacture and assembly of transport vehicles. This has resulted in short and inefficient production runs, underutilized installed capacity and expensive vehicles that are major users of foreign exchange.

The analysis of Kenyan data, collected from primary and secondary sources, shows that the 94 models of vehicles assembled locally are an unnecessary differentiation and impose high per unit assembly costs. This differentiation has contributed to capacity underutilization. Moreover, installed capacity is manifestly excessive. Furthermore, deletion allowances are lower than overseas per unit production costs and these allowances are small fractions of local per unit production costs. This discourages local sourcing. Additionally, the assemblers do not aggressively search to raise local components usage and they even reject components approved by the national quality standards bureau. Hence, local content in domestically assembled vehicles is low and import content high.

This makes the vehicle a heavy user of foreign exchange and an inefficient saver or earner of foreign exchange. Worse still, employment - output elasticity is negative and Kenyanization of personnel has stagnated: key management positions are held by expatriates although the ownership of equity is mostly local.

These findings suggest that the vehicle assembly industry is an inefficient user of scarce economic resources. This situation should be remedied and national objectives pursued more strictly. Vehicle models, plants, franchise importers and distribution and service points should be drastically reduced. The resulting efficiency would reduce the ex-assembly cost of the vehicle by 7.7 per cent, assembly charges by 67 per cent and retail prices of vehicles by between 20 and 25 per cent. These cuts are substantial.

To achieve these gains, the government should use its political and licensing powers plus voting rights in the assembly plants to streamline the industry. Furthermore, deletion allowances should be re-negotiated, work permits sharply reduced, more dependence on national standards imposed and the price control formula reformed. Penalties should be meted out against defaulters. Finally, exporting should be promoted through intercountry cooperation, usage of the multinational firm's operational network and barter arrangements.

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LIST OF ABBREVIATIONS

CKD kit	=	Completely knocked down vehicle kit.
CBU	=	Completely built up vehicle.
K£	=	Kenya pound which equals Ksh. 20 = 0.995 UK$ = 1.46 US$, as on 24.11.83.
Ksh.	=	Kenya shilling.
GMK	=	General Motors Kenya Ltd.
LKL	=	Leyland Kenya Ltd.
AVA	=	Associated Vehicle Assemblers.
US$	=	United States of America, dollar.
UK£	=	United Kingdom pound.
KBS	=	Kenya Bureau of Standards.
P.C.E.A.	=	The Presbyterian Church of East Africa.
FKL	=	Fiat Kenya Ltd.
ZMS	=	Ziba Management and Services Ltd.

CHAPTER I

INTRODUCTION

1. Introduction:

The motor vehicle has continued to occupy an important place in society since its invention. Its manufacture is concentrated in developed countries which achieve the economies of large scale production. Industrializing countries do assemble and even manufacture vehicles. But their markets are small and differentiated, resulting in inefficient, short production runs.

Kenya assembles a variety of commercial vehicles for her small domestic market. Production runs are short, backward linkages low, foreign exchange usage high and job creation little. Hence there is need to improve production efficiency by limiting the number of models of vehicles, assembly plants and franchise importers and promoting exports. Additionally, vehicle distribution costs would fall and hence retail prices, if the distribution sector were streamlined.

2. Outline of this chapter:

The introductory chapter covers the context, the statement of the problem, the framework for examination, data collection problems, the discovery and spread of the vehicle, the arrival and place of the vehicle in Kenya. The first and current assembly plants and the assembly operation are also discussed. The body and trailer building and ancillary industries are covered as well as a summary for the chapter.

3. The context:

Most developing countries opt for import substitution industrialization to diversify their economies, gain experience in manufacturing, spread industrialization through backward and forward linkages, create more jobs, acquire new skills and save foreign exchange. But these countries lack investible resources and hence design policies to attract investors. The resulting plants are small and inefficient by world standards. Vehicle manufacturing and assembly plants and ancillary enterprises, fall in this category.

4. A statement of the problem:

Kenya does not manufacture vehicles but assembles them. The vehicle assembly industry is young and there have been charges that it is inefficient. Such charges suggest that the industry's forward linkages with the transport and other sectors are expensive, and that its contribution to industrialization is limited. Hence, there is need to conduct a sectoral study about the industry.

5. Framework for examination:

Issues for research were identified through a review of the available literature on industrialization in developing countries and familiarization visits to some local vehicle assembly plants. Hypotheses were formulated and variables for testing them identified. The variables included production, sales, exports, inventories, costs, financing and employment. A questionnaire was designed and later used in pre-arranged personal interviews with vehicle assembly industry executives and ancillary enterprises (see Appendix XVIII). All five vehicle assembly plants were visited. Also visited was a sample of ancillary firms to supplement the information supplied by the assembly plants concerning local availability of components. Certain government departments and organizations were contacted to get official views on the industry. Published and unpublished sources were also used. Combined, these sources provided a basis for arriving at certain conclusions and public policy recommendations.

6. Data collection problems:

Most of the information was readily available. But details on the structure of costs, overseas production and freight costs, financing and deletion allowances were not revealed because they were confidential. Overseas principals also refused to supply such information. In the few cases where some of these data were obtained, we had to promise to use them in a way that ensures confidentiality. Hence that information had to be coded, suppressed or withheld. Frequent vehicle model changes led to discontinuation of some models and this prevented this author from obtaining sufficiently long time series data.

All five vehicle assembly plants were visited but only a sample of the ancillary firms was interviewed. The sample was, however, not random because a complete frame of these enterprises was not available. Most large - but few small - local component producers were visited.

7. The discovery and the spread of the vehicle:

The wheeled vehicle was discovered at a time when farmers had surplus agricultural produce for sale to urban dwellers in the ancient Tigris and Euphrates civilization.[1] From there it spread to other parts of Asia, Europe and later to America. It has since been evolved amid strong opposition, into the self-propelled road vehicle which now occupies a very important place in society.

8. The arrival of the vehicle in Kenya:

The cart, wagon or rickshaw, pulled by the ass or mule or by one or two men was probably introduced to the Kenyan coast by Arab traders long before the arrival of the first European explorers in the

19th Century. These vehicles later became a widespread means of transport especially among the newly arrived settlers. Even the public administration of the late 19th and early 20th centuries had mule-pulled carts.[2] For instance, in 1932 the Public Works Department, a predecessor of the present Ministry of Roads, Transport and Communications had a transport fleet comprising of four mule carts and seven lorries.[3] Since that year, the number of self-propelled vehicles, both Government and privately owned has increased tremendously.

9. The place of the vehicle in Kenya:[4]

In 1980 there were 240 thousand vehicles with current road licences and they had a singificant impact on the economy. During that year, the road transport sector's output was K£ 93 million or 2 per cent of the national total. The sector contributed nearly K£60 million or 9.3 per cent to the Government's recurrent revenue. Of the K£ 960 in imports in 1980, 16 per cent was for transport equipment. On the negative side. There were 11,000 road traffic accidents and involved 20,000 people over 2000 of whom died in 1980. Table I.1 summarizes this.

TABLE I.1

THE CONTRIBUTION OF THE ROAD TRANSPORT SECTOR, 1980.

			TOTAL	ROADS		
1	Gross output	(K£ million)	4,558	93	2.0	per cent
2	Government recurrent revenue	(K£ million)	643	60	9.3	"
3	Imports	(K£ million)	960	154	16.0	"
4	Traffic accidents (Road)					
	(a) Accidents	(Number)	11,329	11,329	110.0	"
	(b) Number of persons involved	(Number)	20,071	20,071	100.0	"
	(c) Number of persons killed	(Number)	2,228	2,228	100.0	"

Sources: Statistical Abstract 1981: various tables:
Gross Output: Tables 43 and 169.
Government Recurrent Revenue: Tables 187 and 217(b).
Imports: Tables 51(c) and 61(a)
Traffic accidents: Table 190.

Notes: a) Gross Output is in basic prices i.e. it excludes the effect of subsidies and indirect taxes.

b) Government Recurrent Revenue is gross of appropriations - in-aid, and is an average of 1979/80 and 1980/81.

10. The first vehicle assembly plant in Kenya:

In 1952 the Public Works Department of Kenya Government, partly cleared its heavy repair workshop in Nairobi's industrial area to make room for the first vehicle assembly plant in the country.[5] Vehicles were to be assembled from partly knocked down (CKD) full kits imported from the United Kingdom. This operation required more welding than hitherto known in the workshop;inflicting a big strain on the existing equipment. A new larger paint shop that could accommodate upto six vehicles against one or two for the old shop was completed just in time for the spray painting of the first locally assembled vehicles. The assembly plant created an additional 24 jobs over the 104 that existed previously. But twenty four years later, in 1976, it was displaced by a few commercial vehicle assemblers who acquired an oligopoly for vehicle assembly in the country.[6]

11. Commercial vehicle assembly plants:[7]

In 1982 there were five authorized vehicle assembly plants in Kenya, namely: Leyland Kenya Ltd. (LKL), General Motors Kenya Ltd. (GMK), Associated Vehicle Assemblers (AVA), Fiat Kenya Ltd. (FKL) and Ziba Management and Services Ltd. Three plants are located in Nairobi and one each in Mombasa and Thika. Together, they assemble a wide range of makes and models of commercial vehicles.

11.1 Leyland Kenya Ltd. (LKL).

This firm started assembling partially knocked down kits into vehicles in Nairobi in 1962.[8] It was the first assembly plant authorized to assemble completely knocked down kits.[9] The plant moved to Thika in 1976. In 1982 it assembled one-ton pickups, medium and heavy trucks of three to nineteen-ton axle weight capacity, a luxury car and a bus. The locally assembled vehicles included the Land Rover, pick-up and station wagon, the Range Rover luxury passenger car, Leyland trucks and buses, the Volkswagen van and pick-up, the Mitsubishi pick-up and light truck and the Suzuki light van. Six makes of vehicles were assembled in thirty seven models at the plant. Vehicle kits were imported from the United Kingdom, West Germany and Japan. In 1982, LKL had an annual capacity of about 4,200 units on a one shift basis for five days a week. The Cooper Motor Corporation and Simba-Colt were the main distributors for LKL vehicles. Between the two, there were over 32 agents and branches including service workshops. In 1982 the vehicle assembly plant employed a total of 580 people, of which 408 were production workers. Out of the 580 employees eight were expatriates. The expatriates held vital management posts including the managing and production directors. The plant is owned 45 per cent by British Leyland, 20 per cent by the Cooper Motor Corporation and 35 per cent by the Kenya Government.

11.2 General Motors Kenya Ltd. (GMK):

General Motors Kenya Ltd. started assembling buses, medium trucks of six to eight tonnes carrying capacity and one tonne pick-ups in 1977. In 1982, the plant assembled two makes and fourteen models: the Isuzu one - tonne pick-up, eight-tonne truck and dump truck and 52-62 passenger bus, and the Bedford eight-tonne truck and dump truck. Knocked down vehicle kits were imported from Japan and the United Kingdom. The plant's annual production capacity on a one-shift, five day-week basis was 4680 vehicles in 1982. The vehicles were distributed locally by twenty-one dealers while GMK concentrated on the export market. The firm exported a few hundred vehicles to neighbouring countries including Uganda. It made jigs and some were exported to sister companies operating in far off countries such as Nigeria, Zambia and Zimbabwe. The plant had 358 workers including five expatriates in 1982; 298 were production workers. Expatriates held vital management posts of the managing, financial, production and sales directors. GMK is owned 49 per cent by General Motors (USA) and 51 per cent by Industrial and Commercial Development Corporation (Kenya).

The plant planned to increase the assembled vehicle range by three more models by the end of 1982.

11.3 Associated Vehicle Assemblers (AVA):

Associated Vehicle Assemblers started vehicle assembly in 1977 at Mombasa. In 1982, it assembled light, medium and heavy commercial vehicles in nine makes and 39 models. The range of vehicles assembled at the plant included a half-ton and one-ton pickups, light buses, medium and heavy double-axled trucks of up to about twenty-ton axle weight carrying capacity and a much higher train load. The list of vehicles assembled was composed of Toyota, Datsun, Daihatsu, Rhino, FUZO Mercedes-Benz, Volvo, Peugeot, Ford (see Appendix Table X). Knocked down vehicle kits were imported from Japan, West Germany, Sweden, France, the United Kingdom etc. The plant's 1982 production capacity was 11,180 units on a one shift basis, for five days a week.

Vehicles assembled at the plant were distributed locally by six main and three small franchise holders, including Westlands Motors Ltd., D.T. Dobie Kenya Ltd., Marshalls (East Africa) Ltd., Hughes Kenya Ltd. and Eastern Motors Ltd. Combined, the main dealers had a total of over 60 agents and branches including workshops. None of the vehicles were exported. 572 persons were employed at the plant in 1982, out of whom 450 were production workers. The two expatriates working at the plant held the posts of factory and materials managers. The firm is owned by Industrial

Development Bank Ltd. (25 per cent), Kenya Government (26 per cent), Lonrho (24½ per cent) and Inchape (24½ per cent).

There were plans to increase the number of makes and models of vehicles assembled at the plant.

11.4 Fiat Kenya Ltd. (FKL):

Fiat Kenya Ltd., like GMK and AVA, started vehicle assembling in 1977. FKL assembled medium and heavy Fiat trucks of between six and 45 tonnes carrying capacity in four models in 1982. The plant also assembled trailers. Fiat knocked down kits were imported from Italy. Its 1982 annual capacity was only 1,000 units from one shift, five days a week. Fiat Kenya Ltd. distributed its own vehicles through eight branches. The assembly plant employed 30 production workers and five administrative employees who included two expatriates in 1982. The expatriates held the posts of plant and service managers. 86 per cent of the shares in this company are held by Taif Holdings Ltd. which is controlled by private Kenyan citizens.

11.5 Ziba Management and Services Ltd. (ZMS):

Ziba Management and Services Ltd. started operating its Nairobi plant in 1978. It assembled Mack trucks from the United States of America. In 1982 it had an installed capacity to produce only 120 vehicles per annum from one shift. The plant stopped operating in 1981 to renegotiate the franchise. By May - August 1982, operations had not resumed. The firm is wholly owned by Kenyan private citizens.

12 Contract assemblers:

In a contract assembling arrangement, a vehicle assembler receives imported knocked down vehicle kits and locally procured components for assembly into a vehicle at a fee, and delivers the finished vehicle to its owner the franchise holder or contract importer. The contract importer is responsible for negotiating the procurement of vehicle components as well as for payment. The negotiations cover franchise arrangements, deletions and deletion allowances, source of inputs, purchase of local components, assembly charges, export etc. AVA and LKL were contract assemblers while GMK, FKL and ZMS were not. The contract importers negotiate procurement of inputs, assembly and distribution of the finished vehicle. There were ten such importers in 1982, namely, Amazon Motors Ltd., Cooper Motors Corporation (K) Ltd., D.T. Dobie (K) Ltd., Eastern Motors Ltd., Hughes (K) Ltd., Rhino Motors Ltd., Ryce Motors Ltd., Simba Colt Motors Ltd., Westlands Motors Ltd. and Marshalls East Africa Ltd. The Motor Service Company Ltd. was negotiating for a contract importer's licence in 1982. If the licence is granted, the

the number of contract importers will rise to eleven. Jeep Kenya Ltd. will start distributing Jeep-Cherokee of American origin in mid September 1982. This will raise the number of contract importers to twelve and make G.M.K. a part contract assembler since the company will assemble the Jeep on contract.[10] Thus, the number of franchise importers could rise to fifteen, if GMK and FKL, who also import vehicle CKD kits were counted.

13. The vehicle assembly operation:[11]

The vehicle assembly operation starts with receipt, unboxing and inspection of imported completely knocked down kits and locally procured components to ensure that the parts agree with supporting documents. The assembly takes place in two lines: chassis and cab lines.

13.1 The chassis line:

This line involves the assembly of the body frame and the power transmission. In the frame assembly, cross and side members are reverted or welded together. The power transmission assembly involves fitting wheels on reams. These are fixed on axles and then the frame is mounted. Body harnesses are completed here and the structure is rolled on for engine, gear-box and shafts mounting. Then, the chassis line joins the cab line, ready for the cab drop.

13.2 The cab line:

In the meantime, three of the five main cab assembly activities are completed, namely: body assembly, painting and hard trimming. The remaining two activities, cab dropping and soft trimming, are undertaken when the chassis line joins the cab line. Finally the vehicle is inspected for quality and power performance.

13.2.1 Body assembly:

Body panels are cleaned and then fitted into precision fixtures called jigs which are designed specifically for each model of vehicle. This ensures correct fit as well as body alignment. While on the jigs the panels are welded by electric spot and seam welding guns to form a body shell. The body shell moves to the metal finishing section where the welded seams or flanges are soldered and ground. Then the entire surface is inspected and irregularities corrected. The body shell is then treated chemically and sprayed with pre-primer and a sealing compound. After each spraying the body is dried and rubbed or sanded.

13.2.2. Painting:

The body shell then moves to the painting booth which is the most expensive item in a vehicle assembly plant. Under controlled air conditions the body is spray painted by hand. Upto three coats are applied.

After drying, the shell is inspected and, if satisfactory, it moves to the next station.

13.2.3. Hard trimming:

This involves fitting glass hardware, exterior moulding, panel instruments, heaters etc.

13.2.4. The joint line:

13.2.4.1 Cab dropping:

The chassis and the cab line join to facilitate cab dropping. After the cab has been dropped, it is fixed onto the already assembled frame, engine and transmission with wheels. The power and electrical connections are completed at this stage.

13.2.4.2. Soft trimming:

Soft trimming involves the fitting of seats, upholstery, door and roof linings and other soft trim.

13.2.4.3. Inspection:

The vehicle is now nearly complete. However, it has to be inspected for the quality of body work and power performance before it is declared ready for departure from the assembly workshop.

14. Vehicle body and trailer building industry:

In 1982 there were at least ten vehicle body building and five trailer building firms each employing 50 or more persons in the country.[12] These firms, plus other smaller enterprises, receive orders from various customers including assembly plants, to build vehicle bodies for matatus, trucks, trailers, buses and coaches. Most material inputs for this industry are imported e.g. sheet metal, p.v.c. material, wire and leaf spring steel flats.

15. The ancillary industry:

The young and small ancillary industry manufactures spare-parts for the current stock of vehicles. Some of the spare parts such as tyres and batteries are used by the local assembly plants as original equipment.

There are about 25[13] firms engaged in the manufacture or assembly of vehicle components. Most firms started manufacturing after approval by the New Projects Committee[14] though some started production without approval.[15] Between 1977 and the first half of 1982, the New Projects Committee approved nineteen projects for the manufacture of thirteen different items. Some of these firms were to produce under licence. These projects were intended to produce brake linings, brake shoes, brake pads, automotive V-belts, filters for oil, air and diesel fuel; hydraulic jacks, radiators, shock absorbers, exhaust pipe systems, leaf springs, automotive bulbs and electrical wiring. Some of these items were already being produced domestically by other manufacturers e.g. brake linings, rubber tubes.[16] The projects proposed to generate at least 576 new jobs at a total cost of KShs. 147 million.

16. Summary:

Kenya's first assembly plant, which was wholly owned by the Government, gave way to commercial vehicle assemblers in 1976. By 1982 there were five small assembly plants, four of which were operating. The Kenya Government owned 51 per cent of two of the larger three plants and was a minority shareholder in the remaining one. The other shareholders were General Motors U S A, Lonrho, Inchape and British Leyland. The remaining but smaller plants were owned jointly by Kenyan and foreign individuals and companies.

The plants employed a total of just over 1,500 people including about 1,200 production workers in 1982. They were managed mostly by expatriates and assembled over ninety models of vehicles in nearly twenty makes. Except for GMK and FKL, the vehicles were assembled from CKD kits supplied by ten franchise importers. The assembled vehicles were returned to franchise dealers for distribution. GMK had dealers and FKL branches. The selling and service network is comprehensive.

The ancillary industry was small and supplied only a few components to the assemblers. The trailer and body building industries were also small.

CHAPTER II:

LITERATURE REVIEW

1. Introduction:

Too much product differentiation, low capacity utilization, lagging employment growth, heavy use of foreign exchange and low backward linkages are widespread in the manufacturing industries of developing countries. These problems also afflict the vehicle assembly industry. Furthermore, in the vehicle manufacturing and assembly industries, deletion allowances[1] are low. This also discourages local component sourcing especially since the local markets for vehicles are small and the costs high for short production runs.

2. Unnecessary product differentiation in developing countries:

2.1 Introduction:

Import substitution industrialization very often results in unnecessary product differentiation and short production runs and expensive products.

2.2 Unnecessary product differentiation in developing countries:

Unnecessary product differentiation is widespread in developing countries. This is caused by foreign manufacturers who invest in import substituting industries to preserve their market shares in the face of restrictions and total barriers to importation of their products. These investments often produce goods which, though technically different, satisfy the same needs. Alternatively, the goods produced are technically similar and are only differentiated by colour, fragrance, minor size variations, packaging etc. for marketing reasons, again satisfying the same needs. Such differentiation, though necessary in developed countries is unnecessary in developing countries where consumers/buyers are only interested in satisfying basic needs. For instance, in Kenya, basically similar detergents are colour differentiated and toilet soaps packaged to conform to brandnames.[2] The Kenyan water pump market is also differentiated since pumps having similar heads/capacity are sold in different models. For instance, in 1980, 9,565 water pumps were imported in 263 models for use in the country. This level of differentiation is unnecessary for a small economy like Kenya's.[3] Zimbabwe, another developing country to the south of Kenya, also faces unnecessary product differentiation as illustrated below:

> "ARNI (sic) register of manufacturers for 1978 lists fifteen varieties of hair shampoos, ten hand creams, five lipsticks, seven types of swimming pool paint, ten varieties of pet food and so forth." [4]

2.3 Unnecessary product differentiation in the vehicle manufacturing industry in developing countries:

In the vehicle assembly industry, there is widespread differentiation. In fact, one basic model can have numerous variations such as colour, trimming and body shell. But some of these variations do not affect the performance of the vehicle and are thus unnecessary. Ignoring minor variations, a model has been described by Rose as:

> "the family of cars which could be built around a standard set of body panels and are assembled on a common set of jigs." 5.

In 1969, 33 basic models were assembled in New Zealand, yielding an annual average production run of only 1,600 units per model.[6] In Argentina, thirteen manufacturers produced about 195,000 vehicles in over 68 basic models of cars and trucks in 1967.[7] This yields a maximum annual average run of about 2,870 units per model. This, like that of New Zealand, is a short production run by world standards.

The large number of basic vehicle models plus numerous other variations in transmission, and body work imply that the ancillary industry must be highly differentiated too. The problem is further compounded by the preference of manufacturers of vehicles to establish their own forging and foundry facilities and also manufacture major components such as axles and transmissions to ensure a regular supply of good quality products. Manufacturers of equipment also develop their own suppliers of parts. For instance, in Argentina there were often as many as half a dozen suppliers for such parts as radiators and batteries in the 1960's. There were about 20,000 components and parts manufacturers during the period in that country.[8]

2.4 Duplication of investment:

The observed high differentiation of products implies that investments are duplicated and production runs short. This results in underutilization of capacity due to change-over manhour and machinehour losses which also lower productivity and raise per unit costs. This is illustrated by a conversation Langdon had with a managing director of a Kenyan paint subsidiary:

> "You've got in a paint company to have 20 per cent of your machinery which is idle, if you are turning out a big range ... so it does become a difficulty of your production plant; this increases the cost quite considerably because one man can make 2000 gallons of the same colour or 200 (of different colours?) and he spends the same amount of time on it."[9]

In the vehicle manufacturing industry, model variety results in short production runs. This increases certain capital costs such as the costs of jigs and tooling, complicates the organization of processes and raises total learning time for workers. Bulk purchasing of inputs is not possible with the proliferation of models and discounts are forfeited while inventories of both inputs, and final vehicles and spare parts are increased. The distribution network of vehicles and parts is also duplicative. The efficiency of the vehicle repairs is reduced. For instance, repair labour productivity on unfamiliar models falls. For these reasons, component and vehicle prices in developing countries are much higher than world market prices. Hence the buyer of the vehicle has to buy an expensive vehicle and expensive replacement components. For instance, in Argentina, the carburetor is 3.5 times the US price while axles are twice and forgings and castings up to 5 times US prices.[10] The ex-factory prices of cars and trucks averaged 2.5 times those of US in 1965.[11]

Plants in the vehicle parts and assembly industries have proliferated with official encouragement through protection of local content. Baranson observed this in Argentina:

> "... industrialization policies have resulted in a large number of vehicle and parts manufacturers that are inefficient by world standards."[12]

This contrasts with France and Germany where some manufacturers took advantage of economies of scale and avoided frequent model changes in the post-World War II - period (e.g. Volkswagen). Thus, these countries were able to produce cheaper cars than did developing countries.

3. Utilization of installed capacity in developing countries:

The degree of utilization of installed plant capacity has micro- and macro-economic impacts. But developing countries underutilize their productive capacity. Even individual manufacturing activities underutilized installed capacity. The vehicle assembly is not exceptional. There would be large economic benefits if utilization rates were raised or productive capacity expanded.

3.1 The macro- and micro-economic impacts of capacity utilization:

The level at which installed capacity is utilized has both micro- and macro-economic impacts upon per unit production costs, prices, manufacturing surplus, disposable income, savings, investment and employment creation. Hence raising capacity utilization rates brings large economics benefits. A couple of attempts to express these benefits in a functional form are cited below.

In his investigation of the importance of excess industrial capacity, and reasons of its existence in developing countries, G. Winston[13] studied West Pakistan. He suggested that capacity utilization can be manipulated by economic planning. As a policy variable similar to savings, capacity utilization influences the rate of growth. Winston uses the Harrod-Domar framework and he ignores population growth rate as well as the effect of economies of scale. He proceeds as follows:

$$g = \frac{s}{k}$$

where g = percent growth of output per annum

s = marginal propensity to save

k = incremental capital - output ratio or marginal capital - output ratio.

Writing $r = \frac{1}{k}$, g becomes $g = rs$

where r is marginal output-capital ratio.

If the rate of utilisation of installed capacity (K) falls, incremental capital-output ratio (k) will rise while its inverse, marginal output-capital ratio ($r = \frac{1}{k}$), falls. This implies that the growth rate ($g = rs$) will fall if capital is not used fully.

From this finding, the following statement can be made :

> "If capital stock is used h (where h is positive but less than unity) proportion of the time, the utilization adjusted output-capital ratio - the one that actually would be required at the hypothesized level of utilization of capital stock - is hr and the rate of growth (g')

becomes $g' = hrs$"

But $g' = hrs$ is less than $g = rs$. This relationship implies that "any underutilization of capital must either force a reduction in the rate of growth or must be offset by a reduction in current consumption (or equivalently an increase in marginal propensity to save) or by an increase in capital productivity."[14]

Thus, the country that has used its maximum capacity to save to the fullest faces a lower growth rate with capacity underutilization than it would have with full utilization of capacity.

Similar conclusions have been reached by C.L. Schultze and others in their investigation of the influence of capacity utilization rates on the behaviour of investment, prices and productivity. They have stated that:

> "Capacity utilization rates are involved in the determination of investment, consumption and price level, albeit - ... - in an exceedingly complicated way" 15.

This finding implies that capacity utilization rates impact upon short-run economic behaviour through its effect on movements of prices and productivity which in turn affect the share of income going into profits, and hence changes the savings rate and hence the size of the "multiplier". Therefore, the level at which the available resources are utilized should be a major concern of all governments, if society has to benefit substantially from industrialization.

3.2 Capacity underutilization in developing countries:

Commentators on developing countries' economies offer illustrations about the existence of widespread capacity underutilization. For instance, in their book on Employment Policies in Developing Countries, Mouly and Costa have enumerated cases of underutilization of industrial capacity in developing countries of Asia, Africa and Latin America. Utilization rates in these countries range between 20 per cent and 85 per cent with most of them near the lower limit. The consequences of these low utilization rates include

> "... unnecesarily high unit costs of production leading to high selling prices, which in turn mean restricted domestic sales and lack of competitiveness in foreign markets. They (sometimes) result also in low rates of profit in such firms and consequently low rates of re-investment"[16]

Low re-investment rates suggest that under-utilization of resources slows down both economic growth and job creation.

3.3 Capacity underutilization in Kenya:

In Kenya, as in other developing countries, there is capacity underutilization in the manufacturing sector. This phenomenon and its implications have been commented on by the International Labour Organization's (ILO) 1972 report on Kenya.[17] The comment was based on preliminary results of a special survey covering firms employing 50 or more persons in 1971. The report states that capacity underutilization is not widespread. But if utilization was raised to the firm's preferred levels, gross domestic product of the manufacturing sector would have increased by eleven percent. The report goes on to state that:

> "if capacity utilization rates were raised to 140 hours or 168 hours a week, the sector's gross domestic product would have been 100 per cent and 135 per cent higher, respectively."[18]

From her intensive research on capital utilization in Kenya manufacturing sector for reference period 1971, M.A. Baily [19] concluded that there was underutilization of installed capacity. Her findings agree with those of ILO[17] of the same reference period.

Officially, the Government of Kenya recognizes the existence of unutilized capacity in manufacturing and other sectors of the economy and the negative effect of unused installed capital assets on future economic development when it states that:

> "It is important for future development that the private sector as well as the Government make every effort to increase capacity utilization." 20

3.4 Capacity utilization in individual sectors:

The capacity utilization rates referred to above are aggregated for the manufacturing sector. Among industrial activities there is some variation. For instance, in Burma in 1962-63 capacity utilization rates for vegetable oil extraction plants was 20 per cent and for certain food processing factories it was 85 per cent.[21] A second illustration comes from Kenya's manufacturing sector. According to the ILO[22] 1972 report on Kenya, the lowest utilization rates (working 48 hours or less a week) were found in food, beverages, tobacco, furniture and fixtures, paint etc. industries. Only in twelve out of the 44 industries covered were actual utilization rates considered satisfactory at 140 hours or more per week. The twelve industries included bakery products, sugar, knitting mills and cement. More recently (1982/83) Dr. P. Coughlin has found that foundries and metal engineering workshops use only 23 and 34 per cent, respectively, of their installed capacity.[23]

3.5 Capacity utilization in the vehicle assembly industry:

In his study of the New Zealand motor car industry Rose has found that

> "The New Zealand assembly industry customarily operates on a single (eight hour) shift, with overtime, basis. In this, it conforms to practice in most of the smaller scale motor industries including that in Australia.[24]

This quotation suggests that underutilization of installed capacity is not confined to the very young developing countries of Asia, Africa and Latin America but it extends to more advanced countries such as Australia.

In Argentina only 62 per cent of capacity in the vehicle manufacturing industry was used in 1968.[25] In New Zealand, the vehicle assembly industry used 70 per cent of its capacity in 1967. A few smaller firms utilized even less of their capacity.[26] This conclusion was based on one eight-hour shift plus overtime and took planned or normal capacity to be 80 per cent of technical capacity.

3.6 The benefits of higher capacity utilization:

Increased capacity utilization would raise output, labour productivity and employment creation and would lower fixed as well as total per unit production costs.

To quantify the effect of higher capacity utilization on unit costs of a vehicle assembled in New Zealand, Rose[27] proceeded as follows:

(a) He classified total assembly costs into

(i) variable costs which were composed of vehicle kits, local components etc.

(ii) fixed costs such as interest, rent, depreciation etc.

(iii) manufacturing surplus which is the difference between selling price of a vehicle and its production cost.

(b) He then raised utilization rates progressively from 60 per cent to 70 per cent, 80 per cent, 90 per cent and 100 per cent, and at each level he computed fixed costs, variable costs, the manufacturing surplus as well as the wholesale price.

His findings were that per unit fixed costs which represented 8.6 per cent of the value of the vehicle at 60 per cent utilization level fell to 5.2 per cent at 100 per cent utilization level. This represents a drop of 3.4 per cent in unit cost of a vehicle, which, under competitive conditions may be passed on to the buyers in full or in part.

Other benefits of higher capacity utilization include creation of new employment opportunities which in turn permits a finer division of jobs, enhances workers' skills and raises labour productivity.

3.7 Gains from capacity expansion:

A reduction in unit production costs, new job opportunities and other benefits can be obtained if production capacity is increased to meet new demand. International literature suggests that significant economies of scale would be realized upto a capacity of 100,000 units per annum.[28] This level has already been surpased in some developed countries.

For the benefit of developing countries, the experience of developed countries in reaping gains from expansion of capacity has been expressed in the following exponential form by Haldi and Whitcomb:[29]

$$C = a\,x^{b}$$

where C = cost

x = capacity (or maximum) output

a, b are parameters.

From an estimate of 32 fits an average value for parameter b was found to be - 0.678, implying that each doubling of plant size will reduce average and marginal operating costs by 20 per cent over the range of output studied. A sample of the New Zealand vehicle industry similarly found that unit production costs would fall by 12½ per cent at each doubling of capacity.[30]

4. Lagging employment growth in developing countries:

4.1 Introduction:

The low job creation in developing countries is explained by product choice, factor price distortions and the multinational corporations' policy. More appropriate techniques would ameliorate this employment output growth lag.

4.2 Low job creation in developing countries:

Employment growth lags far behind output growth in developing countries including Kenya.

Developing countries of Asia, Africa and Latin America achieved a mean annual growth rate of 7.3 per cent in industrial production and only 3.2 per cent for employment in the 1960's.[31] Kenya, too, experienced an employment - output growth lag during the same period. For instance, in its 1972 report, the ILO mission to Kenya observes that

> "During 1964-70 the growth in output in the enumerated sector was about 8 per cent per annum against an increase in employment of under 4 per cent per annum..."[32]

In his paper on labour absorption in the Kenyan manufacturing sector, J. Weeks concludes that the sector has not performed as badly as some people opine.[33] Furthermore, capital intensity in the Kenyan manufacturing sector may not be higher than in other developing countries. H. Pack, in a paper on employment and productivity concludes that capital intensity in some manufacturing activities in Kenya, though not the lowest, is lower than the mean for India, Israel and Japan.[34] If, however, Israel is removed from the computation of the mean, Kenya's capital intensity is pushed up above the mean in the paint industry and remains below, in the cotton and textile industries.

Maize grinding and concrete block making in Kenya show a wide range of techniques; some labour intensive and some mechanized. The newer machinery, especially in maize grinding, have much higher capacities, and are thus more mechanized than the older techniques.[35]

In his Kenyan study covering 42 plants in food processing, paints, show polish, soap, shoe production, cement production, metal, plastic containers and home toiletries, H. Pack[36] found that

(i) techniques in use are more labour - intensive than those found in developed countries.

(ii) The scope for labour substitution is wider in the auxiliary activities such as material receiving, material handing, packaging and storage.

(iii) The managers of the plants thought that local labour costs would have to triple before greater automation was considered.

(iv) Managers with technical qualifications were able to adapt techniques and achieve higher productivity from disembodied technology.

These findings suggest that, although Kenya's industrial sector employs techniques that have given rise to lagging aggregate employment growth, individual activities use a mixture of techniques.

In the vehicle assembly industry in developing countries, employment trails behind output growth. This is illustrated by the Argentine vehicle manufacturers and assemblers. Table II.1 refers.

TABLE II.1

VEHICLES PRODUCED AND EMPLOYMENT IN ARGENTINA: 1956, 1959 AND 1965.

Year	Output[a]	Employment	Average Annual Growth Rates		Ratio
			Output	Employment	
1	2	3	4	5	6 = 5÷4
1956	5,900	3,700			
1959	32,800	11,600	75 %	46 %	0.61
1965	195,000	34,600	35 %	17 %	0.49
1956-65	..	..	46 %	28 %	0.61

Source: Consejo Nacional de Desarrollo, Argentina, in Jack Baranson, Automotive Industries in Developing Countries, p. 46.

a : Output refers to vehicles assembled or manufactured.

The number of vehicles produced in Argentina grew faster than employment between 1956 and 1965, yielding an overall employment - output elasticity of 0.61.

4.3 Reasons for lagging employment growth:

4.3.1 Introduction:

Lagging employment growth can be explained by the productivities of capital and labour, product choice, factor price distortions, multinational corporations' policies and choices of techniques.

4.3.2 Productivities of factors of production:

Fast growth of labour and capital productivities can be achieved while employment stagnates because of the techniques used and quality of management and workers. This is so because, techniques transfered to developing countries are often labour-saving. Newer techniques are even more labour-saving and thus raise the productivities of the factors of production at the expense of more employment. Furthermore, if the existing factors of production were not fully utilized within the existing working practices, more output could be achieved with effective cooperation between managers and workers. Skilled managers can install inexpensive innovations and achieve higher productivity from the existing factors of production. For example, Pack[37] found that a manager of a Kenya plant was able to raise the productity of a worker by making two processes converage on him. The same source cites the case where an internally generated cheap innovation in fruit processing, led to a four-fold labour productivity rise. These illustrations show that productivity can rise with no increase in employment and this introduces an employment - output growth lag.

4.3.3 Product choice:

If the product chosen has to meet international brand-name quality standards the method used has to be capital intensive. For instance for Kenya's brand-name toilet soap and detergents, manufacturers use methods that are 50 per cent more capital intensive than local handmade soap.[38] Less jobs are created with more capital-intensive methods of production than with less capital-intensive techniques.

Furthermore, the complexity of production processes and the need to minimize per unit costs results in highly automated methods. For example, the vehicle component industry produces a vast number of parts including forgings and castings.[39] Each component is manufactured from different raw materials of strict uniformity. Hence, quality control has to be in-built in machines. Additionally, to minimize per unit costs and thus maximize profits, high production volume is necessary. This is achieved with long production runs which use conveyor belts rather than manual handling. Thus fixed capital is substituted for labour, and this increases the capital intensity of production processes. These methods are often transfered to developing countries intact, increasing the capital-labour ratio there. This results in increased labour productivity and largely stagnant employment.

4.3.4 Factor price distortions:

Cheap capital and expensive labour increases the capital intensity of production and thus reduces the demand for labour. Capital scarce developing countries have to attract investible funds by offering incentives to foreign investors. The incentives include low or no duties on imported machinery, easy repatriation of dividends and other earnings and of expatriate workers' salaries, control over sources of inputs and responsibility over choice of management. This cheapens capital and also makes foreign investment very profitable and allows room for illegal repatriation of profits through transfer pricing. This makes capital more attractive to investors and thus discourages labour creation.

Additionally, although wages of indigenous workers are low, trade union action to raise wage rates increases labour costs in the long run. This would discourage the demand for labour..

More importantly, production may be disrupted through strike action if other methods fail to resolve a labour dispute. This encourages a reduction of the number of labourers to "manageable levels." Capital is thus substituted for labour and employment falls, though productivity rises.

Widespread unemployment in developing countries encourages governments to devise policies for raising wage employment. In this connection private firms may be asked to increase their employment by a certain percentage. For example, in 1978, the Government of Kenya requested all employers, public and private, to increase their employment by 10 per cent.[40] Similar requests had been made in 1964 and 1970.[41] But firms would wish to decrease vulnerability to increases in labour costs by choosing labour saving technology.

4.3.5 The multinational corporations' policy:

Multinational corporations aim to maximise global profits. They achieve this by minimizing costly technical adjustments,[42] raising labour productivity, and substituting capital for labour etc. But these efforts may conflict with a developing country's governmental policy. For instance, an executive of a multinational subsidiary operating in Kenya said

> ".... It's acorporate objective... Labour costs are insignificant here - labour costs plus actual benefits are less than one per cent of variable costs. And on that basis we spend an inordinate amount of time searching around for labour reductions. But this is a thing we are expected to do and if I don't do it in my job, then I am not doing my job right, so far as (the head office) is concerned. So, basically it's an objective which is in conflict with what this country needs.[43]"

4.4 Choice of appropriate technology:

4.4.1 Introduction:

Selective importation of new or secondhand machinery and adaption of modern ones could reduce the employment - output growth lag. But for exporting, automated plants are necessary.

4.4.2 Labour-intensive techniques for domestic production:

Small plants are sometimes more appropriate in developing countries. This is so because domestic markets are small and can be adequately served by small plants. Furthermore, the plants may not demand expensive and highly skilled managers. Additionally, small plants are definitely more labour- using than larger ones and labour is cheap. Hence small plants are economical in developing countries. The small plants can co-exist with larger ones, as in Argentina. In that country, numerous small ancillary firms get sub-contracts from larger parts manufacturers.[44] These small Argentine firms are inefficient by world standards but this does not suggest that small firms must be inefficient. For instance, a simple power tiller designed for small to medium scale production was produced and marketed at half the price of comparable imported designs in the Philippines in the early 1970's. Furthermore, existing manufacturers did not require any additional fixed capital to produce the tiller.[45]

Secondhand plants are expected to suit developing countries quite well. This is so because older plants are usually smaller and less automated than the more modern ones. But the purchase price, possible unavailability of spare parts and the expected short life of the machinery may make such plants unattractive. However, secondhand plants have often been transfered to developing countries.[46]

It is, however, not easy for developing countries' entrepreneurs to obtain suitable secondhand machinery because the market for such technology is imperfect. Foreign companies are in a better position to locate and implant labour-using techniques some of which are in use and others long discarded. For instance, an American firm, Business and Industry Development Company, set out to "standardize, package and sell small universally needed industries to underdeveloped countries."[47]

The company has since collapsed but the idea is still sound.

Conversion or adaption of automated techniques to suit local labour abundance is possible. For instance, a US affiliate assembling vehicles in Latin America substituted labour and general purpose tools for some specialized tools (such as welding jigs). His annual output of 20,000 was very low by US standards but he suffered a cost disadvantage of only 6 per cent.[48] This shows that disceconomies of small scale can be reduced tremendously by substituting cheap labour for expensive capital equipment in developing countries.

In some cases, local persons have introduced adaptions. For instance,[49] a Thai company was able to adapt an imported air-cooled gasoline engine for small scale labour-intensive production. The local engine was able to compete favourably with imported brands produced by automated methods in developed countries. The local brand was so successful that it was later exported to Indonesia and Malaysia.

. But international companies have often kept technical adjustments to the very minimum on the allegation that adaptions are expensive and that they disrupt automated production flows. This is true for developed countries where production volumes are high. But it cannot be true for developing countries where markets are small. In fact, automated production techniques are very expensive where production runs are short. For instance, in 1968 the price of an Argentine vehicle was 122 per cent above the world market price; and 56 per cent of the difference was due to diseconomies of small scale.[50]

It is important, therefore, that developing countries obtain suitable technology. In this connection, multinational firms, international organizations, developed and developing countries have roles to play, especially in improving the ability of developing countries to acquire appropriate technology and manage production efficiently.[51] Hence, it is urgent to invest in facilities to generate the required skilled workers such as production engineers, planners and managers. Developing countries can learn from Japan's experience where modifications to high technology enabled the country to reduce diseconomies of scale drastically:

> "Japan has had considerable success in utilizing small scale parts manufacturers who employ labour at lower wages and use less sophisticated machine tools. But unlike India, Japan has

engineers and technicians to convert techniques and skilled labour force to compensate for quality and control that is not built into the machine.[52]

4.4.3 Automated techniques for export:

Small plants are appropriate for the domestic market as well as for trade with neighbouring developing countries. But, as producers gain more experience and local incomes and demand grow, the volume of production expands. Soon demand outstrips installed productive capacity necessating the purchase of additional but similar machinery. Meantime, more exporting and foreign exchange earning becomes necessary to maintain an uninterrupted flow of imports of raw materials and other goods and services. But small plants may not produce competitively high quality goods for export on the wider world market. Hence, modern methods, with in-built quality controls have to be acquired. In this connection, Baranson has concluded,

"In considering export markets it should be pointed out that automated techniques may be as warranted in manufacturing bisquits as in fabricating engine parts."[53]

But these methods sacrifice labour and they may be opposed in the short run. However, in the longer run, benefits of extra foreign exchange earned would outweigh the initial loss in employment opportunities.

Hence, with careful selection, a mixture of labour-intensive and highly authomated techniques would be appropriate for developing countries. This coexistence has been observed in Latin America.[54]

5. Foreign exchange use/saving:

5.1 Introduction:

Capital and raw material importation burdens the balance of payments positions of developing countries. On the other hand, selective importation of technology can help reduce the burden. But the impact is reduced by inappropriate marketing techniques and export restrictions. To offset the foreign exchange costs, exporting could be promoted through the cooperation of neighbouring countries and also through multinational corporations. But the existence of widespread transfer pricing makes the multinational firms operational network benefit the underdeveloped country less.

5.2 Importation of capital:

Withal, absence of capital goods industries and shortage of foreign exchange, developing countries have to attract foreign investors. These respond through direct investments, joint ventures or licensing. These arrangements are often expensive in foreign exchange. For capital raised abroad, dividends have to be paid. If foreign loans are raised, loan repayments and interest have to be remitted in addition to dividends. Even if loans are raised locally, profits have to be repatriated to foreign equity holders. Other expenses remitted abroad include royalties, consultancy, head office overheads, head office research and development and expatriates' salaries. For instance, in 1968 royalty and consultancy payments made by developing countries were estimated at US$ 1500 million, which was 5 per cent of all non oil exports. This amount was expected to grow.[55] For individual developing countries such remittances were quite high. For instance, in Kenya, two major soap multinational subsidiaries were estimated to have transferred to U.K. £ 620,000 in dividends, royalties and fees between 1972 and 1973. This represented 58 per cent of parent company equity and loan capital invested in the subsidiaries or 5.6 per cent of gross sales of these two firms.[56]

5.3 Importation of raw materials:

Agreements covering investment packages in developing countries often restrict sources of inputs to approved foreign suppliers. Such restrictions, as expected, are more frequent and explicit in technological transfers to independent firms than to subsidiaries. UNCTAD, for instance, found that in India and the Philippines 20 per cent and 58 per cent, respectively, of transfers of technology to independent firms were tied. This compares with "10 per cent for both wholly owned subsidiaries and minority equity in India" and "9 per cent for wholly owned subsidiaries and 25 per cent for minority equity in the Philippines" for the same period.[57]

Sometimes, such agreements are reinforced by production methods and products chosen. For instance, in the Kenyan soap manufacturing industry, machine-made soap is more import-dependent than hand-made soap. In this connection Langdon says that:

> "Machine-made soap uses far more tallow relative to vegetable oil than hand-made soap does, and since local supplies of tallow are more restricted than local supplies of coconut oil, mechanization inevitably increases the import content of inputs".[58]

Furthermore the product chosen may demand that inputs be obtained from plants not found in the country. For example, inputs into the manufacture of detergents "must come from a largescale chemical industry, which doesn't exist in Kenya; whereas most inputs for basic laundry soap .... are simpler to produce and can be obtained locally"[59]

The same source also suggests that internationally branded products often rule out local supply.

In the vehicle assembly industry, the import content is very high. This is so because the landed value of a completely knocked down kit is close to that of a completely built up vehicle. Secondly, the import content of locally procured items is high partly because sources of raw materials or components are sometimes tied to foreign suppliers approved by the principal. Furthermore, the high quality needed for raw materials and the complexity of production processes for the numerous components that go into a complete vehicle dictate importation. Other remittances made abroad include license fees, royalties, loan repayments, interest payments, expatriates' salaries and dividends.

Hence if a newly industrializing country hopes to save foreign exchange through the import substituting vehicle assembly industry she will most certainly be disappointed. For example, Argentina planned to expand her annual vehicle production from 32,800 in 1959 to 195,000 in 1965 - without increasing the foreign exchange much beyond the 1959 level. However, the actual burden rose from about US $42 million in 1959 to about US $ 126 million in 1965. The amounts include the import content in locally sourced components plus some US $40 to US $50 for remittances of earnings.[60]

The cost structure of a vehicle assembled in a developing country further amplifies the dependence of the vehicle industry on imported content. For instance, 1959-60 inter-industry study of 110 industries in New Zealand revealed that the motor industry is the most import - dependent industry in that country. The industry's import content was 65.5 per cent.[61]

5.4 Selective importation of technology:

The cost of technology transfer could be reduced and its impact on developing countries' economies enhanced if technology transfer contracts were subjected to strict examination.

The current wholesale importation of technology could be curtailed if developing countries' governments require national registration of all contracts before they are implemented. Before registration is approved, each contract should be examined for clauses that may unnecessarily increase cost to or dependence by the transferee.

In countries where national registries exist such as Mexico, India, Argentina, Colombia, South Korea, undesirable contracts have been rejected and others have been modified, resulting in savings of foreign exchange, increased exports and tax revenue and cheaper capital equipment.. More importantly, this has encouraged the development of more discriminating and aggressive entrepreneurs in some countries. These gains are illustrated by the experiences of Mexico and Colombia.

1. Mexico: Stewart has said that

> "Since the law came into effect in 1973 the registry has examined 4,600 agreements, 35 per cent were rejected for excessive payments or restrictive clauses, 60 per cent were rejected if one excludes majority foreign-owned subsidiaries".[62]

Of the total rejections by the Mexican registry, the most frequent reasons for refusal are tabulated below:

	Reason	As a per cent of contracts rejected
a.	Excess or unjustified payments	68.5
b.	Excessive duration of agreements	31.6
c.	Prohibition to use non-patented technology or to manufacture goods at the end of the agreements	30.7
d.	Submission of agreements to foreign laws or courts	18.5
e.	Grant-back clauses on innovations produced by licences	16.8
f.	Export restrictions contrary to the interest of the country	14.5

According to UNIDO, this policy has

> "produced a growing consciousness among Mexican entrepreneurs who have understood better the importance for productivity and profits of obtaining full information on technological alternatives, conducting careful evaluation and selection of products, processes, licensors and negotiating terms of contract, from the strongest possible position".[63]

2. Colombia:

During the period 1967 to 1971, 395 contracts were examined, out of which 61 were rejected. The other 334 had to be renegotiated and modified before they were approved. This exercise led to a 40 per cent reduction in proposed royalties. Besides, the country prohibited tax deductions for royalties and put a ceiling on royalty payments.[64]

The Mexican experience shows that a strict selection of technology imports can reduce the local entrepreneur's production costs. The extra profits made plus continued government "protection" from foreign technology suppliers will enable the entrepreneur to be innovative and thus further reduce the dependence on foreign packaged technology. Other developing countries can learn from this. They can also learn from the experience of the now developed countries such as the USA and Japan.

In the USA, entrepreneurs very selectively imported foreign technology from countries such as the United Kingdom. In this connection W. Barek and G. Ranis say that the U S was:

> "highly discriminating in borrowing patterns and highly selective in uses to which imported technologies were put". 65

The success of the US stemmed from a domestic abundance of skills and other resources, which are lacking in the present day developing countries.

Japan offers a different approach to technology transfer and local capacity development. While in the US only private entrepreneurs were involved in the selection of technology, the Japanese Government had to regulate and restrict technology imports. It did this "ruthlessly" during the 1950's and sixties, and at the same time "promoted local technological capacity by education and learning by doing".[66]

But developing countries face major problems in regulating technology transfers. This is so because licensors can enter into informal agreements with licensees on certain unwritten obligations. These cannot be detected at all. Secondly, interest groups can thwart developmental goals. For instance, US companies, the US Government and local politicians worked together in Mexico to break a near to monopoly position of a Mexican company, resulting in the US domination of steroid hormone production. The following quote from G. Gereffi refers:

> "The near monopoly position of a successful national firm in steroid hormone industry, which led in research and development, was broken as a result of strong protestations by US companies and pressure from the US Government. As a result, shortly after, the industry was dominated by foreign subsidiaries which secured the plant barbasco(sic) on terms which meant that much of the rent from this rare plant was taken out of Mexico. Later, government attempts to regain control of the industry for Mexican firms failed partly due to political opposition". 67

Despite the strong opposition from powerful interest groups and shortage of resources, developing countries stand to gain, if they went ahead and imported technology only if it complimented the available local capacity. In this connection Stewart[68] suggests the following policies:

- centralized purchase of technology imports,
- compulsory registration of contracts,
- promotion of local consultancy firms for unpackaging technology,
- exclusion of patent requirements for certain products.
- abolition or heavy taxation on trade marks,
- limits to advertizing, and
- improved scientific and technical infrastructure for industrial research.

.5 Marketing techniques:

In developing countries, goods that satisfy sic human needs have a larger market than goods anded by the high income groups. But the purchasing er of the majority of the people is low and profit gins on the commodities which they buy are not h. Hence, foreign firms do not aim at capturing s market. They instead prefer to cater for the all high income group - market where profit mark are high. The firms then resort to using brand es, expensive packing and heavy advertizing to tain or expand their market shares. For instance, a's soap industry differentiates detergents and et soaps through colouring and packing. This s to high change-over costs. But a high rtizing bill of approximately 6 per cent of al turnover helps to raise sales and profits. l firms spend less than one per cent on advertizing.[69] d name loyalty also increases import dependence.

Export restrictions:

As part of a strategy for maximising global its, multinationals restrict competition between liated companies. Hence the agreements between ts and subsidiaries often prohibit exporting de certain boundaries. The experience of the

Andean Pact members shows that such prohibitions appear in the majority of such agreements since out of:

> "all contracts examined, 77 per cent in Bolivia, 77 per cent in Colombia, 75 per cent in Ecuador and 89 per cent in Peru contained a complete export prohibition".[70]

Worse still, the same source shows that for indigenously owned firms, prohibitions reached 92 per cent. Furthermore, such prohibitions did not differ much among the sectors covered.

Export prohibitions are however, relaxed or are absent from 'processing' industries such as agricultural-based and mining firms. In these cases subsidiaries have a higher chance of entering the export market than indigenous firms.[71] This implies that export oriented subsidiaries are integrated in the world-wide marketing network of multinational corporations. Langdon finds evidence of this in connection with subsidiaries operating in Kenya when he observes that:

> "export oriented subsidiaries were the most tightly controlled of producing subsidiaries".[72]

5.7. Export promotion:

5.7.1 Introduction:

Exporting to the wider world market is difficult for developing countries. But the international corporations' world-wide operational networks could be utilized to promote exports. However, the existence of transfer pricing makes the international corporations' network less attractive.

5.7.2. Sale of developing countries' products on the world market:

The high cost of production, resulting from diseconomies of short production runs and from high protection of both the vehicle assembly and the ancillary industry make the vehicle assembly industry uncompetitive on the export market. For instance, exfactory prices of a light truck manufactured in Argentina, Brazil and Mexico were, respectively, 2.5, 1.7 and 1.6 times the United States' prices in 1967.[73] Consequently, the gap between the value of imports and exports of a developing country vehicle assembly industry remains very large. Mexico illustrates this. In 1968, vehicle parts and components imported by Mexico were US $ 200 million while exports of all automobile parts were a mere $ 13 million. In 1969 exports were nearly $26 million.[74]

5.7.4. The multinational corporation's network:

The multinational company's worldwide network can be used with significant benefit to the developing country. The potential for the exchange of parts and vehicles between countries or sister companies is illustrated by regional vehicle markets, export of components and vehicles between sister companies, barter arrangements and specific production for the export market.[77]

5.7.5. Regional vehicle markets:

Some international firms have used affiliates as centres for serving regional markets as illustrated below:

(i) Chrysler has chosen to manufacture right-wheel drive vehicles in Australia for sale to the Commonwealth market.

(ii) Daimler-Benz exports buses from India to South Vietnam, Lao and Malaysia.

(iii) Renault has designed a new car adapted for rougher roads, poor servicing facilities for production in Brazil, for export within and outside Latin America.

5.7.6. The export of components and vehicles:

Firms located in developing countries sell components to affiliates in other foreign countries and thus earn foreign exchange. A few examples follow:

(i) India supplies fuel injector nozzles and pump elements to a German manufacturer.

(ii) Egypt supplies Fiat in Italy with housings for railroad car bearings on a barter basis.

(iii) Brazil sells injection pumps, spark plugs and insulators to India and Germany.

(iv) Yugoslavia expanded her market for automotive components through agreements with Poland, the Soviet Union and Rumania.[78]

(v) Fiat (Italy) undertook to export Yugoslav vehicles worth US $5 million every year in addition to meeting design and research needs of the Yugoslav subsidiary.[79]

(vi) Through an increased exchange of automotive parts between USA subsidiaries in Canada and their parents in USA, trade between the two countries expanded tremendously and the Canadian trade deficit was reduced from US $ 612 million in 1964 to US $ 435 million by 1968.[80] This was possible because the two governments and three major American producers implemented their 1965 agreement that:

(a) Tariffs on components and vehicles manufactured in either country be removed.

(b) The present ratio (1964 or 1965) of Canadian production to vehicle sales be maintained.

(c) Canadian value added be increased by specified amounts.

(d) The companies make quarterly reports to the Canadian minister for industry.

5.7.7. Barter arrangements: [81]

Barter arrangements between developed and other developed countries, between developed and developing countries and between developing and other developing countries exist and are illustrated below:

(i) An arrangement between Sweden (Volvo) and Norway where proceeds from castings bought in Norway would help pay for 3,000 imported heavy trucks worth about $ 3 million in 1959.

(ii) Yugoslavia ships locks, cables and window rollers to Spain in return for Spanish made Citroens.

(iii) A Perkins affiliate in India imports bearings and pistons from Yugoslavia to avoid hard currency expenditure in the U.K.

5.7.8 - Production for export:

Efforts have been made to manufacture components for export. For instance, an Indian affiliate of an American diesel manufacturer has plans to expand production to also meet the parent company's international demand for 10,000 crankshaft units. The export earnings would help meet the 30 per cent import content in the crankshaft manufacture.

These examples do not offer the data necessary to gauge their economic and commercial importance. However, they show that there are avenues through which small domestic markets can be expanded into much larger markets through exporting to thus realize economies of large scale and reduce the net foreign exchange use.

But the experience of developing countries regarding the contribution of multinational corporations' subsidiaries to wider development in those countries almost rules out this approach.

Langdon, in his study on the multinational subsidiaries operating in Kenya has conceded that there are generally tight controls over subsidiaries' operations including exporting, by the head office, and this often discourages backward linkages, employment absorption and leads to inefficient import substitution industrialization.[82, 83] However, the observed tightness of control of subsidiaries' operations could be turned into a developing country advantage if negotiations were rigorous and were aimed at wider national developmental goals.[84] For instance, locally assembled vehicles and components can be exported to sister companies overseas, and exports would increase if the growth of exports was tied to that of imports. However, this arrangement may lead to foreign exchange losses through transfer pricing.

5.7.9. Transfer pricing:

Tied sources of raw materials, and sometimes controlled export sales, enable multinational firms to over-invoice imports to and under-invoice exports from subsidiaries. This practice facilitates transfer pricing. It is, however, difficult to estimate accurately the impact of transfer pricing. But the existence of widespread intra-firm trade, i.e. trade between a parent and a subsidiary, is suspected to allow room for transfer pricing. According to

S. Lall and UNCTAD:

> "in 1970 roughly a third of total US exports were intra-firm (and -ZM) 53 per cent of manufactured exports to developing countries was also intra-firm".85

This practice enables multinationals to transfer profits to countries where tax rates on profits are lower and thus maximise the after-tax surplus for the company. But this results in immense losses of foreign exchange by developing or high tax countries. Information on the magnitude of this burden on developing countries is not readily available. However, detailed estimates of transfer pricing have been made for Colombia and Greece, with the following results:

1. Colombia:[86]

   Between 1967 and 1970, for the studied foreign firms, over-pricing of imports was 6 times royalties paid and 24 times dividends. Overpricing was highest in pharmaceuticals where it averaged 155 per cent.

2. Greece:[87]

   A sample of metals, metal products and minerals was studied and over-pricing of imports was found to vary between 5 per cent and 85 per cent, yielding an average of 19.4 per cent. For chemicals, overpricing was higher: it

> ranged between 12½ per cent and 229 per cent, giving a weighted average of 34.5 per cent. Furthermore "for minerals, the total foreign exchange cost was put at 2½ times declared profits".

The same source also illustrates under-pricing of exports in Greece, but this was relatively lower than the over-pricing of imports. It was between 8.3 per cent and 16.9 per cent.

In connection with Kenya, the ILO Mission of 1972 was "told of cases where there was evidence of overpricing by 20 or 30 per cent"[88] for intermediate goods.

6. Backward linkages:

6.1 Introduction:

Investors in individual manufacturing industries often prefer to import inputs and this inhibits the development of local backward linkages. But unless production expands, an increase in local sourcing would raise per unit production costs, especially for the vehicle assembly industry.

6.2 Preference for imports and its impact on local sourcing:

An import substituting manufacturer may prefer to maintain well established overseas sources of inputs for various reasons:

(i) The desire to remain confident about the quality and regular supply of raw materials.

(ii) The desire to help maximise the parent firm's global profits through centralized bulk purchasing where discounts and commissions are credited to the parent company rather than the subsidiary.

(iii) There may be no other convenient and immediate (at least initially) source for inputs but the principal.

(iv) The principal may not allow a subsidiary to choose its source of inputs.

(v) The parent company or the subsidiary may not wish to incur the cost and uncertainty of developing new sources of raw materials in developing countries.

Some of these reasons may not be revealed to the Government in negotiations, because they would certainly be rejected. But lack of domestic sources of good quality raw materials would definitely guarantee that inputs be imported. This is the first hurdle. Then, negotiation on reduced tariffs on inputs and raised protective duties on the finished product follow. If these negotiations are successful, the incentive to search for and develop local sources of raw materials is removed. For example, talc, an input in the manufacture of baby powder exists in Kenya, but the multinational subsidiary concerned has no interest to develop it. A conversation which S. Langdon had with the subsidiary's top executive illustrates the point -

> "We import talc, from Italy mainly. Believe it or not, there is some in Kenya .... with a bit of technical knowhow it might be able to be developed here (sic). But we couldn't do it. We're not in that line at all". 89

6.3 Local sourcing, production volume and per unit vehicle assembly costs:

In vehicle manufacturing (in developing countries) some components are imported while others are procured locally. The share of locally purchased components in the total value or weight of an assembled vehicle indicates backward linkages to the local ancillary industry. Column 3 of Table II.2 shows the percentages of local content in a French passenger car assembled in some countries. In 1966, local content in that car was 18-19 per cent in Belgium, 19-23 per cent in Algeria, 30 per cent in Venezuela, 45 per cent in Chile, 97-99 per cent in Argentina and 100 per cent in Brazil. In the table the final cost of the vehicle appears to be lower, the higher the production, and to rise as local content increases. For instance:

(a) There is no difference between Belgian and French prices. Belgian's annual production capacity is 70,000 units and local content is 18 - 19 per cent.

(b) On the other hand, the price differential rises to 2.0 in Argentina with an annual production capacity of 24,000 units and 97 - 99 per cent local content.

(c) For Chile, the price differential is 4.0, annual capacity only 600 units, and local content 45 per cent.

These illustrations show that the local content level can only be raised without raising prices significantly if the volume of production is increased.

J. Baranson researched the relationship between per unit costs, domestic content, and installed capacity. In this, he estimated the following functional relationship:[90]

$$\log C = a + bD + e \log Q$$

where C = average unit vehicle cost; D = domestic content; Q = volume of production; a, b, and e are parameters.

TABLE II.2

PASSENGER VEHICLES' PRICE COMPARISONS BETWEEN FRANCE AND ABROAD, 1966.

Country	Firm's annual output	Domestic content (%)	Price index (France = 1.0)
1	2	3	4
Belgium	70,000	18 - 19	1.0
Spain	66,000	90 - 94	1.3
Algeria	8,000	19 - 23	1.3
Canada	5,500	22 - 23	1.5
Venezuela	2,600	30	1.6
Portugal	2,500	28 - 32	1.6
Ireland	2,000	15 - 20	1.6
South Africa	3,500	22 - 40	1.7
Argentina	24,000	97 - 99	2.0
Ivory Coast	2,500	16 - 18	2.0
Morocco	2,500	17 - 19	2.0
Madagascar	1,200	13 - 15	2.0
Brazil	15,000	100	2.3
Peru	1,200	10 - 14	3.0
Chile	600	45	4.0

Source: J. Baranson, p.16 Table 2, Price Comparisons Passenger Vehicles, France and Abroad 1966.[91]

Production data, covering a French manufacturers' subsidiaries in fifteen countries yielded the following regression equation:[92]

$$\log C = 0.309 + 0.00318\,D - 0.248\,\log Q$$
$$(0.035)\ (0.00082)\ \ (0.0413)$$
$$R^2 \text{ (corrected)} = 69 \text{ per cent}$$

The numbers in brackets are standard errors;
C is ex-factory cost of vehicles,
R^2 is the coefficient of determination,
D is a percentage of C and Q is in '000 units

The negative exponent to Q of 0.248 implies that each doubling of output results in a fall of 16 per cent in unit production cost. In other words, the price of a vehicle can be stable if domestic content is raised with appropriate increases in volume.

But in developing countries, domestic markets are small and vehicle assembly plants and the ancillary industry are often high cost and cannot compete on the export market. Ancillary products are expensive and assembly plants resist using them. Hence, to increase backward linkages either incentives have to be offered to encourage assemblers to raise local content or legislative measures have to be instituted. In 1944 the Australian Government's threat to set up a corporation to manufacture a complete car drew a positive response from several motor companies. General Motors - Holden committed itself to all but full local vehicle manufacture while three other companies agreed to increase local content progressively. More foreign exchange entitlements and more favourable tariff treatment were offered to firms increasing local content to higher levels. General Motors - Holden was the major beneficiary and subsequently dominated the Australian vehicle industry.

Legislation [93] was used in Latin America to increase local content to certain levels by fixed dates. For example, in Brazil, the required local content for heavy trucks and buses was set at 35 per cent in 1956. Four years later it was raised to 90 per cent and the following year to 98 per cent. Seventeen companies responded and eleven of them were allowed to start production. By 1969, the Volkswagen held 50 per cent of the market.[94] But its increased market share, was not sufficient to offset the high unit costs of production. The Brazilian Volkswagen cost about twice the German one.[95] Chile is another case where high local content (45%), high protection and low annual output drove the price of a locally produced French car to four times above the French price. (Table II.2 refers).

7. Deletion allowances and cost of domestic production:

7.1 Introduction:

Deletion allowances are often lower than overseas per unit production costs. Thus discriminating against local sources in developing countries.

7.2 Deletions and per unit assembly costs:

A developing country's assembly plant can assemble 5,000 units per year from undeleted knocked down (CKD) vehicle kits at only a minimal cost disadvantage compared to largescale producers.[96] But, if locally procurable items were deleted from the imported kit and the assembler's production or its utilization were not raised, per unit assembly costs would rise. One reason for this is that the deletion allowance, which is the credit given for omitting an item from a CKD kit, is lower than the overseas production cost. Furthermore, the overseas per unit production cost is lower than that of a developing country. Hence, increased local sourcing would raise local assembly costs. This would discourage a local assembler from buying local components in preference for imported full CKD kits.

7.3 Low deletion allowances:

International firms aim at maximising global profits. One way of doing this is to minimise the credit given for items omitted from a CKD kit. These low deletion allowances have been questioned by assemblers, component manufacturers and public officials in developing countries. According to Rose:

> "Deletion allowances are one of the most contentious items within the industry. Local assemblers, component manufacturers and public officials were at best sceptical of their adequacy, whilst subsidiary companies tended to uphold them". 97

Deletion allowances can be varied on purpose. For instance, they can be increased during negotiations so as to gain entrance into a restricted market. For instance, a New Zealand official wondered why late applicants for entry into that country's vehicle assembly industry , gave more favourable deletion allowances in their proposals compared to earlier entrants. Such offers of higher deletion allowances could be considered to be a price for late entry. They also suggest that more competitive conditions would yield worthwhile benefits. On the other hand, an understated deletion allowance especially between a parent company and a subsidiary is a form of transfer pricing since the implicit price of the remaining components in a CKD kit would be overstated.

J. Baranson supposed that the deletion allowances were 62.5 per cent of overseas production costs.[98] He, however, does not indicate how or from where he gets that percentage. One can only assume that it was determined during Baranson's extensive studies of vehicle assembly industries in developing countries.

Why are deletion allowances low?

Since deletion allowances are low and have a discriminatory impact on demand for locally made components,

> "Deletion allowances have been examined by official boards in Australia, South Africa and Ireland, and commented on by independent authorities. All have agreed that the deletion allowance for a component is justifiably lower than the price at which the overseas supplier offers it for general sale" 99

Rose lists the following justifications for low deletion allowances.[99]

1. "It is to be expected that the cost of producing for the large and certain original equipment market will be less than that involved in producing for the replacement market."

2. "Component manufacturers regard use of their product as an important form of advertizing, which helps direct replacement sales to their product. They are consequently prepared to price down to gain original equipment orders".

3. "The manufacturer may well incur some special costs in deleting items from a CKD pack. This is particularly likely in instances where the deleted item comprises an integral part of a sub-assembly such as an engine."

4. "The manufacturer loses the opportunity to recoup research and development costs associated with the component, specifications for which are usually passed on to local component supplier without payment of royalties."

5. "The cost of deletion is also influenced by the extent to which production has been planned around the CKD pack".

But these arguments may not fully explain the difference between the overseas per unit cost of production and the deletion allowance. First, components for the original equipment and replacement market are identical. Hence, per unit production costs should be identical too. Second, it is unlikely that the mark-ups in the more competitive original equipment market are high enough to allow a significantly lower price than for replacement parts. Alternatively, replacement parts can be priced up. But, either way, the price difference should be small. Third, it is not necessary to assemble a sub-assembly (e.g. engine) and then strip it down for export. It is possible to order unassembled parts and save on labour. The expenses for labour so saved could be used for packing the CKD kits. Fourth, it is doubtful whether specifications are given to developing countries' component producers free of charge. For instance, in 1968, the Mexican components firms paid US $ 6.5 million in royalties, or 2 per cent of value added by Mexican motor vehicle industry.[100] So, royalties are payable and they are expensive. Hence, low deletion allowances are not justified on this count. Fifth, it would be difficult to plan production for components strictly around CBU's and full CKD kits. This is so because:

(i) vehicle components are numerous and a large proportion are made by subcontractors;

(ii) some parts are more difficult to produce than others; and

(iii) parts have varying lives and replacement rates and hence have to be produced in varying quantities. For these reasons different components must be manufactured in different quantities, not in strict concordance with the number of vehicles to be made.

Thus, the price for original equipment should differ little from that for replacement parts. And the deletion allowance should nearly cover the full overseas per unit production costs. Hence, we conclude that deletion allowances are intentionally kept low to cause developing countries' vehicle assemblers to import full CKD kits.

7.4 Impact of low deletion allowances on local component sourcing:

Since overseas firms are usually more efficient than their counterparts in developing countries, a deletion allowance which is lower than the overseas per unit cost of production implies a large difference between the deletion allowance and the price of the corresponding local component. For example, in his study of the New Zealand motor car industry, W.D. Rose judged that the mean ratio between the wholesale price of locally produced components and deletion allowances to be in the range of 1.6 to 2.0 or equivalently 50 - 62.5 per cent of the local per unit production costs in New Zealand.[101] This compares favourably with the 62.5 per cent supposed by Baranson[98], and it implies that New Zealand production costs are reasonable by world standards. But in Argentina local component prices, as exemplified by the axles, carburetor, and a few forgings and castings are, respectively, 2, 3.5 and upto 5 times the prices in the USA.[102] Thus, higher local content in an assembled vehicle, may considerably increase the cost of local assembly.

This is a disincentive to the assemblers to increase sourcing of components locally. There are a number of reasons for this. First, he is adverse to paying the large difference between the local component price and deletion allowance. Second, if one of several assemblers in a small domestic market takes the lead in increasing the local content in his vehicles, he will become uncompetitive in both the domestic and export markets. Third, if increases in assembly costs are passed on to the purchaser, the demand for new vehicles would probably fall. Fourth, if conditions for importing parts are favourable or official restrictions can be circumvented, then local sourcing is discouraged.

If the price differential between deletion allowances and local component prices was reduced, higher local content levels would probably be reached. A reduction of the price differential can be achieved in a number of ways:

1. Negotiating and procuring higher deletion allowances.

2. Improving the efficiency of both the ancillary and assembly industries.

3. Forcing domestic prices down by allowing competition from imports when local producers are suspected of exploiting their monopoly positions by overcharging.

4. Pegging wholesale and retail prices to the prices in an overseas country known to be efficient. This would encourage cost cutting since higher costs could not be passed on to the buyer.

Official methods for achieving per unit cost cuts differ among countries. For instance, Argentina

> "permits imports to be counted as local content (towards the required minimum percentages for domestic content - ZM) if the cost (including duty and sales tax) is lower than the prices of domestically produced parts"103

This gives rise to more competition which may lead to the introduction of cost cutting measures in the ancillary industry.

Mexico on the other hand controls prices of local components at "no higher than 60 per cent above world levels".[104] This keeps the difference between domestic and world prices down, and it may lead to a search for economies in the components industry.

One of the price control formulas used in New Zealand pegs retail prices at 60 per cent above the United Kingdom's prices. A markup on half of the sales tax is also allowed.[105] Chile apparently does not control ancillary industry prices and so the final products are very expensive. In that country prices average four times world levels.[106]

8. Summary:

Products manufactured in developing countries are highly and often unnecessarily differentiated. This results in over-investment, short production runs, very low capacity utilization, lagging employment, heavy use of foreign exchange and limited backward linkages. But there are economic benefits from reducing unnecessary differentiation. One such benefit is more employment due to increased backward and forward linkages. In fact, employment could be generated, foreign exchange minimized and backward linkages increased, if the selection of technology was stricter. But this is not easy because the market for technology is imperfect. Furthermore, in the vehicle assembly industry, since the components need to be high quality this limits the choice of technique of production. This results in expensive components (because production runs are inefficient) which -- coupled with low deletion allowances -- discourage demand. However, rapid increases in the local content in vehicles can be reached but at a high cost. But high production costs discourage exports, unless assisted through inter-government cooperation as well as the multinational corporation's network.

CHAPTER III

TESTING OF HYPOTHESES

Introduction:

Several developmental issues relating to the manufacturing industries in developing countries were identified in the review of literature. These issues concern the utilization of installed capacity, vehicle differentiation, job creation, foreign exchange use/saving, deletion allowances, management and backward linkages. The subsequent hypotheses examine these issues for the Kenyan vehicle assembly industry.

Hypothesis 1:

The vehicle assembly industry is characterized by unnecessary vehicle differentiation.[1]

Unnecessary vehicle differentiation exists in Kenya's assembly plants. This has been caused by the desire of franchise importers to maintain or increase their market shares. One result has been to create an overgrown and expensive distributive network.

Table III.1 shows the number of makes and models of commercial vehicles assembled by Leyland Kenya Ltd. (LKL), General Motors Kenya Ltd. (GMK), Associated Vehicle Assemblers (AVA) and Fiat Kenya Ltd. (FKL). Information on the fifth assembly plant, Ziba Management and Services Ltd., which was not operating during the survey period, May-September 1982, is not included. Initially (i.e. between 1976 and 1977), the first four assemblers produced 12 makes in 30 models. By May-September 1982, the plants assembled 18 makes in 94 models. Consequently, the average number of models per make rose from two-and-a-half to over five in the relatively short period of five to six years.

The vehicle assembly plants contributed differently to this proliferation of makes and models of commercial vehicles. While GMK and FKL did not increase their makes of vehicles, GMK raised the number of models from five to fourteen but FKL reduced the models by two. The other two assemblers LKL and AVA increased both makes and models considerably. LKL doubled its makes from three to six and nearly quadrupled its models from ten to thirty seven. AVA raised the number of makes from six to nine and models from nine to thirty nine.

More differentiation of locally assembled vehicles, though not necessary, will continue. For instance, GMK will soon assemble a four-by-four wheel drive jeep of American origin for contract assembly.[2] AVA is also intending to raise the number of makes and models if an import licence now being negotiated is given.

TABLE III. 1

NUMBER OF MAKES AND MODELS OF VEHICLES ASSEMBLED IN KENYA, 1976-1982.

	1st year of operation	Initially:		May-Sept. 1982:	
		Makes	Models	Makes	Models
Leyland Kenya Ltd	1976	3	10	6	37
General Motors Kenya Ltd.	1977	2	5	2	14
Associated Vehicle Assemblers	1977	6	9	9	39
Fiat Kenya Ltd.	1977	1	6	1	4
Total		12	30	18	94

Source: Survey interviews.

TABLE III. 2

COMMERCIAL VEHICLES SOLD BY DEALERS IN KENYA, 1981.

	GMK	LKL	AVA	FKL	TOTAL
Four-by-four wheel drive					
1 - 2 tonnes	44	-	180	-	224
Others	-	1553	383	-	1936
Pickups					
Half-tonne	-	-	399	-	399
1 - 2 tonnes	405	441	2772	-	3618
2 - 3 tonnes	449	214	112	-	775
Panel vans	6	18	75		99
Buses					
Upto fourteen seats	-	93	458	-	551
Over fourteen seats	22	95	6	11	134
Trucks					
3 - 6 tonnes	5	129	26	1	161
6 - 9 tonnes	790	131	379	8	1308
9 - 15 tonnes	20	38	20	59	137
Over 15 tonnes	-	-	117	12	129
Semi-truck-tractors	-	16	100	2	118
Total	1741	2728	4667	93	9589

Source: Survey interviews.

The production data clearly shows that Kenya's commercial vehicle market is highly fragmented. Sales statistics provide further evidence about the duplication of vehicles within the same carrying capacity. For instance, in 1981, only the half-tonne pickup was assembled in one plant, AVA. All other vehicles were assembled in two or more plants. In that year four-by-four wheel drive vehicles, one- to three- tonne pickups and panel vans and semi truck tractors were assembled in three plants. Buses with over fourteen seats and trucks of between three- and fifteen-tonne carrying capacity were assembled in four plants. Buses with fourteen or fewer seats and trucks of over fifteen-tonne carrying capacity were assembled in two plants. From Table III.2 it is clear that none of the vehicle categories was sold in large enough numbers to support production in more than one plant. For example, the largest assembler of four-by-four wheel drive vehicles sold 1553 units or 48 per cent of that category in 1981 while the largest producer of semi truck tractors managed 100 units out of a total of 118.

A more detailed analysis of vehicles assembled by pay load carrying capacity, assembly plant and franchise importer is presented in Table III. 3 and a full list of these vehicles appears as Appendix Table X .

TABLE III. 3

AN ANALYSIS OF VEHICLES ASSEMBLED BY CARRYING CAPACITY, MODEL AND FRANCHISE IMPORTER , 1982.

CAPACITY	GMK	CMC	SC*	DOBIE	WESTLANDS	HUGHES	RYCE	MARSHALLS	FIAT	TOTAL	MAIN DIST.
Pickups (tonnes)											
0.5 t	-	3(1)	-	1(1)	1(1)	-	2(1)	-	-	7(4)	5
1.0 t	6(1)	10(2)	-	8(1)	2(1)	2(1)	-	3(1)	-	31(7)	7
2.0 t	-	-	-	1(1)	-	-	-	-	-	1(1)	1
2.5 t	-	1(1)	-	-	-	-	-	-	-	1(1)	1
3.0 t	1(1)	-	-	-	-	1(1)	1(1)	.		3(3)	4
Total	7	14	-	10	3	3	3	3	-	43	xx
Trucks (tonnes)											
4.0 t	-	1(1)	-	-	-	-	-	-	-	1(1)	1
7.0 t	4(2)	-	-	-	2(1)	2(1)		-	1(1)	9(5)	4
8.0 t	-	4(2)	-	-	-	1(1)	-	-	-	5(3)	2
9.0 t	-	2(1)	-	-	2(1)	1(1)		-		5(3)	3
10.0 t	1(1)	-	-	1(1)	-	-	-	-	1(1)	3(3)	2
12.0 t	-	-	-	-	-	-	-	-	1(1)	1(1)	1

TABLE III. 3 Contd..

CAPACITY	GMK	CMC	SC*	COBIE	WESTLANDS	HUGHES	RYCE	MARSHALLS	FIAT	TOTAL	MAIN DIST.
Trucks (tonnes)											
13.0 t	1(1)	-	-	-	-	-	-	-		1(1)	1
15.0 t	-	-	-	1(1)	-	1(1)	-	-	-	2(2)	2
17.0 t	-	1(1)	-	-	-	-	-	-	-	1(1)	1
19.0 t	-	-	-	-	-	-	-	1(1)	-	1(1)	1
26-30 t	-	-	-	1(1)	-	-	-	-	-	1(1)	1
29 t	-	-	-	-	-	-	-	-	1(1)	1(1)	1
30 t	-	1(1)	-	-	-	-	-	1(1)	-	2(2)	2
35-40 t	-	-	-	1(1)	-	-	-	-	-	1(1)	1
Total	6	9	-	4	4	5	-	2	4	34	xx
Buses (Passengers)											
4**	-	1(1)								1(1)	1
6	-	1(1)	-	-	-	-	-	-	-	1(1)	1
9	-	3(1)	-	-	-	-	-	-	-	3(1)	1

TABLE III. 3 Contd...

CAPACITY	GMK	CMC	SC*	DOBIE	WESTLANDS	HUGHES	RYCE	MARSHALLS	FIAT	TOTAL	MAIN DIST.
Buses (Passengers)											
10	-	1(1)	-	2(1)	-	-	-	-	-	3(2)	2
46	-	1(1)	-	-	-	-	-	-	-	1(1)	1
56	-	1(1)	-	-	-	-	-	-	-	1(1)	1
52-62	1(1)	-	-	-	-	-	-	-	-	1(1)	1
62	-	2(1)	-	-	-	-	-	-	-	2(1)	1
67	-	1(1)	-	-	-	-	-	-	-	1(1)	1
62-67	-	2(2)	-	-	-	-	-	-	-	2(2)	1
68	-	1(1)	-	-	-	-	-	-	-	1(1)	1
Total	1	14	-	2	-	-	-	-	-	17	xx
Grand Total	14	37	-	16	7	8	3	5	4	94	xx

Source: Survey Interviews.

Note: S.C - Simba Colt Motors Ltd. has been combined with CMC for convenience. This table includes the Range Rover passenger car which is non-commercial, leaving 93 models rather than 94. Figures in brackets represent makes. No column totals have been allowed for makes and models because of the duplication involved. For instance, D.T. Dobie Kenya Ltd.'s ten pickup models are all of one make - the Datsun, in three size categories, which if totalled would erroneously imply three makes.

xx = not applicable

** = this is a luxury passenger car - the Range Rover.

t = tonne

Dist = distributor.

The pay load carrying capacity ranges from a half-tonne pick-up to a forty-tonne truck. The buses are capable of carrying between five and sixty eight passengers.

Pick-ups can carry between a half-tonne and a three-tonne pay load. Each is assembled in at least two plants and (except the two- and two-and a-half-tonne ones) are imported by four or more franchise dealers. The one-tonne pick-up is the most differentiated. It is assembled by GMK (in 6 models of the Chev Luv), LKL (in 9 models of the Land Rover and one of the Mitsubishi) and by AVA (in 8 models of the Datsun, two of the Toyota, two of the Mazda and three of the Peugeot). The second most differentiated pick-up is the half-tonne one which is assembled in seven models: three of the Suzuki, two of the Daihatsu and one each of the Datsun and the Toyota.

Trucks can carry an axle payload of between four and forty tonnes and a chain load of up to seventy five tonnes. The trucks are assembled at all the five plants (including the non-operational ZMS plant) for seven main franchise importers. The most differentiated truck is the seven tonne one. It is assembled in nine models: two each of the Isuzu, Bedford, Toyota and Ford and one of the Fiat. The eight- and nine-tonne trucks are assembled in five models each. Other carrying capacities, assembled in one or two models can carry four, ten, thirteen, fifteen, seventeen, nineteen, twenty six, twenty nine, thirty and thirty five to forty tonnes of pay loads.

Depending on engine size, these trucks can pull additional trailer loads. For instance, a ten-tonne main axle pay load Mercedes Benz truck can pull an additional maximum pay load of between sixteen and eighteen tonnes. Thus the truck can carry a combined pay load of 26 to 28 tonnes. This suggests that the five models whose main axle carrying capacity falls between thirteen and twenty six tonnes can be eliminated, since the size of the trailer is variable. And this is true of other load carrying capacities, implying that too many truck models are assembled.

Buses:

Minibuses and buses carry between five and sixty eight passengers and are assembled in sixteen models: seven of the minibus and nine of the bus. The six-passenger minibus is assembled in one model of the Land Rover and the nine and ten-passenger ones in three models each of the Land Rover (3 models, the Volkswagen (one model) and the Nissan (two models), respectively. But a difference of four passengers is not large enough to warrant the assembly of six-and ten- passenger minibuses. Nor is it necessary to have nine- and ten- passenger minibuses. Thus, model variety is unnecessarily large.

The 46, 56, 52-62, 67 and 68 passenger buses are assembled in one model each while the 62, and 62-67 are assembled in two models each, of the Leyland and Isuzu. Depending on the body, the number of passenger seats per bus can be varied. For instance, the 62-67 passenger Leyland bus allows a difference of five seats, while a 52-62 Isuzu bus allows a difference of ten seats. Thus, with a ten-seat difference Kenya might need just two buses with 46-56 and 57-67 seating capacities. More models would be redundant.

The duplication of vehicle distribution:

There are twelve franchise importers but only eight are listed in Table III. 4. This is because Hughes Ltd., and its subsidiary, Eastern Motors Ltd., have been combined; Westlands Motors Ltd. and its sister company, Rhino Ltd. have been taken as one; and Amazon Motors Ltd. is among dealers in Marshalls (E.A.) Ltd.'s vehicles. The Cooper Motor Corporation and Simba Colt Motors have been combined. The existence of such a large number of importers of CKD kits has

TABLE III. 4

LOCATION OF BRANCHES AND DEALERS OF MAIN DISTRIBUTORS, 1982.

	GMK	CMC		DOBIE		WESTLANDS		HUGHES		RYCE		MARSHALLS		FIAT	TOTAL	
	D	B	D	B	D	B	D	B	D	B	D	B	D	B	B	D
Nairobi	5	7	5	4	3	5	-	2	-	2	-	4	1	2	26	14
Mombasa	3	2	-	1	-	1	-	2	-	1	-	2	-	1	10	3
Nakuru	1	1	-	1	-	-	1	1	-	-	1	1	-	1	5	3
Kisumu	2	1	1	-	1	-	1	1	-	-	1	-	-	1	3	6
Kisii	-	-	1	1	-	-	-	-	-	-	-	-	-	-	1	1
Kericho	-	-	2	-	1	-	1	-	1	-	1	1	-	-	1	6
Kakamega	-	-	1	-	-	-	-	-	-	-	-	1	-	-	1	1
Eldoret	1	-	-	-	1	-	1	1	-	-	1	1	-	1	3	4
Kitale	1	-	-	-	1	-	-	1	-	-	-	1	-	1	3	2
Narok	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Naivasha	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Maralal	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Nanyuki	1	1	1	-	1	-	1	1	-	-	1	1	-	-	3	5
Nyahururu	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Nyeri	1	-	-	-	1	-	1	-	1	-	1	1	-	-	1	5
Karatina	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

TABLE III. 4 Contd.

	GMK	CMC		DOBIE		WESTLANDS		HUGHES		RYCE		MARSHALLS		FIAT	TOTAL	
	D	B	D	B	D	B	D	B	D	B	D	B	D	B	B	D
Murang'a	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Ruiru	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Meru	1	–	–	–	1	–	1	1	–	–	–	–	–	–	1	3
Embu	1	–	1	–	1	–	–	–	–	–	–	–	–	–	1	3
Machakos	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Galole	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Malindi	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Thika	1	–	1	–	1	–	–	–	1	–	–	–	–	–	–	4
Total	21	12	20	7	12	6	7	10	3	3	6	13	1	8	59	70

Source: Survey interviews.

Note: Branches and dealers include central stores and workshops. CMC includes the only three branches of Simba Colt. Simba Colt's dealers have been excluded since they deal in other people's vehicles as well.

B = Branch

D = Dealer

resulted in a duplicative vehicle distribution network comprising 59 branches and 70 dealers. The obvious reason for this duplication is that main importers compete to maintain or increase individual market shares.

According to Table III. 4 dealerships and branches are distributed over 25 towns. In most towns there are more disribution (including service) points than necessary. Nairobi, Kenya's capital city has a total of 40 or an average of four or five distribution points per main dealer. Mombasa the second largest town has 13 points. Kisumu has 9, Nakuru and Nanyuki 8 each and Eldoret seven. For the remaining towns, distribution points fall from five to four, three, two and one.

During the survey period, an executive in the assembly industry observed that vehicle differentiation is too much -

> "The range is top heavy. It is crazy. One may however accept chaos initially, for (say) three or four years, and probably achieve orderliness afterwards (after the fifth year) in a planned fashion".

If the assembly industry admits that the vehicle range is too wide, why has the industry increased the proliferation of commercial vehicles? One reason is that, franchise holders such as D.T. Dobie and Cooper

Motors Kenya Ltd., who were operating before assembly plants were established have either become assemblers like LKL or have entered into contract arrangements (e.g. Hughes (K) Ltd.) with the authorized assembly plants, to avoid being shut out of the local market when protective measures were taken. Secondly, a high level of protection has made the vehicle assembly and distribution industry very profitable and has therefore attracted more investors. This in turn, has prompted established franchise importers to introduce newer models to maintain or increase their market shares. So far this trend has continued uninterrupted by the Government.

Hypothesis 2:

Unnecessary vehicle differentiation increases per unit production costs.

Unnecessary differentiation in the Kenyan vehicle assembly industry has led to increased per unit costs due to:

(i) a duplication of investments in equipment and inventories,

(ii) low productivity of the factors of production and

(iii) the cost of launching new models.

(i) Duplication of investment:

The 94 models (or about 80 basic models, counting petrol and diesel versions of the same vehicle as one model) are too many for the small Kenyan market. The number of models could be reduced to 14 (see Chapter IV). Thus, about 66 basic models are excessive. Costs related to them are also unnecessary and they raise per unit assembly costs. An estimate of model specific capital cost has been put at KShs. 1.5 million by one assembly executive. Hence the excessive or duplicated jig sets for 66 models would be KSh. 99 million. Some of this is however, owned by franchise importers and hence does not contribute to assembly costs. But even with the exclusion of the capital cost met by franchise importers, the balance would still be excessive. Thus, capital related costs such as maintenance, depreciation and interest payments -- if the jigs were financed through a loan -- would be higher than necessary. Hence, per unit assembly costs would be increased unnecessarily.

(ii) Low productivity of factors of production:

Wide vehicle differentiation in a small market dictates assembly in small batches. Production runs are short and a lot of machine and labour time is lost through frequent changeovers. Furthermore, workers require time to set a fast rhythm in assembling new models of vehicle. This lowers the productivities of capital and labour, and raises per unit assembly costs. According to one vehicle production manager, productivity of factors of production could be raised substantially, if assembly runs were increased from the current one to three weeks to one or two months. The following illustrations were offered:

- Manhours spent on assembling a half-ton pickup would be reduced by 60 per cent.
- Manhours spent on a one-tonne pick-up, which is relatively difficult to assemble, would be halved.

- "If production runs are really long (i.e. one to two months), manhours spent on a medium truck would be reduced by 50 per cent".

Thus, longer production runs for each model would raise productivity and lower per unit costs. According to another production executive a doubling of his plant's output would lower total per unit vehicle assembly costs by 30 per cent.

(iii) Cost of a new model of vehicle:

With each new model search costs importation of prototypes, acquisition of model specific equipment etc. have to be undertaken. When model variation spreads and franchise holders increase, purchasing has to be done in smaller quantities. Larger total inventories of CKD kits and spare parts have to be held by franchise holders and agents, raising per unit production costs. Furthermore, it is often necessary to hire an expensive expatriate to launch a new make or complicated vehicle model. The expatriate has to be at the factory until assembly workers are confident enough to be left on their own. This increases per unit production costs.

We therefore conclude that vehicle differentiation substantially raises per unit vehicle assembly.

Hypothesis 3:

The vehicle assembly industry grossly under-utilizes installed capacity.

Capacity utilization levels in the vehicle assembly plants are low due to both demand and supply problems.

Measurement of capacity utilization:

The current measures of industrial capacity have been criticized and a search for more precise ones continues.[3] However, in this paper capacity utilization rates in the vehicle assembly industry have been based on physical output i.e. vehicles assembled.[4]

The levels of capacity utilization for Kenyan vehicle assembly plants have been computed from the 1981 actual and maximum output for one and for three shifts, seven days a week, with an allowance for a four-week plant servicing and maintenance period (see Table III.5). In 1981, 11,311 were assembled by GMK, LKL, AVA and Fiat together. The industry's maximum output on one shift basis, seven days a week was about 19,400 units. This gives a utilization rate of 58.3 per cent (i.e. (11311 ÷ 19400) x 100). On a three shift basis, the mean utilization rate falls to 18.3 per cent. LKL had the highest

TABLE III.5 NUMBER OF VEHICLES ASSEMBLED AND UTILIZATION RATES, 1981.

	Actual production 1981 vehicles	Estimated capacity for			
		One shift		Three Shifts	
		Vehicles	Utilization rates %	Vehicles	Utilization rates %
	1	2	3= Col.1÷ Col.2	4	5 = Col.1 ÷Col.4
General Motors Kenya Ltd (GMK)	2830	4300	65.5	15,100	18.7
Leyland Kenya Ltd. (LKL)	2800	3900	71.8	13,500	20.7
Associated Vehicle Assemblers (AVA)	5529	10,300	53.7	30,100	18.4
Fiat Kenya Ltd. (FKL)	152	900	16.9	3,000	5.1
Total	11,311	19,400	58.3	61,700	18.3

Source: Survey interviews.

utilization rate of 20.7 per cent followed by GMK, AVA and Fiat with 18.7, 18.4 and 5.0 per cent, respectively. But full utilization is normally considered to be 80 - 90 per cent of maximum capacity. It is thus clear that the vehicle assembly plants grossly underutilized their combined installed annual capacity of 61,700 units.

Reasons for low capacity utilization:

The size and structure of the domestic market, availability of imported inputs, manpower shortage, employee union demands and export restrictions have contributed to capacity under-utilization. But more importantly, lack of strict governmental planning for this industry's growth has caused its present underutilization of capacity.

1. Size of the market:

Judging from the average number of commercial vehicles (i.e. pickups, station wagons, trucks and buses) registered between 1976 and 1980 the Kenyan market is only about 9,000 units per year (see Appendix Table XVII)[5] In 1981 the local vehicle assembly industry produced 11,311 units, 9589 units or 84.8 per cent of which were sold locally as per registrations, 509 units or 4.5 per cent were exported and 1213 units or 10.7 per cent went into inventories. This shows that the assembly industry depends, almost entirely, on the domestic market. But this market is unable to absorb the output of the vehicle assemblers, even at the currently very low capacity utilization rate. Hence, the domestic market size contributes to the underutilization of installed capacity.

2. Market fragmentation:

The wide variety of models reduces labour productivity because assembly time is lost during model changeovers and workers' learning time is increased. Hence total costs and prices are increased, effective demand and output decreased and hence installed capacity is even more under-utilized. But labour productivity and the rating for installed capacity would be increased if model variety were reduced. For instance, during interviews, one vehicle assembly executive said that assembly manhours per vehicle would be reduced by 50 per cent if production runs were lengthened substantially. Another executive said that Japanese vehicles are more difficult to assemble than their British counterparts. This implies that if more British vehicles were assembled more output could be achieved within the same number of hours. Also the number of axles in a vehicle often increases manhours spent on assembly. For instance, a vehicle assembly executive told us that four wheel drive vehicles are more difficult to assemble than the two wheel drive ones. He added:

> "These double-axled trucks are so difficult to assemble that we build them to maintain good customer relationships".

3. Imported inputs:

Unavailability of imported inputs, especially when foreign exchange is in short supply, inhibits capacity utilization. One vehicle industry executive told this author that:

> "You cannot tell when your licence will be approved and you may have to wait for upto three months or more".

Another firm, Leyland Kenya Ltd., which, in September 1982 was urging its employees to retire early, indicated that the reduced availability of imported inputs contributed to the firm's under-utilization of capacity.

> "The combined effect of reduced market demand and reduced availability of licences will reduce requirements from this plant to no more than 2800 vehicles per annum from this year onwards". 6

This firm has the capacity to assemble 3900 vehicles per annum on a one-shift basis, five days a week.

4. Manpower shortage:

Leyland Kenya Ltd. indicated that it was unable to institute more than one shift and had even banned overtime because of a shortage of effective supervisors. Other assemblers did not mention this constraint.

5. Shift allowance:

Shift working would raise per unit costs because the current collective agreements give an additional 15 per cent shift allowance to the basic hourly rates. Furthermore, the agreement prohibits working on Sundays.

6. Export restrictions:

It is common for multinational subsidiaries to have their production restricted to a particular market.[7] Several vehicle dealers said that they cannot export their vehicles because of restrictions from the principals. On the other hand, one dealer thought that there was a "tremendous scope" for exporting but the dealer was not exporting at all. The vehicle assembly industry exported only 4.5 per cent of its production in 1981 mainly to neighbouring Uganda. These exports covered only 8.5 per cent of the cost of imports of CKD kits.

7. Protection and price control:

The vehicle assembly industry operates in a highly protected but small domestic market; imports of commercial vehicles have been banned. Furthermore, the price control formula used for arriving at the retail price of the vehicle is full-cost-plus-profit. Thus, the industry can easily raise prices to cover increases in assembly costs.[8] So, the Kenyan vehicle assembly plants have little incentive to keep costs down. But higher prices dampen domestic demand and reduce export competitiveness. This lowers output and thus worsens the assemblers underutilization of their installed capacity.

8. Lack of strict governmental planning for investments in the vehicle assembly plants:

Vehicle assembly capacity is excessive and contract assembling has worsened the resulting underutilization. The vehicle distribution industry is also overexpanded.

The total book value of fixed assets of the larger three plants was KShs. 96.9 million in 1971.[9] The mean capital-labour ratio was KShs. 83,800. For individual plants, capital-labour ratios were KShs. 44,800, Kshs. 68,400 and Kshs. 164,000. But just <u>one</u> of these plants would have been sufficient for the Kenyan market. Hence, the capacity in the other two plants and in Fiat and Ziba Management

Services plants represents excess investment which is currently grossly underutilized.

In authorizing excess capacity, the Government ignored recommendations of the Stamp report as well as of the assembly industry.

In 1971[10], the Stamp report recommended one heavy commercial vehicle assembly plant and at most two, for the entire East African market comprising Kenya, Uganda and Tanzania. A few years later when Kenya decided to go it alone, she intended to allow three plants. However, the first approved plant tried unsuccessfully to block the other two. Then the three plants and the Government agreed that no other plants would be allowed. But another two were soon permitted to start vehicle assembly.

Contract assembly has complicated the vehicle assembly operation and has hurt the ancillary and the vehicle repair industries. Each of the ten or so franchise dealers imports several models of vehicles for assembly (for competition on the small Kenyan market), thus contributing to short production runs and the duplication of model specific equipment. Other sources of diseconomies include duplicated vehicle distribution network, expensive inputs bought in small batches and duplicated inventory holdings. These costs plus inefficient production runs force vehicle prices up, dampen demand and inhibit the growth of local component usage.

The vehicle repair industry is also hurt because the wide variety of models lowers labour productivity, raises inventories of spare parts and increases tooling costs.

But these inefficiencies would have been avoided if the Government, through licensing, had limited the number of assemblers and franchise importers. Thus, the number of models of vehicles would have been limited, enabling longer production runs to be achieved, and hence higher productivity and higher capacity utilization.

Hypothesis 4:

Deletion allowances are smaller than the overseas suppliers' per unit production costs of the deleted items. This discourages local component sourcing.

The low deletion allowances in the Kenyan vehicle assembly industry are worsened by high overseas handling expenses, but freight savings on the CKD kit mitigates the bias against local sourcing. Nevertheless, local component prices are much higher than deletion allowances. The net impact of these is to discourage local component usage.

1. Low deletion allowances:

Deletion allowances for selected locally produced parts are lower than overseas production costs.

Table III.6 details overseas and local per unit production costs and deletion allowances plus ratios between pairs of these variables for a number of items, namely: battery, tyre, oil filter, wiring harness, soft trim, leaf springs and a pickup tray. Column 4 depicts the ratio between deletion allowances and overseas production costs for the truck battery, truck tyre and wiring harness. The ratios are all less than unity, the highest being 0.7 for the wiring harness and the lowest 0.41 for the truck tyre. These examples suggest that deletion allowances are lower than the corresponsing overseas production costs.

TABLE III.6 OVERSEAS SUPPLIERS' AND LOCAL PRODUCTION COSTS AND DELETION ALLOWANCES FOR A NUMBER OF VEHICLE COMPONENTS, 1982.

	Production cost		Deletion Allowance	Ratios			
	Overseas (KShs.) (O)	Local (KShs.) (L)	(KShs.) (DA)	DA÷O	L ÷ O	DA ÷ L	L ÷ DA
	1	2	3	4	5	6	7
Truck battery	1,100	1,467	450	0.41	1.33	0.31	3.26
Truck tyre	1,000	2,542	500	0.51	2.54	0.20	5.08
Oil filter	31	75	n.a	n.a	2.42	n.a	n.a
Wiring harness	n.a	n.a	n.a	0.70	n.a	0.10	10.00
Soft trim	n.a.	n.a.	n.a.	n.a	n.a.	0.50	2.00
Leaf spring	n.a.	n.a.	n.a.	n.a.	n.a.	0.20	6.00
Pickup tray	n.a.	8,500	2,800	n.a.	n.a.	0.33	3.04
Assembly charge	5.0[b]	13.1[c]	n.a.	n.a.	2.62	n.a.	n.a.

Source: Survey interviews

Notes: a: Oil filter prices are 1981 retail prices

b: According to G. Maxcy[11] final assembly charges are 5 per cent of ex-factory value of a vehicle.

c. Local assembly costs have ranged between 3.2 and 22.9 per cent, yielding a mean of 13.1

In support of this, J. Baranson gives the following illustration:

> "For example, for a complete kit priced at \$2,000 if 40 per cent value normally priced at \$800 were deleted only \$500 (or 500 ÷ 800 = 0.625 - Z M) might be credited as a deletion allowance. Thus, the residual price of a 60 per cent kit would be \$1,500 (in place of the \$1,200 one would normally expect). Deletion allowance amounts are often based on marginal production costs, which are well below average total costs including profit". 12

This illustration is probably hypothetical, but Baranson's wide experience [13] in this field suggests that deletion allowances are about 62.5 per cent of overseas per unit production costs. This corroborates the Kenyan evidence, presented in Table III.6.

But deletion allowances are negotiable and can be used for transfer pricing. In the Kenyan vehicle assembly industry franchise holders are responsible for bargaining for deletion allowances. However, these firms are small relative to overseas suppliers with whom they have to negotiate. Hence, local producers are unable to extract more favourable deletion allowances. For instance, one local vehicle distributor admitted that he was unable to win larger deletion allowances.

Worse yet, one foreign supplier was prepared to delete a vehicle clock from a minibus CKD kit, but would not give any deletion allowance at all!

Another principal was prepared to vary deletion allowances to help a local Kenyan subsidiary maintain competitiveness. This principal was ready to raise deletion allowances if the subsidiary became uncompetitive. This possibility for varying deletion allowances suggests that the allowances can be used for transfer pricing; an additional motive for low deletion allowances.

We can therefore conclude that deletion allowances are lower than overseas per unit production costs.

B. Impact of low deletion allowances:

The negative impact of low deletion allowances is worsened by high overseas handling charges, but ocean freight on the CKD kit is a mitigating factor. However, the net effect of these, and high local component prices discourage local sourcing.

1. Total deletion allowance:

The overseas ex-factory value of a CKD vehicle kit [14] is reduced by the total of deletion allowances of the omitted items. For vehicles assembled in Kenya, an estimate for this reduction is 3.8 per cent (see Table III.7). This estimate is based on a very small sample comprising three models of a

British pickup. Values relate to 1976. Unavailability of data has forced us to use such a small sample and old information. Deletion allowance is

$$\frac{a - b}{a} \times 100$$

where

a = full (undeleted) overseas ex-factory value of CKD kit.

b = overseas ex-factory value of a deleted CKD kit.

The simple mean of individual deletion allowances equals 3.8 per cent.

TABLE III.7 DELETION ALLOWANCES FOR THREE MODELS OF A BRITISH PICK UP, 1976.

Percent

Model	1	2	3	Mean
Deletion allowance	3.2	3.6	4.6	3.8

Source: Kenya Government.

2. The overseas handling charges on CKD are higher than deletion allowances:

But the estimated total deletion allowance of 3.8 per cent of the overseas ex-factory value of the CKD kit is eliminated completely and even exceeded by a substantial margin, by extra charges incurred before the kit leaves the port of export. This is because packing, handling and inland freight charges incurred in the overseas country are high and even exceed ocean freight. Table III.8 gives the mean percentage shares for packing, handling and inland transport charges in the overseas country, ocean transport and landed (c.i.f) Mombasa, on overseas ex-factory value of the CKD kit. These shares have been re-calculated on landed c.i.f. Mombasa value for comparison. Five pick-ups and ten trucks have been used, and the information relates to various years between 1970 and 1980 (see Appendix Table IX). Table III.8 shows that packing, handling and freight charges in the overseas country (Col. 2 rows 1 and 3) were 9.3 per cent for pick-ups and 6.8 per cent for trucks during the period. These percentages are based on deleted CKD kits. The percentages have, however, been adjusted to 8.9 and 6.5 per cent, respectively, (see column 2, rows 5 and 6 of Table III. 8) to allow for the deletion allowance of 3.8 per cent. In other words, the lower percentages are based on full CKD kits.

The estimated total deletion allowance of 3.8 per cent is much lower than the overseas inland freight, packing and other handling charges estimated at 9.3 and 6.8 per cent for pick-ups and trucks, respectively, on deleted CKD kits or 8.9 and 6.5 per cent on undeleted CKD kits.

3. Ocean freight - a mitigating factor:

Freight costs are lower on CKD than on CBU and this mitigates for local sourcing, despite higher overseas handling charges on CKD.

A CKD kit occupies much less space than a CBU thus saving freight costs. According to Rose, a CBU car occupies 9.0 measurement tonnes against 3.4 for CKD kit and per unit freight rates on CKD cargo to New Zealand are lower than on CBU.[15] But for Kenyan cargo, unit rates on vehicles are uniform. Hence, CBU freight charges are likely to be 2.647 times those on the CKD kit (i.e. 9 ÷ 3.4 = 2.647). But relevant data are difficult to come by because imports of CBU commercial vehicles have been banned to protect the local assembly industry. However, a computation made in 1973, for a large truck, shows that freight on CBU was KShs 13,829 against KShs. 4,963 for CKD kit. This implies that it was 2.786 times more expensive to ship that particular CBU than the CKD kit in that year. This ratio is nearly the same as the one based on volume occupied. For the same Kenyan truck, ocean freight raised the overseas ex-factory value by 6.4 per cent (see column 3 row 7 of Table III.8) against 17.9 per cent for CBU (row 9 same column and table) in that year. Hence, freight savings on CKD kits keep the landed value of the vehicle below that of a CBU by 11.5 per cent i.e. 17.9 less 6.4.

TABLE III.8 FREIGHT AND HANDLING CHARGES AS PERCENTAGES OF OVERSEAS EX-FACTORY AND C.I.F. MOMBASA VALUES FOR VARIOUS YEARS, 1970 - 80.

Percentage

		Ex-factory overseas	Packing and in-land freight-overseas	Ocean transport	Mombasa (c.i.f.)	Col.2 + Col.3
		1	2	3	4	5
	PICKUPS					
1	Percent of overseas ex-factory value	100.0	9.3	8.6	117.6	17.9
2	Percent of c.i.f. Mombasa value	85.6	7.9	5.8	100.0	13.7
	TRUCKS					
3	Percent of overseas ex-factory value	100.0	6.8	3.9	114.1	10.7
4	Percent of c.i.f. value	88.0	5.9	4.7	100.0	10.6
5	ADJUSTED SHARES: Percent of overseas ex-factory value:					
6	Pickups	100.0	8.9	8.3	113.1	17.2
	Trucks	100.0	6.5	3.8	109.3	10.3

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TABLE III.8 Contd.....

Percent

	Ex-factory overseas	Packing and in-land freight - overseas	Ocean transport	Mombasa c.i.f.	Col.2 + Col.3	
	1	2	3	4	5	
A SELECTED TRUCK CKD						
7. Percent of overseas ex-factory value	100.0	9.9	6.4	116.4	16.3	
8. Percent of c.i.f value	85.9	8.5	5.5	100.0	14.0	
C B U						
9. Percent of overseas ex-factory value	100.0	6.3	17.9	132.3	24.2	
10 Percent of c.i.f. Mombasa value	75.6	4.7	13.5	100.0	18.2	

Source: Kenya Government

Note: Adjusted shares have been arrived at by subtracting 3.8 per cent (or total component deletion allowance) from shares computed on deleted overseas ex-factory value of CKD (see rows for pickups and trucks).

4. Taking handling charges into account:

For the same truck, overseas handling charges are available - see column 2 and rows 7 and 9 of the same table. CKD handling charges are 9.9 per cent against 6.3 per cent for CBU; a difference of 3.6 per cent.

Hence freight savings of 11.5 per cent must be reduced by 3.6 per cent to 7.9 per cent. Thus, for that particular truck, the value of a CKD was lower than that of a CBU by 7.9 per cent. Therefore, freight savings on CKD mitigate for local sourcing.

These computations suggest that savings on freight are reduced by overseas handling charges. The reduction varies among models. For instance, two executives in the franchise importing sector said separately that, even with some deletions, the landed values of the CKD kit for French and Japanese pickups equal landed values of the corresponding CBU vehicles. On the other hand, a few importers of Japanese and British CKD kits said that there were definite savings on freight and that, landed CKD kit values were substantially lower than CBU values. But, no estimates were offered. Hence, the evidence is contradictory. However, by our computation, the landed CKD values are lower than CBU values by 16.7

per cent which is the total of freight savings (7.9 per cent), deletion allowance on components (3.8 per cent) and a 5 per cent allowance for overseas non-assembly (i.e. 7.9 + 3.8 + 5.0 = 16.7). These savings help keep down the cost difference between locally assembled vehicles and their overseas counterparts.

5. Net impact of low deletion allowances on local component sourcing:

Refering to Table III.6, Columns 5, 6 and 7, it is observed that local procurement costs are much higher than overseas production costs, deletion allowances are fractions of local procurement costs and the reciprocal of the latter, a multiple of deletion allowances. The ratio between local production costs and deletion allowances (column 5) ranges between 1.33 and 2.62 and the one between local component costs and deletion allowances (column 7) ranges from 2.0 to 10.0.

The low deletion allowances make local components appear even more expensive than they really are. This discourages local sourcing.

Furthermore, high overseas CKD handling charges exceed total deletion allowances; another disincentive for local component usage. However, freight savings on CKD kits are a mitigating factor, but they are not large enough to encourage local sourcing significantly.

We can therefore conclude that deletion allowances are lower than overseas per unit production costs. This, plus overseas handling charges discourage local component sourcing, though freight savings are a mitigating factor.

Hypothesis 5:

The number and value of local components in assembled vehicles is small compared to the imported CKD kit and has grown little over time.

One of the objectives for establishing a vehicle assembly industry in Kenya was to initiate and progressively increase the use of local components. The extent this objective is being achieved is examined below through the number and value of local components incorporated over time in the assembled vehicles.

A total of 94 models of vehicles were assembled in Kenya in 1982, from CKD kits imported from Japan, United Kingdom, Sweden, West Germany, France, Italy and the United States of America. This wide range of models and data collection problems, made it necessary to consider a small sample only. The sample included six pickups and seven trucks of Japanese, United Kingdom, West German, French, and Italian origins. The vehicles are assembled by GMK, LKL, AVA and FKL. The vehicles represent popular makes. However, the representativeness of a particular model for a given make has been limited by frequent design changes, especially for the Japanese vehicles.

TABLE III. 9

NUMBER OF LOCAL COMPONENTS USED IN ASSEMBLY, 1976-1982.

	PICKUPS		TRUCKS	
	Minimum	Maximum	Minimum	Maximum
ASSEMBLERS				
I	12	13	9	13
II	9	10	n.a.	8
III	nil	7	3	6
IV	n.a.	n.a.	n.a.	n.a.
FRANCHISE IMPORTERS:				
V	nil	2	n.a.	n.a.
VII	n.a.	n.a.	3	5
VIII	9	10	8	10
IX	n.a.	n.a.	n.a.	9
X	12	13	9	13
XIV	n.a.	2	n.a.	5
XV	6	7	n.a.	6
COUNTRIES OF ORIGIN:				
C	n.a.	9	n.a.	n.a.
D	2	13	5	12
E	6	7	n.a.	n.a.
F	9	10	3	13
G	n.a.	n.a.	n.a.	9

Source: Survey Interviews.

Note: The Roman numbers and letters are codes for assemblers, franchise importers and countries of origin of CKD kits.[15]

The usage of local components, in the locally assembled vehicle, in terms of number and value, is small.

1. Number of local components used in assembly:

There were 29 locally produced components in 1982 in Kenya. These were a very small proportion of the thousands of parts that go into an assembled vehicle. Furthermore, upto 1982, the maximum number of local components used in assembly was only thirteen (see Table III. 9). This implies that although the number of locally obtainable components is small, less than half were used in the local assembly plants.

Table III. 9 also classifies local component usage by assembler, franchise importer, and country of origin. The maximum number of local parts used by assemblers was between six and thirteen. Roughly the same range was observed for countries of origin for CKD kits. On the other hand, franchise importers exhibited a wider range of between two and thirteen components. In two instances, only two local items were incorporated. There was one case where no local components were used. But franchise importers are responsible for negotiating deletions as well as the local sourcing of components. Hence, the observed low usage of local components can be partly blamed on the laggards among local franchise dealers.

TABLE III.10

PERCENTAGE SHARE OF LOCAL CONTENT IN THE EX-ASSEMBLY VALUE OF SELECTED VEHICLES,1976-1982.

Percent

	Assembler	Country of origin of CKD kit	Importer	Year	Parts	Assembly charges	Sub-Total	All other local expenses	Total
PICK-UPS	I	D	x	1978	n.a	n.a	n.a	n.a	26.4[a]
				1982	14.4	18.6	33.0	9.3	42.3
	II	F	viii	1976	5.6	8.8	14.4	9.6	24.0
				1980	7.4	9.7	17.1	2.6	19.6
	II	C	viii	1976	18.3	3.2	21.5	8.7	30.2
	III	D	v	1979	-	-	-	15.5	15.5
				1981	3.3	20.3	23.6	10.0	33.6
	III	D	xiv	1980	5.3	18.4	23.7	13.3	37.0
	III	E	xv	1977	11.2	17.6	28.8	3.7	32.5
				1980	9.3	19.1	28.4	0.7	29.1
	Simple mean (all years)				8.3	12.9	21.2	8.1	29.3
TUCKS	I	F	x	1978	18.3	22.9	41.2	10.0	51.2
				1982	16.4	17.0	33.4	11.4	44.8
	I	D	x	1978	10.3	13.3	23.6	10.4	34.2
				1982	12.9	8.8	21.7	15.7	37.2
	II	F	viii	1980	16.1	5.9	22.0	2.3	24.3
	III	F	vii	1977	10.9	5.1	16.0	12.1	28.1
				1980	12.5	10.5	23.0	6.0	29.0
	III	D	xiv	1981	5.8	12.0	17.8	1.4	19.2
	III	C	xv	1981	7.9	5.6	13.5	8.8	22.3
	V	G	ix	1981	8.8	1.8	10.6	-	10.6
	Simple mean (all years)				12.0	10.3	22.3	8.9	30.1

Source: Kenya Government.

Note : a = 26.4 % has not been split up and has thus been excluded from the computation of the simple mean.

2. Share of local components in the value of an assembled vehicle:

Table III.10 contains the structure of local costs in the ex-assembly value of selected vehicles. Local costs include the cost of local components, assembly charges and all other expenses such as clearing and forwarding, import fee, wharfage, insurance, bank charges and interest. Together, these costs averaged about 30 per cent of the ex-factory prices between 1976 and 1982. This is a low level of local content in the assembled value of the vehicle. Assembly charges and local components accounted for between 21 and 23 per cent of the ex-factory price. Local usage of local parts, which is a more relevant measure of the localization of the vehicle had a share of only 8.3 to 12.0 per cent. For individual vehicles, the share ranged between 3.3 and 18.3 per cent. Obviously, the share of local components in the ex-assembly value of the vehicle is extremely low.

If customs duty, assembly charges and all other local expenses are assumed away, we shall be left with the value of imported and local components. Table III.11 shares out this value between the landed value of the CKD kit and that of local components, for the sample of six pick-ups and seven trucks. The

TABLE III. 11

GROWTH OF THE SHARE OF THE VALUE OF LOCAL COMPONENTS IN A CKD KIT BEFORE ASSEMBLY, 1976 - 1982.

	Importer	Year	Total %	Landed CKD %	Local parts %	Growth in local parts %
PICKUPS						
1	v	1979	100.0	100.0	-	
		1981	100.0	93.4	6.6	+6.6
2	viii	1976	100.0	75.1	24.9	
3	viii	1976	100.0	91.6	8.4	
		1980	100.0	88.9	10.1	+1.7
4	xiv	1980	100.0	89.8	10.2	
5	x	1978	100.0	65.0	35.0	
		1981	100.0	74.3	25.7	-9.3
6	xv	1977	100.0	82.8	17.2	
		1980	100.0	85.0	15.0	-2.2
	Simple average		100.0	84.7	15.3	
TRUCKS						
1	viii	1980	100.0	77.8	22.2	
2	ix	1981	100.0	86.3	13.7	
3	vii	1977	100.0	84.0	16.0	
		1980	100.0	80.6	19.4	+3.4
4	x	1978	100.0	67.6	32.4	
		1982	100.0	70.2	29.8	-2.6
5	x	1978	100.0	83.4	16.6	
		1982	100.0	78.0	22.0	+5.4
6	xiv	1981	100.0	90.2	9.8	
7	xv	1981	100.0	88.9	11.1	
	Simple average		100.0	80.7	19.3	

Source: Survey interviews

Note : Growth represents the difference between two years.

simple average for the share of local components for all the years shown was 15.3 per cent for pickups and 19.3 per cent for trucks. For individual vehicles the average share ranged between 6.6 and 35.0 per cent. On the other hand the share of the landed value of the CKD kit was 65 per cent at the lowest and 93.4 at the maximum. It averaged over 80 per cent. This shows that the locally assembled vehicle is not indigenized to any significant extent.

3. The growth of local components usage:

Table III.12 includes four pickups and three trucks for which data on local components usage was available for at least two years between 1976 and 1982. During those years, each of two importers of CKD pickup kits raised the number of local components used by one; one other importer used two additional local parts and the remaining importer stopped using one local component. For trucks, increases were by two, three and four local components. Thus, growth in the use of local parts was slight.

TABLE III. 12

GROWTH OF LOCAL COMPONENTS USAGE IN ASSEMBLY, 1976-

Number

	PICKUPS			TRUCKS		
	Importer	Year	Parts	Importer	Year	Parts
	v	1979	'nil	vii	1977	3
		1981	2		1980	5
	vii	1976	10	x	1978	9
		1980	9		1982	13
	x	1978	12	x	1978	9
		1982	13		1982	12
	xv	1977	6			
		1981	7			

Source: Survey interviews.

4. Growth of local components share in an assembled vehicle:

Out of the vehicles depicted in Table III.11, four pickups and three trucks have information on any two years between 1976 and 1982. The growth in local components share has been obtained by subtracting the share of the first year from that of the second year shown. A positive sign indicates growth and a negative one, decline. Two pickups experienced increases and the other two declines in the local components. On the other hand, two trucks exhibited increases and the remaining one, a decline. Most of these changes were small except three: pickup numbers 1 and 5 registered a rise of 6.6 per cent and a decline of 9.3 per cent, respectively, while truck number 5 experienced an increase of 5.4 per cent. These changes also suggest that local sourcing grew little during the period.

We therefore conclude that the usage of local components in assembly is small and has grown little over time.

Hypothesis 6:

The vehicle assembly industry is not aggressively searching to increase local components used in vehicles assembled in Kenya.

In most developing countries the vehicle manufacturer plays a major role in developing the capabilities of the ancillary industries for raw materials, semifinished parts such as castings, forgings, and the finished components that go into an assembled vehicle.[17] The vehicle assembly industry in Kenya should --- but does not --- play a similar role. The local vehicle assembly plants should aggressively search to improve the capabilities of the ancillary firms to make quality products and to produce more of the currently imported components.

The thirty or so locally produced parts represent only a small proportion of components that go into an assembled vehicle.[18] Furthermore, only about seven local components are used in the average assembled vehicle. Hence there is need to increase usage of local parts in assembly.

The question "Are you aggressively searching to increase local component parts in your vehicles?" was put to four assemblers and six franchise importers of CKD kits. Their answers were supplemented by interviews with the ancillary industry. The following results were obtained:

(a) None of the four assemblers interviewed namely, GMK, LKL, AVA and FKL answered in the affirmative.

(b) Five out of six franchise importers answered in the negative. The only positive answer was supplemented by the following reasons which allegedly inhibit progress:

(i) Low or non-existent local standards resulting in unacceptable quality of local products.

(ii) Uncertainty about CKD kit import licence approvals. This introduces instability in production, and limits adventure.

(iii) If an item is deleted from a CKD kit, it would be impossible to reinstate it at short notice if local production was inadequate.

For instance, orders to Japanese principals have to be placed twelve months in advance. Thus, if deletion was effected and local production turned out to be unsatisfactory, the assembly operation would be disrupted until the item was reinstated in the CKD kit. To avoid disruption, the importer may have to buy the required part from the replacement market at a substantially higher cost. For these reasons, deletions are delayed, (and sometimes deletion process takes upto eighteen months), until local supply is judged to be reliable by the assembly industry.

A local glass component illustrates the possible unreliability of supply. A glass firm, which grossly underutilizes its capacity, planned to raise the price of glass but was not prepared to guarantee regular supply.

(iv) "The import content of locally produced parts is very high and this lowers our incentive to search for more components," said an assembler.

(iv) "We have evidence where a sample turned out to be acceptable but production was faulty," said an assembly executive.

These responses question the ability of the local ancillary industry to regularly supply the quality items demanded by the assemblers at reasonable prices. The component producers, on the other hand, contended that they are capable of satisfying the vehicle assembly industry's requirements of the currently produced range of components and blamed the assemblers for being uncooperative. Three cases are cited below:

(i) One franchise importer had until recently refused to purchase soft trim locally.

(ii) A local radiator "was dropped by an assembler after an unnecessarily rigorous test by the Japanese principal," said the local radiator manufacturer. Ironically, this local manufacturer's radiators are used by one or two franchise importers as original equipment parts on vehicles assembled in Kenya. This throws doubt upon the validity of the Japanese rejection.

(iii) Local bent glass was dropped by a franchise holder.

These and other local items are used by franchise importers or their agents for the component replacement market. Furthermore, some of the locally produced items are used as original equipment parts by some franchise importers in some vehicle models, as illustrated below:

Brake fluid:

"One franchise holder brings in brake fluid for his pickup and heavy truck," says a vehicle assembly executive. But at least one other importer obtained the item locally.

Leaf springs:

This item was used selectively in three assembly plants but not in the remaining one. In one assembly plant, the component was used on one pickup and truck but not on a different make of truck. Interestingly the conforming pickup and truck are not of the same make; but the defaulting truck and the conforming pickup are of the same make.

Radiator block:

One assembler used this component on pickups but not on trucks and buses. Though a different assembler used the item on a pickup and on one truck.

Bumper bar:

One assembler used this part on pickups but not on trucks.

While one would expect individual manufacturers to demand different degrees of quality for components, it is difficult to explain why a principal would accept a component (e.g. radiator block, leaf spring or bumper bar for a pickup) and a similar but larger component for a truck of the same make.

Some local components that have Kenyan national quality standards are not used as original equipment parts at all. These include bolts and nuts, headscrews, shock absorbers, spark plugs and brake linings.

Many managers in the vehicle assembly and distribution industries admitted that they are not aggressively searching to increase the use of local components. A couple told this author that "local content is reversing" partly due to the continued introduction of new models. Another executive said

"We cannot say we are doing anything to increase local content". And yet another considered the industry "undynamic" in actively stimulating the production of local components. These findings augur well with those of Gershenberg when he concludes; "in no case did we find (mnc) firms undertaking to assist in the development of local supplies." 19

Furthermore, the assembly industry is not doing much to help the local ancillary industry to reduce per unit production costs, to improve the quality of production or to enter into new product lines to produce more of the currently imported items. Only one firm said that it has given technical assistance to a local producer - a cushion maker.

We therefore conclude that the assembly industry, even by its own admission, is not aggressively searching to increase local content in assembly.

Hypothesis 7:

Government policy and inaction has contributed to the vehicle assembly industry's failure to use more locally produced components.

The Government has allowed excessive model variety and restrictions on exports and has not challenged deletion allowances. The setting of quality standards has been left to the assemblers and the government's insistence on using local components in assembled vehicles has been weak. The price control formula has also contributed to lack of growth in the usage of local components.

Excessive model variety:

Ninety-four models of vehicles are assembled in Kenya for 12 officially authorized franchise importers. This has resulted in inefficient, short assembly runs, a duplicated distributive network and expensive vehicles. The high costs and prices dampen demand, lower production volume and thus decrease the quantity of local components used in original equipment. Furthermore, the wide variety of models forces short and costly production runs on the ancillary industry, resulting in high component prices. This discourages local sourcing in preference for cheaper imported components. But there is a dilemma. If local sourcing were raised substantially, vehicle prices would rise to uncompetitive levels and further discourage demand.

Export restrictions:

Packages for technological transfer to developing countries often prohibit exporting outside specified areas. This prevents the achievement of more economic production volumes, contributes to capacity under-utilization and gives rise to expensive products and low backward linkages.

In Kenya, most franchise vehicle dealers are prohibited from exporting by their principals. This has resulted in low exporting and has contributed to the serious underutilization of capacity. For instance, in 1981 only 4.5 per cent of total production, was exported and this share would have been smaller had it not been for extra direct orders from foreign aided projects located in neighbouring countries. If export restrictions were outlawed and franchise dealers committed to sell on the export market, then more exporting would have been possible, higher production volumes would have been reached and more local components would have been used.

Legislation hinders exporting:

Legislation also hinders exporting in that service replacement parts cannot be re-exported without an export licence. For instance, a vehicle assembly executive said

> "It is illegal to re-export service replacement parts"

But orders for vehicles often include spare parts. Hence, a separate application for an export licence for spare parts has to be made. But licence approvals are slow. Thus, if a foreign customers requires vehicles and parts together, the order may be lost.

High cost of ancillary industry:

Duplicated investment and single shift working makes the ancillary industry high cost and thus inhibits local sourcing. For instance, the radiator block making industry has two firms: Burns and Blane, which is foreign owned, and African Radiator Manufacturers, which is Kenyan owned. The locally owned company was the first to enter the industry. It acquired a Ksh. 1 million radiator tank making machine with a loan from the Industrial Development Bank Ltd. (IDB), in 1977. The radiator company anticipated orders from the assembly industry. Unfortunately, no orders were received, and the machine has been idle since its installation. The equipment is the most expensive item in the company's workshop. The company now concentrates on radiator repair work, and loan repayments to IDB are difficult to meet. Burns and Blane entered radiator production in 1978 and won orders from a couple of assembly plants. But these orders plus those of the component replacement sector were only sufficient to enable the radiator company to use its tank making equipment one day only, every three months.

All the ancillary firms visited operate single shift and this lowers the utilization of installed capacity. The inevitable result is raised per unit production costs, which discourage local component sourcing.

Vehicle model variation also hurts the ancillary industry as illustrated by the radiator industry. In this industry, there are many makes and models. But this large variety is unnecessary since it has no bearing on the efficiency of the radiator. However, it complicates tank making.[20] This is so because each model requires a special mould and a stamping die costing well over Ksh. 100,000 to make. And to satisfy the Kenyan market, 120 models of radiators would have to be made, implying low production runs, high changeover costs, low utilization levels and high unit costs. Combined, these factors would lower local component sourcing. Currently, the company produces twelve models of radiators and the other 108 have to be imported.

Deletion allowances have not been challenged by the Government:

Deletion allowances are smaller than overseas production costs and are only a fraction of local production costs. But a rational entrepreneur will not substitute a more expensive component for a cheaper one. Hence local component sourcing has been inhibited.

But deletion allowances are negotiable. The government could have challenged the competitiveness of these allowances. It could have used its power of ownership to participate in negotiations. Furthermore, it could have excluded from local assembly, those makes of vehicles on which deletion allowances were too low. No evidence is publicly available that the government has attempted to see that deletion allowances are raised.

Quality standards - the final judge:

The foreign vehicle manufacturer is legally the final judge on the acceptable quality of local components. But Kenya has a national quality standards body - the Kenya Bureau of Standards (KBS) - which is responsible for developing, registering, and enforcing local quality standards. In developing standards, KBS uses a broadly based committee and council representing manufacturers, technical institutions, consumers/users. and the government. The bureau also borrows literature on quality standards specifications from international organizations. But the vehicle assembly industry is not bound to accept the quality standards set by the KBS. The vehicle assembly industry uses its overseas suppliers to test and accept/reject local components. For instance, a local radiator and leaf spring[21] were rejected by the Japanese suppliers. Ironically, these two components are being used in the assembly of a number of British trucks and pickups. These illustrations show that foreign suppliers demand different quality levels for similar components and this delays deletions, discourages local sourcing of components and erodes the credibility of the KBS.

Weak enforcement of local component incorporation in assembled vehicles:

According to Legal Notice No. 22 of 1980, 21 locally produced items were to be bought locally. But the importation of these items, except the battery and tyre and tube, has continued almost uniterrupted. This has happened because of a number of reasons:

1. No penalties were stipulated against offenders. If a provision for heavy penalties had been made in the legal notice and was strictly enforced, the importation of locally procurable items would have been reduced.

2. Import licensing was lax and has thus facilitated the continued importation of locally obtainable items.

3. The government has not used its part ownership of the vehicle assembly industry to find out, through its directorships, whether the assembly industry pursues public objectives concerning local sourcing.

4. Delayed enforcement of local content is not limited to the vehicle assembly industry. The following quote from an executive of a subsidiary of a foreign firm suggests that if the government was more vigilant, local content would have risen faster:

> "At the moment there is no incentive. Frequently its simple to bring it in. There is no incentive... I would say that a sophisticated department within the Ministry of Commerce and Industry (currently Ministry of Industry) ought to be able to go around and assess capabilities and say, right, these pins, this hub, from now on cannot be imported it's got to be made locally."[22]

Price control formula :

The prices of locally assembled vehicles and those of the local components are controlled. The formula used for determining wholesale/retail prices is full-cost-plus-a-large percentage-profit. This formula does not encourage cost efficiency in the ancillary industry. The vehicle assembly industry is thus faced with expensive local components and hence often continues to prefer the cheaper imported ones.

A price formula tied to an efficient overseas country would not allow a producer to automatically raise the price of his product by the full increase in per unit costs. This would force the local producer to institute cost cutting measures.

We therefore conclude that government policy and inaction has contributed to the observed lack of growth in local component usage in the assembly industry.

Hypothesis 8:

The heavy dependence on imported inputs has made the Kenyan vehicle assembly industry a major foreign exchange user.

The share of the landed value of the CKD kit in an assembled vehicle is substantial and the vehicle's import content rises further when indirect import costs for locally produced components are taken into account. Thus, the total foreign exchange cost of a vehicle built from a CKD kit is close to that of a CBU. All this makes the assembly industry an inefficient earner/saver of foreign exchange.

1. The structure of the ex-assembly cost of the vehicle.

When the decision to assemble vehicles locally was taken, the Government expected to save foreign exchange by importing unassembled vehicle kits rather than the assembled vehicles. However, the overseas ex-factory value of a full CKD kit is not much lower than a CBU. Even when some items are deleted from a CKD kit, its value does not differ significantly from that of a CBU. For instance, the mean deletion allowance, expressed as a percentage of the overseas ex-factory value of a full CKD, for three models of a popular pickup, was only 3.8 per cent in 1976 (see Table III.7). Furthermore, even with the freight savings on CKD kits, the landed value of a CBU is close to that of a CKD kit.

The import intensiveness of a selected locally assembled vehicle is high and has grown over time. This is illustrated in Table III.13. The landed share of the vehicle in the ex-assembly value was 61 per cent in 1976 and 59 per cent in 1980. The two per cent fall is attributable to the rise in the share of customs duty from 16.0 to 21.3 per cent. If customs duty was excluded from the ex-assembly value of the vehicle, the share of the landed cost of the CKD kit would grow from 72.6 to 75.0 per cent over the period. The local components' share would also grow: from 6.7 to 9.4 per cent. But this vehicle is still heavily dependent on imports.

Appendix Tables III and IV show that, for six selected pickups and seven trucks, the share of the landed cost of CKD kits ranged between 41.6 and 67.2 per cent for pickups and 38.2 and 63.1 per cent for trucks. The weighted average of these shares was 53.9 per cent (see Appendix Table V), which is lower than that of the pickups, in Table III.13. Thus, the direct import content of a locally assembled vehicle is high.

TABLE III.13 STRUCTURE OF EX-ASSEMBLY VALUE OF A PICKUP, 1976 AND 1980:

PERCENTAGE

	1976	1980
Landed cost	61.0 (72.6)	59.0 (75.0)
Customs duty	16.0	21.3
Local components	5.6 (6.7)	7.4 (9.4)
Assembly charges	8.8 (10.5)	9.7 (12.4)
Non-assembly expenses	9.6 (13.2)	2.6 (3.3)
Total	100.0	100.0
Mark up		
Sales tax		
Retail price		

Source: Kenya Government.

Note: Figures in brackets are based on ex-assembly value excluding customs duty.

The import content of the vehicle rises further if import contents in locally sourced components and in assembly and non-assembly charges are counted. This has been attempted in Appendix Tables VI and VII and the results are summarised in Table III.14. Where the import contents in the local items of expenditure were not learned from the interviews, an arbitrary share of 50 to 80 per cent was assumed. Why?

The bases for arriving at the import contents of some items are given below.

(a) Expatriates' salaries:

A third is assumed to have been repatriated.

(b) Interest payments:

GMK, LKL, AVA and FKL paid 81.0 per cent of total payments abroad between 1977 and 1980 (see Appendix Table XIII, row 10 column 5).

(c) Depreciation:

These funds will most probably be spent on imported capital equipment. Thus, the import content is 100.0 per cent.

(d) Foreign management:

This item is 100.0 per cent foreign.

(e) Net profits:

The current ownership (1982) of the vehicle assembly industry is 48 per cent foreign. This is the simple average of 49.0, 45.0 and 49.0 foreign shares in GMK, LKL and AVA, respectively.

TABLE III.14 WEIGHTED AVERAGE IMPORT CONTENT OF THE EX-ASSEMBLY COSTS OF THIRTEEN SELECTED VEHICLES, 1976 - 1982.

PERCENTAGES

		Total share	Import share	Minimum import share		
		1	2	3		
1	C K D kit - c.i.f. Mombasa	53.9	53.9	53.9		
2	Local components	8.9	4.1	3.1		
3	Assembly charges	11.5	5.8	5.4		
4	Sub-total (1 + 2 + 3)	74.3	63.9	62.4		
5	Non-assembly charges	7.6	6.1	3.8		
6	Sub-total (4 + 5)	82.0	70.0	66.2		
7	Customs duty	18.0	nil	nil		
	Total	100.0	70.0	66.2		

Source: Kenya Government.

Notes: This information has been extracted from Appendix Tables V (CKD, row 1, column 5), VI (local components, row 15, column 5) VII (assembly and non-assembly charges, rows 11 and 12) and V again Col. 1, last row but one for customs duty.

Table III.14 shows that the estimated weighted average import content of thirteen selected vehicles was 70.0 per cent of the ex-assembly value of the vehicle in 1976 - 1982. The expected minimum import content was 66.2 per cent. This suggests that local content, (ignoring customs duty) averaged only 12.0 per cent or a maximum of 15.8 per cent of ex-assembly costs. In summary, the ex-assembly value of the vehicle was composed of:

Import content (min.)	66 per cent	(row 6, col. 3)
Local content (max.)	16 per cent	(i.e. row 6, col. 1 less col. 3)
Customs duty	18 per cent	(i.e. row 7, col. 3)
Total	100 per cent	

or Import content (average)	70 per cent	(Col. 2, total)
Local content (average)	12 per cent	(i.e. row 6: col. 1 less col. 2)
Customs duty	18	
Total	100 per cent.	

If customs duty is excluded and import and local contents recalculated, import content becomes 80 per cent (minimum) and 85 per cent (maximum) the balance being local content. This shows that the locally assembled vehicle is heavily dependent on imports.

There is one overseas remittance which has not been mentioned although it represents a very significant demand on foreign exchange reserves.

This is the loan repayment. Appendix Table XIII shows that between 1977 and 1980, GMK, LKL, AVA and FKL paid in total an average of K£ 5,557,000 in foreign exchange between them per year (row 3, col. 6). This represented 89.5 per cent of the K£ 6,206,000 (row 18 column 6) in total loan repayments, interest payments and dividends. Furthermore, loan remittances were repaid in full when they fell due, unlike interest and dividends (see Appendix Table XIV rows 4, 8 and 12, and column 6).

2. Use of foreign exchange: a comparison between the CKD vehicle kit and CBU vehicle.

An analysis of the import and local contents of both CKD kit and CBU appears in Table III.15. The table uses the average of the same three pick-ups used in obtaining mean deletion allowance (see Table III.7 above). In connection with the CKD kit, information on the overseas ex-factory value, deletion allowance (estimated already) freight and other expenses payable in foreign exchange is available. But indirect import content in locally incurred expenses has been estimated. Also, all expenses relating to the CBU are estimates since actual data are not available. The estimation has been done as follows (refer to Table III.15):

TABLE III.15 THE ESTIMATED FOREIGN EXCHANGE USED BY THE CKD KIT AND CBU, 1976.

KSH.

		CKD	CBU
1	Ex-works overseas - undeleted	38,285*	38,285**
2	- deleted	36,800*	-
3	Assembly charge		2,015
4	Ex-works - CBU		40,300
5	Freight charge	3,800*	10,100
6	Other overseas expenses	4,200*	4,200**
7	Landed value, C.i.f.	44,800	54,600
8	Import content in:		
9	Local components	3,000	-
10	Assembly charges	4,300	-
11	All other local expenses (wharfage , clearing and forwarding, etc.)	4,500	4,500**
12	Total import content	56,600	59,100

Source: Kenya Government.

Note: All other expenses include clearing and forwarding, wharfage, marine insurance, bank charges, inland transport warranty etc.

* Actual data, numbers without stars were estimated.

** For argument's sake, these costs were assumed to be equal to -- though probably actually less than -- those for a CKD kit.

a. CKD vehicle kit:

(i) Items 1 to 7 are actual averages.

(ii) The average import content in local components, assembly charges and in non-assembly expenses of 4.1 , 5.8 and 6.1 per cent appear in Table III.14 (col.2 rows 2, 3 and 5), respectively. These percentages relate to the ex-assembly value of the vehicle, which has been estimated at KShs 73,500 as of 1976. Thus, items 9, 10 and 11 (Table III.15) have been obtained by multiplying the ex-assembly value of KShs 73,500 by 4.1 , 5.8 and 6.1, respectively.

(iii) Adding these values to the landed value of CKD kit, gives KShs. 56,600 as the total import content in a locally assembled vehicle. The landed (c.i.f.) value is KShs. 44,800 (row 7, Table III.15).

b. CBU Vehicle:

(i) The ex-works (overseas) value of the CBU has been estimated at KShs 40,300 (row 4 Table III.15) which equals the ex-factory (overseas) value of an undeleted CKD kit of Kshs. 38,285 divided by 0.95.

The division by 0.95 takes into account overseas assembly charges which have been put at 5 per cent by G. Maxcy.[23] In other words, the undeleted CKD kit is 95 per cent of the cost of the overseas assembled vehicle. The overseas assembly charge of Kshs. 2,015 (i.e. item 3) is the difference between KShs 40,300 for CBU and KShs 38,285 for CKD kit.

(ii) Freight charges:

Freight charges are based on shipping volume and rates are the same for CKD and CBU. But a CBU occupies 2.647 times more space than a CKD. Hence, the CKD freight charge of KShs 3,800 has been multiplied by 2.647 to estimate the charge of KSh. 10,100 for a CBU.

(iii) Other expenses met in foreign exchange:

An amount equivalent to the Kshs. 4,200 used in respect of the CKD kit has been assumed for CBU.

(iv) Import content in local components, assembly charges and other local expenses:

Since neither local components are procured nor assembly charges are incured for a CBU, only import content of local expenses were counted. The Ksh. 4,500 spent on CKD was also assumed to be spent for a CBU.

Putting these estimates together, we find that the landed value of the CBU is Kshs. 54,600 (item 7) and total import content is Kshs. 59,100, (item 12).

The landed value of the CKD is Kshs. 44,800 (item7) while that of the CBU is Ksh. 54,600 (same item 7), a difference of Ksh. 9,800 or 17.9 per cent of CBU (i.e.(9,800÷54,600)x100). But this difference is drastically reduced to Ksh. 2,500 (i.e. Ksh. 59,100 less Ksh. 56,600) by the import content in local expenses. This low difference between the import contents in the CKD kit and CBU suggests that if more accurate data were available, probably the CKD kit would turn out to be nearly as import-intensive as the CBU. So at best, the foreign exchange saving is slight and, at worst, negative. More precise data and estimates are needed to determine this exactly.

3. Domestic resource cost (DRC):

Domestic resource cost is a technique for evaluating the efficiency with which a new or on-going project will earn or save foreign exchange. The technique requires that all inputs (factor and non-factor) be valued at shadow prices and foreign exchange use/earning be valued at the official exchange rate. Then all locally incured costs are added together. Also all foreign exchange earned/saved is added and foreign exchange used on imported inputs subtracted to give net foreign exchange earned/saved. The ratio between total local costs and net foreign exchange earning/saving is the domestic cost of saving one unit of foreign exchange.

In other words:

$$DRC = \frac{DVA}{NFE}$$

Where DRC = Domestic resource cost per unit.

DVA = Domestic value added or locally incurred expenses per unit.

NFE = Net foreign exchange earned plus foreign exchange saved per unit.

In the case of the vehicle assembly industry -

$$DVA = a - b$$

where a = ex-assembly value of the vehicle.

b = direct and indirect import contents in the vehicle.

$$NFE = c - d + e$$

where c = import content of the CBU (= landed c.i.f.).

d = direct and indirect import content in the CKD kit.

e = export earnings.

But $$DRC = \frac{D\ V\ A}{NFE} = \frac{a - b}{c - d + e}$$

D R C can be computed for the entire production or per unit. The latter has been chosen.

All the variables required for the computation of D R C have been quantified in Table III.15 except export earnings. Export earnings per vehicle produced were KShs. 3,500 or KSh. 40 million (total exports) divided by 11,311, (total production) in 1981. But the import content of 77 per cent (or KSh. 2,700) must be subtracted from KSh. 3,500 leaving KSh. 800 as net export earnings. The estimated 77 per cent import content is based on the ratio between the KSh. 73,500 ex-assembly price of a selected pickup and its estimated direct and indirect import content of KSh. 56,600 (see Table III.15), for 1976, (i.e. (56,600 ÷ 73,500) x 100). But since this net export value of KSh. 800 refers to 1981 it has to be deflated to the 1976 base to which the other details in the table refer. The deflator is based on the change in ex-assembly prices (before duty) of vehicles. Between 1976 and 1981 these prices increased to 1.893. Hence the KSh. 800 is deflated to KSh. 400. It represents net export earnings per assembled vehicle. D R C is then computed as follows:

$$D\,R\,C = \frac{DVA}{NFE} = \frac{a - b}{c - d + e} \qquad (1)$$

$$D\,V\,A = a - b = 73{,}500 - 56{,}600 = 16{,}900 \qquad (2)$$

$$N\,F\,E = c - d + e$$
$$= 59{,}100 - 56{,}600 + 400 = 2{,}900 \qquad (3)$$

(c and d come from Table III.15)

Substituting (2) and (3) in (1) i.e. in the formula for D R C we get:

$$D\,R\,C = \frac{16{,}900}{2{,}900} = 5.83$$

The D R C value of 5.8 suggests that to save/ earn one shilling worth of foreign currency the vehicle assembly industry uses up KSh. 5.8 in domestic resources. Hence, Kenya's vehicle assembly is a highly inefficient earner/saver of foreign exchange; but with one caveat - prices are commercial rather than shadow. Shadow prices are, however, not available. But even if available, they would be unlikely to change this conclusion. Nevertheless, the reader should be cautioned that the above D R C calculation is based on statistics of poor quality in Table III.15.

Hypothesis 9:

Employment in the vehicle assembly industry has been inelastic with respect to output growth.

In the Kenyan assembly industry, the employment output elasticity is low.

Table III. 16 shows that employment increased between 1978 and 1980 and fell for the next two years. On the other hand, production fell slightly in 1979, rose substantially the following year and decreased during the following two years. Year to year growth ratio's between employment and output ranged from -16.2 to 3.1. But the overall employment - output elasticity for the 1978-1982 period was minus 0.57. The 1978-80 period yields a positive elasticity because both employment and output were higher in 1980 than in 1978. The negative elasticity of 0.57 occurred because the 1982 employment was lower than that of 1978 while output was higher. The two employment-output ratio's suggest that employment in the vehicle assembly industry has been inelastic with respect to output.

TABLE III. 16

ELASTICITY OF EMPLOYMENT WITH RESPECT TO OUTPUT, 1978 - 1982.

		1978	1979	1980	1981	1982	Mean
1	Employment - No.	1,487	1,608	1,714	1,633	1,422	
2	Production - No.	10,502	10,446	12,822	12,626	11,311	
3	Growth rates:						
4	Employment %		+8.1	+6.6	-4.7	-12.9	-4.4
5	Production %		-0.5	+22.7	-1.5	-10.4	+7.7
6	Ratio: row 4 ÷ row 5		-16.2	+0.30	+3.1	+1.24	-0.57

Source: Employment - Central Bureau of Statistics (unpublished).

Production - Survey interviews.

The less than unity employment - output elasticity confirms what has been said about lagging employment in the manufacturing sector in developing countries. However, for the Kenyan vehicle assembly industry, these findings should be accepted with some caution. This is because the series is short: 1978 was the first full production year for GMK, LKL, AVA and FKL. Secondly, year to year growths in the two variables (i.e. employment and output) fluctuated rather wildly, giving rise to similarly fluctuating ratios. Thirdly, total employment rather than production employment was used since the latter was only available for one year. Fourthly, according to vehicle registration statistics, the mix of locally assembled vehicles remained in favour of pickups and minibuses over time, with the percentage share of these in total vehicles fluctuating between 66.0 and 81 per cent (see Table III. 17). These fluctuations should not, however, be construed to imply anything significant about labour productivity. This is because, a vehicle assembly executive explained that the vehicle's design and make are more relevant than size. But the very large double-axled trucks are more difficult to assemble. These are, however, only a small proportion of all vehicles assembled.

TABLE III. 17

MIX OF NEW VEHICLES REGISTERED IN KENYA, 1976-1981.

	Pickups and minibuses	Trucks and buses	Total	Pickups and minibuses
	Number	Number	Number	% share
1976	3,927	1,335	5,262	74.6
1977	7,200	1,736	8,936	80.6
1978	5,610	2,830	8,440	66.5
1979	6,018	2,830	8,845	68.0
1980	7,727	2,330	10,057	76.8
1981	6,775	2,166	8,941	75.8

Source: Central Bureau of Statistics (unpublished).

We therefore conclude that employment in the vehicle assembly industry has been inelastic with respect to output. The negative elasticity suggests that, on average, employment fell as output rose. But the conclusion is tentative becuase the time series is short and there was little growth in output during that period.

Hypothesis 10:

The vehicle assembly industry has not Kenyanized top management posts.

To the extent that the highly skilled manpower required for running an industry is not available, it has to be imported. The speed at which such skills can be acquired by citizens of a developing country and they then be accepted as replacements for expatriates depends on the objectives of the govermment, policy measures for achieving those objectives and the ability of the government to negotiate successfully with owners of capital.

The Kenyanization of jobs held by non-citizens in the private sector has ranked high among national objectives since independence.[24] The Kenyanization of Personnel Bureau, which was established in 1967, had as one of its main objectives to advise the principal Immigration Officer on work permits for expatriates.[25] A work permit was issued at a fee and was subject to the non-availability of a Kenyan with the necessary qualifications for the job. The prospective employer was required to arrange for a Kenyan citizen to acquire the relevant skills so as to be able to take over the job at the expiry of the permit.

The negotiations concerning the training and indigenization are difficult. Civil service negotiators often bargain with people who are expert in their own fields. Such experts may obtain unnecessary work permits or renewals. Thus, Kenyanization of top jobs may be delayed or even reversed.

For the manufacturing sector, total employment has gone up while non-citizen employment has gone down both absolutely and relatively. The number of non-citizen employees declined from 3,500 to 2,100 between 1974 and 1981, while their percentage share of manufacturing employment fell from 3.5 to 1.4 over the period. See Table III. 18.

TABLE III. 18
NON-CITIZEN EMPLOYMENT IN THE KENYAN MANUFACTURING SECTOR, 1974-81.

Year	Total employment ('000)	Non-citizens ('000)	Non-citizens (percent)
1	2	3	4 = col. 3÷col. 2
1974	101.3	3.5	3.5
1975	99.6	3.3	3.3
1976	108.4	3.0	2.8
1977	117.9	2.6	2.2
1978	130.1	2.6	1.9
1979	138.4	2.2	1.6
1980	141.3	2.1	1.5
1981	146.3	2.1	1.4

Source: 1974, 1975 Economic Survey, 1976, Table 5.8
1976, " 1977, Table 5.8
1977 " 1979, Table 5.8
1978, 1979 " 1980, Table 5.7
1980, 1981 " 1982, Table 4.6

Details of employment in the vehicle assembly, body and trailer building and ancillary industries are shown in Table III. 19. Total employment more than

TABLE III. 19

EMPLOYMENT IN THE VEHICLE ASSEMBLY, BODY AND TRAILER BUILDING AND THE ANCILLARY INDUSTRIES, 1976 - 1981.

	1976	1977	1978	1979	1980	1981
All jobs:						
Total number	1184	2013	1946	2463	3780	3791
Non-citizens	68	78	52	61	75	65
Percent of non-citizens	5.7	3.9	2.7	2.5	2.0	1.7
Top jobs:						
Total number	25	19	31	33	44	28
Non-citizens	9	12	15	14	15	11
Percent of non-citizens	36.0	63.2	48.4	42.1	34.1	39.3

Source: Central Bureau of Statistics (unpublished).

Note : Top jobs include managing, production, finance and other salaried directors, general managers, finance controllers etc.

tripled between 1976 and 1981 and nearly doubled between 1978 (the first 'full' capacity year for the assembly industry except Ziba Management Services Ltd.'s plant) and 1981. Non-citizen employment fluctuated between 50 and 80 over the whole period but exhibited a rising trend after 1978 except in 1981. The share of non-citizen employees decreased from 5.7 per cent to 1.7 per cent between 1976 and 1981. These statistics show that the growth of non-citizen employment has not kept pace with total employment in these industries. This has resulted in a substantial increase in citizen employees in these industries.

Turning to top management jobs of salaried directorships and general managerships, we find that this category of employees has not kept pace with total employment in these industries. In fact, the number of these top employees have fluctuated over time and, thus, shows no definite trend. But between 1978 and 1980, the trend was upward followed by a fall in 1981. In that year there were three more top posts than in 1976. Non-citizen holders of these posts fluctuated over the period but in 1981 there were two more than in 1976. Their percentage share also fluctuated but remained above the 1976 level of 36.0 except in 1980 when it was 34.1. These statistics show that non-citizens slightly increased their presence in top management posts over time.

For the vehicle assembly industry, time series data are not available and survey interviews provide information for 1982 only. In that year, GMK, LKL, AVA and FKL together employed 1186 production employees and seventeen expatriates. Expatriates were only 1.4 per cent of production employment but they occupied powerful posts of managing, production, finance and other salaried directorships and general managerships. The spread of these expatriates in the four plants was two for AVA and FKL each, five for GMK and eight for LKL.

Individual plants had negotiated for the desired expatriate positions and it is likely that this number was more than needed. For instance, LKL had negotiated for fourteen expatriates but only eight were working for the company in May 1982. This suggests that the company had negotiated for more expatriate posts than necessary. In another plant, where the parent company was not the major shareholder, the posts of managing and finance directors will, according to the existing agreement with the government, be held by appointees of the parent company indefinitely. In this case, the posts would never be Kenyanized.

Thus, the number of expatriates in vital management positions in the assembly, the body and trailer building, and the ancillary industries slightly grew between 1976 and 1981. In the vehicle assembly industry, the number of top posts reserved for expatriates was in at least one case excessive. In another case, some posts will never be Kenyanized. We can therefore conclude that the vehicle assembly industry has not Kenyanized top management posts.

Summary of results:

Kenyan assembly plants produce far too many models of pick-ups, trucks and buses. Per unit assembly costs are high. Installed capacity is grossly underutilized. The local content is small and hardly growing. Partly due to low deletion allowances for items which are obtained locally and thus not received with the vehicle CKD kit, the assembly plants are not aggressively searching to increase local content and sometimes even resist using components approved by the Kenya Bureau of Standards. Job creation has lagged behind output growth and Kenyanization has been at a virtual standstill for top positions. Government policy and inaction has aggravated many of these difficulties and contributed to the industry's dependence on imports. These findings raise certain public policy issues which are considered together with recommendations in the next chapter.

CHAPTER IV

CONCLUSIONS AND POLICY PROPOSALS

1. Introduction:

As demonstrated, the Kenyan demand for commercial vehicles is small and fragmented, production capacity is grossly underutilized and too many vehicle models are assembled. If the range of vehicles were drastically reduced and the assembly and distribution industries were re-structured, per unit vehicle assembly costs, distribution costs and hence retail prices, would be reduced substantially. This would stimulate demand for vehicles and thus enable the assembly industry to produce and sell more. Additionally, the reduced vehicle range would allow the ancillary industry to achieve more specialization in its production lines, enabling it to reap gains from economies of scale there, lowering per unit production costs. If this reduction resulted in lowered final prices of components, and if the market for vehicles was increased, the assembly industry would buy a larger quantity of locally produced parts for its increased production. This would reduce the usage of foreign exchange per vehicle assembled and also stimulate employment in these industries.

To achieve these gains, public policy changes are needed. The Government could use its political and licensing powers plus majority ownership of the larger vehicle assembly plants to streamline the industry. Furthermore, the Government should stress Kenyanization, impose national quality standards, re-negotiate deletion allowances, reform the price controls and stimulate exports.

2. Rationalizing vehicle models:

Vehicle model variety in the Kenyan assembly industry is too wide and contributes to high per unit assembly costs. But there is room for model reduction and a decrease in costs. Very importantly, a drastic reduction in the number of models would greatly stimulate local sourcing.

A total of 94 models of vehicles: of pickups (43), trucks (34), minibuses and buses (16) and one (1) passenger car -- the Range Rover -- are assembled locally. This results in short production runs. For instance, in 1981 only 11,311 vehicles were assembled, giving an average yearly production run of roughly 121 units. But many runs are even shorter for some models, partly because the assembly is spread over a number of months depending on the receipt of CKD kits. But short production runs raise per unit assembly costs through labour and machine hours lost in model changeovers, and an increase in workers' learning and adjustment time. Thus, capital requirements, capital related costs and labour costs are increased.

2.1 Selecting fewer models:

The number of pickups, trucks, minibuses and buses assembled should be reduced drastically from 93 to -- at most -- 14. This can be done by eliminating excess models with roughly similar load carrying capacities.

2.1.1. Pickups:

For pickups, two assembly executives separately recommended the one-tonne pickup in one or two models with no half-tonne pickup. Such a drastic reduction would eliminate 41 models out of a total of 43 for this light commercial vehicle.

2.1.2. Trucks:

For trucks, the train pay loads are duplicated and could be reduced as follows:

(a) A truck to bridge the gap between the one-tonne pickup and the proposed medium eight-tonne truck would be required. A four - or six - tonne truck would suffice.

b. A seven- to nine-tonne main axle pay load carrying capacity can pull a seven-tonne trailer load. Thus, an eight-ton truck can pull a train payload of 15 tonnes. This would eliminate the nine-, ten-, thirteen- and upto fifteen-tonne main axle pay loads.

c. The next desirable main axle carrying capacity is sixteen-tonne. This vehicle can pull a 14- to 18-tonne trailer load or between 30- and 34-tonne chain load. This would make the 17- to 34-tonne main axle pay load trucks redundant.

d. The 35-tonne main axle payload is the next choice and is capable of pulling a train load of upto 65 - 75 tonnes.

Thus, only four models of trucks are desirable, or eight, if two models are allowed for each carrying capacity. They would have main axle pay loads of four (or six), eight, sixteen and thirty five tonnes.

2.1.3. Minibuses and buses:

Four models of minibuses and buses would suit the Kenyan market. Two models of a ten-passenger minibus would suffice, while the narrow 46-68 passenger bus range would be adequately served by the popular 62-68 passenger bus.

2.1.4. Summary:

In summary, at most fourteen models would be required : two of pickups, eight of trucks and four of minibuses and buses. This number of models could be reduced if the chosen truck chassis were adaptable for a bus. For example, the Isuzu, Bedford and Leyland trucks chassis can be used for buses too.

2.2 Cost savings and other gains:

Model rationalization would lower model specific capital equipment, model launching expenses, direct and indirect labour costs and hence per unit assembly expenses. Reducing the number of models would increase the maximum number of vehicles the current plants would produce if demand existed. Additionally, local component sourcing would be stimulated.

2.2.1 Reduced model specific capital and related costs:

With only fourteen models, model specific capital requirements and related recurrent costs would fall. About 80 basic models of vehicles are assembled in Kenya, an excess of 66 over the proposed number. The excess model specific capital (the set of jigs) would be about KSh. 99 million (i.e. 66 x 1.5 million -- each set of jigs cost about 1.5 million in 1982). This is nearly five times the cost of the proposed 14 sets of jigs (14 x 1.5 = KSh. 21 million). But some of the excessive sets of jigs are owned by franchise importers or contract importers. However, even with the exclusion of the jigs owned by the latter, the remaining ones would still be excessive. According to one vehicle assembly executive, a Kenyan plant assembling nine basic models of vehicle had 25 - 30 per cent of its capital tied up in jigs. Hence, conservatively, excessive jigs in the vehicle assembly industry are at least 40 per cent of the total investment. Hence, capital equipment could be reduced by 40 per cent. Furthermore, capital related costs such as depreciation, interest payments and maintenance and repairs would be similarly reduced. These three items (items 14, 13 and 12 in Table IV.1) total 2.2 per cent of ex-assembly costs and so could be reduced by about 0.88 per cent (i.e. 2.2 x 0.40).

TABLE IV.1 THE STRUCTURE OF COSTS OF AN AVERAGE VEHICLE.

		Percent	
1	CKD kit - c.i.f. Mombasa	53.9	
2	Local components	8.9	
3	Assembly costs:		
4	Variable costs:		
5	Salaries for local production employees	1.0	
6	Transport	0.2	
7	Fuel and water	0.3	
8	Total (5 to 7)		1.5
9	Fixed costs:		
10	Expatriate salaries	0.6	
11	Local administrative salaries	1.2	
12	Maintenance and repairs	0.6	
13	Interest payments	0.1	
14	Depreciation	1.5	
15	Foreign management	0.4	
16	Other expenses	0.3	
17	Net profits (before tax)	5.4	
18	Total (10 to 17)		10.1
19	Total (8 plus 18)		11.6
20	All other (non-assembly) expenses		7.6
21	Total (1 + 2 + 19 + 20)		82.0
22	Customs duty		18.0
23	Total (21 plus22)		100.0

Sources: Kenya Government

Note: Production workers' salaries and wages are approximately 45 per cent of total local workers' salaries. But total local labour costs are 2.2 per cent of ex-assembly value of the vehicle. Hence, production and non-production labour costs are 1.0 and 1.2 per cent, respectively, of the ex-assembly value of the vehicle.

2.2.2. Model launching expenses:

Model launching expenses include the purchasing of two prototypes for each model and the hiring of expensive expatriates to launch the assembly of new makes or of more complicated models. Thus, if the number of locally assembled models were reduced from the current 94 (or about 80 basic) models to 14, these costs would be drastically reduced. But the impact on per vehicle assembly costs would be minimal. Moreover, the unavailability of data prevents us from assessing it.

2.2.3. Reduced labour costs:

With only fourteen models, direct labour costs per unit of output would be halved and some employees rendered redundant. According to a vehicle production manager, an increase in production runs from the current one to three weeks to one to two months would at least double the productivity of production workers. Thus, direct labour costs would at least be halved from 1.0 per cent (see item 5 Table IV.1) to 0.5 per cent. But this reduction in costs would only be achieved if half the production workers in the industry were sacked. Some administrative workers in personnel, catering, accounts etc. would also have to go.

2.2.4. Foreign exchange costs:

Foreign exchange costs would fall because fewer vehicle prototypes, expatriates and model specific equipment (e.g. the jig) and tools would be imported.

2.2.5. Increased capacity ratings:

With model rationalization, the productivity of labour at least doubles. Thus, the current installed capacity of 61,700 vehicles per annum would double to 123,400 vehicles. Hence, if demand existed, the Kenyan plants could multiply their 1981 production of 11,311 vehicles tenfold, if only 14 models were produced!

2.2.6. Stimulating local sourcing:

With only fourteen models, local sourcing would be stimulated, especially if the enforcement of local components usage were stricter. Components such as horns, tubing, water pumps, starters, alternators, window winding devices, fans, and brake drums could be produced locally. For instance, according to J. Konzolo,[1] small electric motors of less than 10 horse-power could be manufactured in Kenya and, be able to compete with imported ones.

2.2.7 Summary:

The combined reduction in the assembly cost of the vehicle due to model rationalization would be at least 1.4 per cent of current ex-assembly cost: a 0.9 per cent fall in model specific recurrent costs and a half per cent fall in labour costs. But there are additional gains, namely: lower model specific capital equipment, lower model launching expenses, lower foreign exchange usage, increased capacity ratings and stimulated local component sourcing.

2.3. Policy recommendation:

The Government should reduce the number of models to not more than fourteen.

2.4. Machinery for rationalizing vehicle models:

To be able to select the most satisfactory makes and models of vehicles for continued assembly, a quick study of each model should be made. The study should cover performance, energy efficiency, cost of assembly, constancy of design, magnitude of deletion allowance, local content reached, popularity on the market, export possibilities, damage done on Kenyan roads etc.

After choosing, the Government should notify assemblers and franchise importers and local dealers of its intention to stop licensing the importation of CKD kits for certain vehicle models. Prohibitions should take effect at the expiry of the current agreements under which the various firms were established in the country.

3. Streamlining the assembly plants:

The installed capacity in the assembly industry is excessive and needs rationalization. A reduction in the number of plants would raise the capacity utilization rates for the remaining equipment and raise the productivity of the factors of production. It would also lower the total capital requirements, the number of expatriate employees, the use of foreign exchange, the overhead expenses and hence the per unit vehicle costs. Therefore, the Government should de-license four plants and use its voting rights in the remaining plant to insist on faster Kenyanization and the use of local components.

The mean utilization level of the five authorized vehicle assembly plants is a mere 18.3 per cent and there is a lot of slack in the current one shift operation due to irregular availability of CKD kits. Yet the Kenyan demand is satisfied.

In fact, any one of the three larger plants, namely: GMK, LKL, and AVA could have met the entire Kenyan 1981 vehicle assembly output of 11,311 units. For instance, with a three shift capacity for 30,100 units per annum, AVA could have supplied all of Kenya's needs and still have used only 37.6 per cent of its capacity. Hence, four plants could be closed. A vehicle assembly manager says that two plants could be allowed:

> "One could specialize in trucks and buses and the other in pickups and cars, if the decision is made to produce cars"

But the decision to make cars (except LKL's Range Rover) has not been made yet and hence one plant is adequate for the Kenyan and the neighbouring export markets. This would result in the following gains:

3.1 Lowered total fixed capital equipment:

Since one assembly plant is adequate for the domestic and neighbouring export markets for trucks, buses and pickups, the other four represent excess capacity. This suggests that the current fixed capital equipment (1979 book values for GMK, LKL and AVA totalled KSh. 96.9 million) could be reduced by roughly two-thirds. The investors may sustain financial losses from this reduction, since these assets may be sold at less than their current book values.

3.2 Reduced fixed overheads and net profits per unit:

Thus, reducing the number of assembly plants would reduce the per unit fixed costs including net profits by about two-thirds. These costs, excluding expatriate and local labour costs, are 8.3 per cent (i.e. item 18 less items 10 and 11, Table IV.1), of the ex-assembly value of the vehicle. They would be reduced by 5.5 per cent. This assumes that the remaining plant would continue to realize the same rate of profit on assets but a lower profit per vehicle made.

3.3. Reduced expatriate employees:

In 1982, 17 expatriates worked for GMK, LKL, AVA and FKL. An expatriate general manager or director gets between KSh. 31,500 and KSh. 60,000 per month, according to unpublished statistics with the Central Bureau of Statistics. At an average of KSh. 46,000 per month, the 15 expatriates working for GMK, LKL and AVA received about KSh. 8 million per annum in salaries in 1980. But, if only one assembly plant were permitted, four or fewer expatriates would be needed. Hence, the expatriate wage bill would fall to, at most, KSh. 2.2 million. This would be a reduction of at least KSh. 6.1 million. But the expatriates' wage bill contributes 0.6 per cent to the ex-assembly value of the vehicle (see item 10, Table IV.1). This proportion would be reduced by at least 0.4 per cent, if only one plant was allowed.

3.4 Fewer local employees and lowered wages and salaries

The four plants, namely: GMK, LKL, AVA and FKL employed a total of 1,545 production and administrative employees in 1982: 17 expatriates and 1,528 local workers. But AVA employed 572 people including two expatriates and utilized only 18.4 per cent of its 30,100 unit capacity per annum. This plant would have used 37.6 per cent capacity to produce the industry's entire 1981 production of 11,311 vehicles. Thus, at double current capacity utilization, AVA would satisfy the Kenyan market and have some units for export.

The introduction of a second shift at AVA would double production workers and raise supervisory and other administrative staff by about 10 per cent or less. But AVA employed 450 production and 122 administrative workers. Hence, these numbers would rise: production workers by 450 and administrative employees by at most 12. Thus, employment at AVA would rise from 572 to 1,034. This number would be sufficient to mann the vehicle assembly industry and hence, the other 511 (i.e. 1,545 less 1,034). would have to go. The 511 employees include 15 expatriates, 12 administrative workers and 482 production men. But the impact of the reduction of expatriates on assembly costs has been assessed (see 3.3), and we now need to compute the impact of the sacking of local employees.

In 1980, GMK, LKL and AVA paid KSh. 2.7 million to 1,495 local employees: 1,156 production workers and 339 non-production staff. But production workers contribute about 45 per cent to the total local employees' wage bill. Thus, production and non-production workers contributed KSh. 12.2 million and KSh. 14.9 million, respectively, to the wage bill in 1980, in the three plants. Hence, the sacking of 482 production and 12 administrative workers would save about KSh. 5.1 million and KSh. 0,5 million, respectively. This implies that production and non-production labour costs would fall by 42 and 3.5 per cent, respectively. But production and non-production labour costs comprise 1.0 and 1.2 per cent, respectively of the ex-assembly value of the vehicle. These proportions would decline by 0.42 and 0.04, respectively.

3.5 Lowered per unit assembly costs:

Together, lowered capital equipment, reduced overheads, and fewe expatriates and local workers would lower per unit assembly costs as follows:

3.2 Reduced fixed overheads		5.5 per cent
3.3 Reduced expatriates		0.4 " "
3.4 Reduced local employees -		
	Production	0.42 " "
	Non-production	0.04 " "
		6.36

3.6 Lowered recurrent usage of foreign exchange:

Streamlining the vehicle assembly industry would cut the recurrent usage of foreign exchange for loan repayments and interest remittances.

3.6.1 Lowered loan and interest remittances:

The annual loan and interest remittances could be reduced with the sale of excess assets in the vehicle assembly industry. Between 1977 and 1980, an annual mean of KSh. 124 million in loans and interest fell due for repatriation abroad by GMK, LKL, AVA and FKL (see Appendix XII, sum of rows 3 and 8, column 6). An amount of KSh. 121 million (Appendix Table XIII, sum of rows 3 and 8, column 6) was actually remitted. The failure to remit the full amount due, was because, Kenya's foreign exchange reserves were inadequate. Hence, there is need to conserve foreign exchange. One way of reducing these annual commitments is to locally sell off or export two-thirds of the industry's assets which had a book value of KSh. 96.9 million in 1979. In fact, since jigs are expensive and many would have to be scrapped, the settlement value would be lower. Thus, annual loan and interest remittances would be reduced, after proceeds of the sale of assets have been transferred abroad.

3.6.2. Transfer pricing:

The suspected incidence of transfer pricing could be reduced if the management of the industry was taken over by the Government. Multinational firms are known to widely practice transfer pricing through the over-invoicing of inputs and under-invoicing of output. The low deletion allowances in the vehicle assembly industry may contribute to over-invoicing of CKD kits. Contract assembly may also facilitate transfer pricing. For instance, in Kenya, where the Government is a joint owner of the three larger plants, the private share-holders could, through management contracts, over-invoice CKD kits and under-invoice assembled vehicles and thus transfer profits from the plant to the franchise importer/dealer. This would deny the Government some dividends. R. Kaplinsky suspects that transfer pricing takes place at AVA where the Government is the major share-holder:

> "The state (through the Treasury and the Industrial Development Bank) holds a nominal majority equity (51 per cent) in AVA, the remaining shares being held equally by Lonrho and a joint Gecaga-Muigai- (Inchape) Company. Real control over AVA is, however, held by the minority parties and is exercised through a 'technical services agreement with a Kenyan-registered firm representing Gecaga, Muigai, Inchape and Lonrho. The function of this agreement (which provides comprehensive control over a complete range of decisions) was to take all decisions away from the board of directors. Although it is too early to offer proof, it appears as if this control will be used to shift the realization of surplus away from the point of production (where profits have to be shared with the state) to distribution (where Lonrho, Gecaga and Muigai control all the outlets) and possibly even in purchasing of knocked down kits where these three minority parties may act as intermediaries".2

This practice should be investigated and, if true, the Government should take over the management of the industry or nationalize it.

3.6.3 Lowered expatriates' salary remittances:

Assuming that each expatriate remits home a third of his salary, the seventeen expatriates repatriated KSh. 2.76 million (i.e. 1/3 of KSh. 8.28 million) in 1980. Hence, if the number of expatriates were reduced to four, only about KSh. 0.7 million would be repatriated, yielding a foreign exchange saving of about KSh. 2 million.

Hence, not only would a reduction in assembly plants reduce per unit assembly costs but it would also save foreign exchange.

3.7. Policy recommendation:

The Government should reduce the number of assembly plants to one, by not renewing the current vehicle assembly agreements, but only after undertaking an economic analysis of the plants.

3.8 The machinery for streamlining the vehicle assembly industry:

The Government could use its licensing powers plus majority ownership of the vehicle assembly plants to streamline the industry.

The Government should conduct a study of the industry and identify the most efficient plant. Additionally, information about raising local content, exporting, Kenyanization, training and in lowering vehicle differentiation and capital requirements should be sought. These variables should be weighted in order of priority and the best plant should be given more import licences during the tenure of the existing agreements. Then, at the expiry of the current agreements -- 1984 for LKL and AVA, 1985 for GMK -- the four plants, not selected for continued operation should be closed down.

The outgoing plants should be given adequate notice and be allowed to choose what to do with their equipment : to relocate it locally, or to sell or export it.

4. Reducing the number of dealerships:

4.1 Introduction:

The rationalization of vehicle models would reduce the number of franchise importers, distributorships and distribution costs.

4.2 Reduced franchise importers and distributorships.

The reduction in vehicle model variety would necessarily eliminate some franchise importers and dealers. Assuming that the reduction in dealerships would be similar to that of models, then the number of franchise importers would fall from twelve to two.

To avoid unnecessary competition between the two, the number of agents in a given town should be limited : five each in Nairobi and Mombasa; two each in Nakuru, Kisumu, Eldoret, Kitale and Thika; and one each in the remaining towns listed in Table III.4, plus one each in Voi and Garissa. Together, the number of establishments would total thirty nine or 30 per cent of the current number : a 70 per cent reduction! Why?

4.3 Reduced distributional costs:

With fewer distributors, distributional costs would fall drastically and the need for large mark ups on vehicles would decline. Furthermore, the redundant workshop equipment could be sold or relocated, substantially reducing capital-labour and capital-output ratios and capital related costs. Fewer expatriates would be required, thus saving on salaries and foreign exchange repatriation. Vacant office, showroom and workshop space would find immediate alternative users because of the current shortage of such accommodation in the country. Some investors would lose business and some employees would become unemployed, though some would be engaged in the remaining establishments. Inventories and spare parts would fall and hence the cost of holding them. Together, these savings would enable mark ups to be lowered substantially, perhaps by half.

4.4 Policy recommendation:

The Government should limit dealer/branch/ workshop licences to, at most, forty.

4.5 Machinery for rationalizing the dealerships:

The Government should study the efficiency of these dealers. It should also consider their redundancy. Excess distributors should be denied licences and the remaining ones should be allowed to sell all models. The establishments should be distributed so that customers would not have to incur heavy transport costs in search of service or spare parts.

5. Simultaneously rationalizing the number of models and streamlining the assembly plants, dealerships and distributorships:

5.1 Introduction:

If the proposals to limit the number of models of pickups, trucks and buses to fourteen, assembly plants to one, franchise importers to two and distribution and service points to forty were pursued simultaneously, per unit vehicle assembly costs and retail prices would be decreased more than if only one proposal were implemented.

5.2 Impacts of the simultaneous proposal:

The separate reduction in vehicle variety and in the number of assembly plants would lower per unit vehicle assembly costs by 1.4 per cent (see 2.2.7) and 6.3 per cent (see 3.5), respectively. This yields a total of 7.7 per cent. But this total counts some items twice and in others fails to capture the full impact of joint rationalization. Hence, it is necessary to recalculate the impact of a two-thirds reduction in fixed costs, a reduction in model related fixed equipment, a reduction in expatriates and a reduction in local employees, and a doubling in labour and capital productivity.

(a) A two-thirds reduction in fixed assets lowers fixed overhead costs to the same extent, by 5.5 (see 3.2). This excludes local and expatriate labour costs.

(b) A reduction in model specific capital requirements lowers capital related costs i.e. depreciation, interest payments and maintenance and repairs from 2.2 to 1.3 per cent i.e.by 0.9 per cent (see 2.2.1). But this would not be correct in the joint rationalization exercise. Fixed costs have already been reduced by two-thirds (see 5.2.a). Hence the additional reduction would be .35 per cent i.e. $\frac{1}{2}(2.2 - 2/3 \times 2.2)$.

(c) A reduction in the number of expatriate employees would be 0.4 per cent (see subsection 3.3 above).

(d) A reduction in local employees would lower labour costs substantially because a doubling of capacity utilization would imply going into two shifts but a doubling of labour productivity -- due to the elimination of labour slack by a more regular supply of CKD kits and due to a reduction in the number of models -- reverses that. Hence, a plant like AVA would not need to increase production workers but would raise administration employees. According to a vehicle assembly's production director, a doubling of production would require (at most) 10 per cent increase in administration employees and related costs. Hence, a doubling of output at AVA would also stimulate about a 10 per cent increase in employment i.e. by 12 to about 580 including two expatriates. But the vehicle assembly industry employs 1,528 local workers. Hence about 950 of them (i.e. 1,528 less 580) would be redundant; 740 production workers and 210 non-production workers. The outgoing workers would have received KSh. 7.8 million and KSh. 9.2 million, respectively, in wages and salaries. This would be saved. Thus, direct and indirect production labour costs would fall by about 60 - 65 per cent. But direct and indirect production labour costs account for 1.0 and 1.2 per cent, respectively, of the ex-assembly value of the vehicle. Assuming a 60 per cent fall, these proportions would decrease by about 0.6 and 0.7 per cent, respectively.

5.3 Summary:

The impact of the above reductions upon the per unit assembly costs are as follows:

(a)	Reduced fixed overheads	5.5 per cent
(b)	Reduced selected overheads	0.35 " "
(c)	Reduced expatriate employees' costs	0.40 " "
(d)	Reduced local employees' costs	
	- direct	0.60 " "
	- indirect	0.70 " "
	Total	7.55

Thus, the simultaneous streamlining of models and plants would reduce per unit ex-assembly costs by 7.5 per cent as compared to a reduction of 6.5 or 1.4 per cent, respectively, if the number of plants and models were reduced separately. The 7.5 per cent cost cut in the ex-assembly value of the vehicle is equivalent to a 26.8 per cent cut in local costs, since the c.i.f. Mombasa cost of the CKD and customs duty average 54 and 18 per cent, respectively, of the ex-assembly value of the vehicle. Equivalently, assembly charges, which average 11.5 per cent of the ex-assembly value of the vehicle, would decline sharply by about 65 per cent!

The 7.5 per cent cost cut in the ex-assembly value of the vehicle would be augmented by economies gained from a reduction in the number of franchise importers and distribution and service points.

Combined, savings in production and distribution costs could yield a <u>20 - 25 per cent cut in vehicle retail prices</u>.

5.4 Other economic gains from the simultaneous proposal:

But there are even more economic gains such as savings in foreign exchange and lowered total fixed capital requirements per employee and per output. Thus, the efficiency of the vehicle assembly industry would rise. The ancillary and vehicle repair industries would also experience a rise in efficiency. In particular, improved efficiency in the ancillary industry would lower per unit production costs there. If this saving were passed on to the assembler, it would reduce the cost of local content, reduce per unit assembly costs and then lower vehicle retail prices. Local component sourcing would be stimulated and employment in that industry would grow. These are potentially substantial benefits.

5.5 Policy recommendation:

The Government should implement the rationalization of vehicle models, assembly plants and distributorships as one package.

5.6 Machinery for implementing the package:

The machinery for implementing the package is similar to what has been discussed above under separate model rationalization, the streamlining of plants etc.

6. Kenyanizing top posts:

6.1 Introduction:

The Kenyanization of top jobs in the vehicle assembly industry has been delayed and should be accelerated.

6.2 Kenyanizing top posts possible:

The vehicle assembly industry is run mainly by expatriates, irrespective of equity ownership. In one case, a foreign minority shareholder has the right to appoint the managing and financial directors. In another case, a foreign majority equity holder appoints the managing director. Thus, by contract, these powerful posts will <u>never</u> be Kenyanized. Furthermore, the seventeen expatriates in the vehicle assembly industry are excessive. For instance, in at least one plant, the number of expatriates was smaller in 1982 than the number negotiated. But their work permits can be reduced.

One production manager in the industry argued that if there were only one plant, Kenyans could run it competently.

6.3 Policy recommendation:

The number of work permits should be reduced to five - one for each plant - and after rationalization, only one, at most, should be allowed.

6.4 Machinery for reducing work permits:

Most of the current work permits for expatriates should not be renewed when they expire. Furthermore, when the current vehicle assembly plants' agreements expire, work permits should be drastically reduced to one.

7. Imposing Kenyan quality standards:

7.1 Introduction:

Kenyan standards should be imposed on all producers including vehicle assemblers to encourage local components sourcing.

7.2 Impact of not imposing national quality standards:

The vehicle assembly industry is currently the final judge on the acceptability of local components. But the Kenya Bureau of Standards (KBS) is responsible for developing and implementing national quality standards. And yet the assembly industry is not bound by these Kenyan standards and it sometimes rejects components (e.g. radiator blocks) even though they are approved by the KBS. Furthermore, the assemblers' mother companies refuse to provide specifications for proper testing. Also, when a local substitute is available the deletion process is lengthy — takes upto 18 months for some components. Together, these factors have slowed progress in local sourcing.

7.3 Policy recommendation:

The KBS should be made the final judge on the quality of all local products including vehicle components. Thus, the KBS should be furnished with specifications of standards for all vehicle components in use in Kenya for registration. Only then should the standards apply. Defaulters should be heavily penalized.

7.4 Machinery for imposing Kenyan standards:

The existing national standards on vehicle components should be made mandatory, then, the assemblers, their principals and ancillary producers should be told to supply KBS with specifications on products being produced currently for approval and registration. Additionally, the assemblers and their principals should be required to supply specifications on other (not so complex) items which could be produced in the country for approval and registration. Finally, as time goes by, specifications on the more complex items should be made available to KBS for approval and registration. Failure to supply specifications or to honour locally registered standards should be penalized heavily.

8. Renegotiating deletion allowances:

8.1 Introduction:

Deletion allowances are lower than unit production costs and the allowances could be raised through negotiation.

8.2 Situation:

Since deletion allowances are lower than overseas production costs and much lower than local per unit production costs, they discourage the sourcing of local components. But this discrepancy can be minimised through negotiation. For instance, late entrants to a protected vehicle assembly industry are known to offer higher deletion allowances in their proposals. Also, parent multi-national companies do raise deletion allowances to their subsidiaries for competitive reasons. Hence there is room for negotiation, especially if done as part of a package to rationalize the industry. However, at the moment Kenyan franchise importers are too small to obtain larger deletion allowances from giant producers of components, for items not shipped with the imported CKD kit. Hence, also the need for consolidation of the franchise importers.

8.3. Policy recommendation:

The Government should order that deletion allowances be re-negotiated.

8.4 Machinery to re-negotiating deletion allowances:

The local assemblers/franchise importers should start negotiating higher deletion allowances and principals refusing to raise the allowances be shut out of the Kenyan market. Furthermore, the Government should participate in such negotiations in particular when the industry is being streamlined and models rationalized.

9. Reforming price controls:

9.1 Introduction:

The current price control formula, which is full cost - plus - mark-up, does not encourage cost-cutting and should be reformed.

9.2 Situation -- a full-cost-plus-profit margin formula is inefficient :

Price controls are supposed to protect buyers from exploitation by producers. On the other hand; infant enterprises require protection so that they can overcome their initial problems without too much harassment from competitors. But protection often leads to monopolies resulting in the exploitation of the purchaser. Hence, producers have to be restrained from increasing prices freely.

In Kenya, the price control formula is full-cost-plus-a large mark-up. This formula allows entrepreneurs to pass on high costs to the buyers. Thus, the producers -- not the buyers -- are protected. This does not encourage efficiency and hence the firms need protection for a long time. To remedy the situation, protective levels should be reviewed periodically and the price control formula should be reformed to stop the entrepreneurs from passing on higher costs, and hence, raised prices due to inefficiency, on to the buyers.

9.3 Policy recommendation:

To encourage local cost cutting, the Government should tie price controls to the retail/wholesale price of an efficient overseas country.

9.4 Machinery for reforming the price control formula :

For each vehicle model or ancillary product, an efficient overseas country should be identified. The Kenyan wholesale retail price should be a Government pre-determined percentage above the overseas bench mark price.

10. Stimulating exporting:

10.1 Introduction:

The expected per unit cuts for vehicle assembly and components manufacture, would pave the way into the export market. But exporting has to be assisted through barter agreements and regional coordination by using the multinational company's network of subsidiaries elsewhere. Subsidies and export guarantees and other incentives would also strengthen exporting.

10.2 Situation -- lack of competitiveness on the eport market:

The Kenyan vehicle assembly and local ancillary industries' outputs are small and can enable these industries to realize only 7.5 per cent cut in per unit vehicle cost even with the proposed drastic rationalization. This reduction is small and hence insufficient to make these two industries competitive on the export market. Bigger cuts are necessary. According to one vehicle industry's official, duty free export prices for Kenyan vehicles are about 10 per cent more expensive than their overseas counterparts. Several other executives confirmed this lack of competitiveness; one said that they sell on the export market "only because of the time factor". In other words, Kenya mostly sells to neighbouring countries only when the orders are urgent and cannot await a long delivery time from overseas. These illustrations show that the 7.5 per cent reduction in ex-assembly prices is not adequate for competitiveness on the export market. But there is a dilemma : price cuts are necessary but larger production volumes are required for such cuts to be affordable.

But exporting is often inhibited by other factors:-

(a) Although vehicle exports are easily arranged, the export of spare-parts from Kenya has to be done on a separate licence. But often, there are long delays in approving licences and this may cause an order, for vehicles and parts together, to be lost.

(b) The current shortage of foreign exchange dictates that developing countries depend on foreign aid. But aid is usually tied to equipment, including vehicles, and other inputs imported from the donor countries. This reduces trade among developing countries and thus limits the export demand for Kenyan assembled vehicles in the neighbouring countries.

But ways for overcoming these problems can be found and are discussed below.

10.3 The multinational firm:

The global operational network of the multinational company provides a way of expanding exports.

The multinational company often restricts its subsidiaries from exporting. But a developing country like Kenya expects that a subsidiary should earn foreign exchange by exporting. Hence, a multinational company should better integrate its subsidiary into its world-wide operational network. Hence, in rationalizing the vehicle assembly industry, Kenya should insist on the subsidiary's committment to exporting. In this connection we can learn from the achievements of other countries such as

Yugoslavia and Canada (see pages 59 and 60 in chapter II). Their experience shows that it is possible for an industrializing country to get multinational companies to commit to promote exports and regularly report to the Government on their progress.

A multinational company's sophisticated marketing network can give rise to one of several forms of exporting including regional markets, and barter agreements. These arrangements do encourage trade but may give rise to transfer pricing. Surveilance of this would be necessary.

10.3.1 Policy recommendation:

The plant chosen to continue assembly should be pressured to export vehicles and, if possible, components. Ancillary firms, especially subsidiaries of multinationals should be encouraged to export. Export restrictions upon subsidiaries by multinational companies should be prohibited and specified export targets should be reached by given dates.

10.4 Regional coordination:

Kenya should strive for an agreement with neighbouring countries to establish multicountry plants to produce certain components for the entire region. Within the region, trade in these compnents should flow freely unless a transfer tax is used to help distribute the benefits from these industries equitably. There may be major problems about the location of industries as well as the sharing of employment and foreign exchange earnings. This is illustrated by the Latin American Free Trade Area where differences in economic development among members have contributed to the slow progress toward free trade. However, with goodwill, success is possible. The cooperating countries could also successfully argue out the untying of aid as a group rather than individually.

10.4.1. Policy recommendation:

The Government should encourage the establishment of free trade in selected vehicle components; combined with a fair distribution of vehicle, component and other industrial plants throughout the region.

10.5. Other incentives for exporting:

Speedier export compensation, export insurance or guarantee scheme and a reduction in duty on imported components which do not compete with local components would help promote exporting.

Currently, exporters get a 15 or 25 per cent export compensation if local value added is 30 per cent or more. But there are serious delays in processing claims for compensation and this is a disincentive to exports. This is so because the compensation is discounted for delays in its receipt and hence export prices are not reduced by the full amount of the compensation. Thus, competitiveness is reduced.

Secondly, exporting is risky and expensive especially for new comers. While the cost can be reduced by compensation, protection against risk can only be guaranteed by the Government or by an insurance cover against a default in payment.

Thirdly, ancillary producers who are subsidiaries of multinationals should be forced to commit themselves to export through their parents' global operations.

Fourthly, customs duty on imported inputs are refundable on exports but the delays in refunds are long. Hence, exporting is impeded. But customs duty can be phased out and be replaced by a sales tax to net an equivalent amount of revenue for the Government. This would obviate the need to rebate the customs duty.

11. Summary:

The number of models of vehicles can be reduced to at most fourteen, assembly plants to one, franchise importers to two, and vehicle sales and service points to forty , without hurting the customer. This package of proposals would lower per unit assembly costs by 7.5 per cent, assembly charges by 65 per cent and retail margins by 20 - 25 per cent. Top assembly posts could be Kenyanized almost fully, Kenyan quality standards imposed, higher deletion allowances sought, price controls reformed and exports stimulated.

To implement these recommendations, the Government would need to de-license most models of vehicles, plants, franchise importers and dealerships. Work permits should be refused, the KBS should be made the final authority on quality standards in the country, a re-negotiation of deletion allowances should be ordered and exports stimulated through the multinational corporation, through regional cooperation among neighbouring countries and through incentives for exporting.

CHAPTER V

SUMMARY AND FEASIBILITY OF PUBLIC POLICY REFORMS

1. Introduction:

In Kenya and the third world countries industrialization is inefficient and contributes little to stimulating economic growth. However, public policy changes are possible to convert the industry into a dynamic promoter of Kenyan industrialization.

2. Import substitution industrialization - third world results:

The import substituting industrialization strategy has resulted in unnecessary product differentiation, duplicated investments, short production runs and very low utilization of installed capacity in developing countries. These problems also afflict the vehicle assembly industry where vehicle models are numerous, components vast and the need for strict quality controls high. Deletion allowances for components not included in the CKD kit are too low and this discourages local sourcing. But these allowances can be raised through negotiation, thus reducing the descrepancy between them and local per unit production costs. This reduction and in particular forced graduated local component usage has been used to achieve higher levels of vehicle indigenization in some developing countries. But there is a dilemma: high local components usage raises vehicle prices far above overseas levels and thus reduces competitiveness and minimises exports. Hence, exporting has been assisted through inter-country cooperation, barter arrangement and utilizing the multinational firms' network of subsidiaries.

3. The Kenyan vehicle assembly industry:

3.1. Introduction:

In Kenya, too many models of vehicles are assembled, capacity utilization is low, deletion allowances are low, the ancillary industry is small, quality standards are foreign and excessive, employment lags behind output growth and exporting is little. But these shortcomings can be remedied if public policy changes were made and were strictly enforced.

3.2 Wide vehicle model differentiation:

The 94 locally assembled models of vehicles are too many for the small Kenyan market of between 10,000 and 20,000 units per annum. The five assembly plants and over twelve franchise importers have forced unnecessary duplication and short production runs on the industry. This results in high unit costs in the assembly and ancillary industry and low capacity utilization.

3.3. Low capacity utilization:

Single shift working during five days per week is the rule for the vehicle assembly industry. In 1982 the industry achieved only 18.3 per cent capacity utilization, which is grossly low.

3.4 Low deletion allowances:

Being lower than overseas production cost, deletion allowances are small fractions of local per unit production costs ranging between 1/10 and ½ for some selected items (see Table III. 6 column 6). This certainly discourages local sourcing, even though the price control formula allows the passing of extra costs to the buyer.

3.5 Underdeveloped ancillary industry:

The ancillary industry produces 30 components and less than half of these are used as original equipment parts. This has made the average Kenyan vehicle heavily dependent on imports with a landed value of the CKD kit accounting for between 54 per cent and nearly 80 per cent of the ex-assembly value of the vehicle.

3.6 Foreign determined quality standards:

The situation is worsened by the resistance of the assembly industry to using local components even when such parts are approved by the Kenya Bureau of Standards. It is alleged that the supply of local components is irregular, quality is low etc. Supposedly for these reasons, some franchise importers have refused components which have been accepted by other original equipment importers. Also, components may be used on one pickup and not on a truck of the same make. This suggests that quality standards differ among importers/principals and sometimes the specifications are excessive and at other times they are used for delaying local component sourcing. For instance the process of deletion including the testing of samples takes up to 18 months for Japanese makes of vehicles. Hence the ancillary industry remains small and underutilized.. (see Chapter III, hypothesis 4 - on deletion allowances).

Lagging employment growth:

Employment lags behind output growth and between 1978 and 1982 employment - output elasticity was -0.57. The industry is managed wholly by expatriates although ownership of equity should give control to Kenyans in two of the larger plants and 35 per cent influence in the other large plant.

3.8 Policy recommendation:

It is, however, not too late to remedy the situation. The agreements on which the plants were established will soon expire. Thus, in a few years' time, vehicle models could be reduced to fourteen, assembly plants to one, franchise importers to two and distribution and service points to forty and yet serve the customer as well as at present, if not better, due to more complete inventories of spare parts. If the proposed rationalization went through as a package, ex-assembly costs would fall by 7.5 per cent, local costs by 26.8%, assembly charges by 65% and retail prices by 20-25 per cent. This would boost the demand for vehicles. Additional economic gains from vehicle rationalization include less usage of foreign exchange, higher deletion allowances, more utilization of local content, increased assembly and ancillary efficiency in production, better competitiveness on the world market and more Kenyanization.

These gains would only be achieved if public policy were changed and strictly enforced. Rationalization could be achieved by: (1) The closure of some of the assembly plants at the expiry of the current agreements; and (2) a refusal of import licences for the importation of most vehicle models; and, (3) a reduction in sales and service points. These actions should follow a careful study of vehicle models, plants and distribution and service points to determine which should continue operation. The government should then re-negotiate deletion allowances, strictly enforce local content targets, restrict work permits for expatriates to one or two, impose Kenyan quality standards, and reform the price control formula to disallow the passing of full cost increases to the buyer. Exports could be promoted through the establishment of free trade for selected components, barter arrangements and negotiation with multinational parent companies about exporting.

4. Feasibility of these reforms

The implementation of reforms which throw some investors out of business and employees out of work would be resisted more than those which just reduce profits.

The reduction in models, plants, franchise importers and distribution and sales points would put some investors out of business and workers out of employment. Thus, these reforms would be resisted by investors and employee unions. The assemblers, franchise importers and vehicle distributors would be reluctant to supply the information necessary for a commercial and economic analysis of these establishments in order to select the candidates for continued operation. However, the government could demand the information and even prosecute them for non-compliance. But the legal process may be lengthy and the investors, through their easy access to high decision levels in government, could divide public policy makers and thus block the implementation of these reforms. On the other hand, the government could utilize the information collected in the process of administering these industries (e.g. customs and price control data) to quickly select and inform the candidates chosen for continued operation. This would reduce resistance from the investors. Still, there would be resistance from employee trade unions that would have to be handled within the existing regulations governing redundancies.

However, if the resistance to these reforms is too much to overcome, the government should at least, avoid renewing the current agreements with the vehicle assembly plants. Thus, no legal obstacles would be created to impede streamlining the industry later.

The other policies to renegotiate deletion allowances, reform price controls and impose Kenyan standards would reduce the profits of the assemblers, vehicle distributors, and ancillary producers. Hence, though investors in these industries would resist these reforms, that resistance would be less than that arising from the closure of plants, models, franchise importers and distributorships. Foreign investors would also try to resist the reduction of the number of expatriates but, with the support of Kenyans in and outside the industry, the resistance could be easily overcome.

Thus, the proposed public policy changes are feasible but they would be resisted by private investors and so would require much determination by the government.

5. Conclusion:

The Kenyan vehicle assembly industry is inefficient. There are far too many models and the industry experiences high per-unit assembly costs, low capacity utilization, low backward linkages, heavy usage of foreign exchange, little exporting, low job creation and low Kenyanization of management. This inhibits indigenization of the vehicle. It also inflicts high capital and operating costs on the transport and other sectors of the economy as well as on the travelling public. The implementation of the proposed policy package would reduce assembly charges by 67 per cent and retail prices of vehicles by between 20-25 per cent. Therefore there is need to improve the efficiency of the vehicle assembly and distribution and ancillary industries. The government should strictly enforce the proposed policy package to eliminate the duplication of models, plants, importers, distributorships and excess expatriates by not renewing current agreements and licences and by reducing work permits. Also, quality standards should be localized, deletion allowances should be re-negotiated, price control formula should be made more cost efficient, and trade in components and vehicles promoted through cooperation with neighbours and multinational firms. The proposed public policy reforms would be resisted by local and foreign private investors. But with political will the government could succeed in implementing these reforms.

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Chapter 1:

1. Rae, J.B. The American Automobile Manufacturers: The First Forty Years. Chilton Company Book Division, New York, 1959.

2. An exhibit of an ox-drawn wagon outside the office of the Chief Mechanical Engineer Ministry of Transport and Communications, Nairobi, reads "Ox-drawn Bottom Dump Wagon, used in E.A. (East African-ZM) Campaign 1914-1918 War, and subsequently purchased by PWD (Public Works Department-ZM) for use on Road Maintenance until 1938."

3. Kenya. Public Works Department, Annual Report, (for) 1932, Government Printer, Nairobi, 1933, p. 12.

4. Kenya. Ministry of Economic Planning and Development, Statistical Abstract. Government Printer, Nairobi, 1981, various tables.

5. Kenya. Public Works Department, Annual Report (for) 1952. Government Printer, Nairobi, 1953, pp. 97 to 99.

6. The displacement of the Ministry of Works vehicle assembly plant by commercial vehicle assemblers was confirmed by an official of the Ministry of Transport and Communications. The first authorized assembly plant (Leyland Kenya Ltd.) started operating in 1976.

7. Details about the five commercial vehicle assembly plants were obtained during the survey period, May-September 1982.

8. Kaplinsky R. "Technological Change and the Multinational Corporation," in R. Kaplinsky, ed., Readings on the Multinational Corporation in Kenya, Oxford University Press, Nairobi, 1978, p. 212.

9. Regulations governing the assembly of vehicles from CKD vehicle kits are contained in Kenya. Attorney Generals Office, "Legal Notice No. 22 of 1980." Government Printer, Nairobi.

10. Kenya. Daily Nation, Nairobi, Friday, 29.1.82, p.17.

11. Details on the assembly operations are dependent on interviews and also extensively rely upon the explanations found in D.W. Rose, Development Options in the New Zealand Motor Car Assembly Industry. N.Z. Institute of Economic Research (Inc), Research Paper No. 16, Wellington, 1971, pp. 79 to 82.

12. Kenya. Ministry of Economic Planning and Development, Central Bureau of Statistics (unpublished).

13. Kenya. Ministry of Economic Planning and Development, Development Plan, 1979-83, Part I. Government Printer, Nairobi, 1979, pp. 333-334, para. 7.28 and 7.29.

14. During the survey, this author came across one component manufacturer, who manufactures the driver's mirror, plug wire sets, battery leads, brake linings, brake pads etc. He claimed to have started producing without consulting the Ministry of Industry.

15. Kenya. Ministry of Industry. A list of projects approved by the New Projects Committee between 1977 and the first half of 1982 was given to this author by an official of the Ministry. The list included employment, investment, items for production and date of approval.

16. Kangethe, F. and Gill, S.S. "A Case Study for the Manufacture of Spare Parts and Components," Kenya, Ministry of Industry, Nairobi, (mimeo), 1982, p. 7.

Chapter II

1. Deletion allowance is the credit given for parts not shipped with the knocked down vehicle kit (CKD).

2. Langdon, S.W. "Multinational Corporations, Taste Transfers and Underdevelopment: A Case Study from Kenya," in Review of African Political Economy, Merlin Press, London, April-June, 1975, Vol.2 p.16.

3. Begumisa, G. Machine, Goods and Spare parts Industries: A Case Study of the Water Pumps Industry in Kenya. M.A. Thesis, University of Nairobi, 1982, p. 31, Table 33.

4. Stoneman, C. "Industrialization and Self Reliance in Zimbabwe," in M. Frasman, ed. Industry and Accumulation in Africa. Heinemann Educational Books Ltd., London, 1982, p.284.

5. Rose, W.D. Development Options in the New Zealand Motor Car Assembly Industry. New Zealand Institute of Economic Research (Inc.). Research Paper No.16, 1971, p. 89,

6. Rose, W.D Ibid., p.89.

7. Baranson, J. Industrial Technologies for Developing Economies. Frederick A. Praeger Publishers, New York, 1969, p. 84.

8. Baranson, J. Industrial Technologies for Developing Economies: Ibid., p.85.

9. Langdon, S.W. Multinational Corporations in the Political Economy of Kenya. The Macmillan Press Ltd., London, 1981, p. 122.

10. Behrman, J.N. The Role of International Companies in Latin American Integration: Autos and Petrochmicals. Lexington Books, D.C. Heath and Company, Massachusetts, 1972, p. 136.

11. Baranson, J. Automotive Industries in Developing Countries. op. cit, 1969, p.49.

12. Baranson, J. *ibid.*, p. 52.

13. Winston, G. "Capital Utilization in Economic Development," in *Economic Journal*, The McMillan (Journals) Ltd., London, March, 1971, Vol.81, pp. 36-40.

14. Winston, G. *ibid.*, p. 36.

15. Shultze, C.L. "Uses of Capacity Measures for Short Run Economic Analysis," in *Americal Economic Review*, American Economic Association, California, May 1963, Vol.53, p. 293.

16. Mouly, J. and Costa, E. *Employment Policies in Developing Countries*. Allen and Unwin Ltd., Oxford, on behalf of ILO, 1974, p.47.

17. ILO *Employment, Incomes and Equality: A Strategy for Increasing Productive Employment in Kenya*. Geneva, 1972, p. 182.

18. *ibid.* p. 182, note 2 indicates that the theoretical maximum number of hours that could be worked is 168 per week. However, allowing for maintenance, repair etc. the number of working hours is reduced to 140. This yields a ratio of 83.3 per cent between the two.

19. Baily, M.A. "Capital Utilization in Kenya Manufacturing Industry," Discussion Paper No. 206, Institute for Development Studies, University of Nairobi. August 1974.

20. Kenya. Ministry of Economic Planning and Development. *Development Plan, 1979-83,* Government Printer, Nairobi, 1979, p. 30 (para.2.40).

21. Mouly, J. and Costa, E. *op. cit.*, 1974, p. 46.

22. ILO *op. cit.*, 1972, p. 183.

23. Coughlin, P.C. "Converting Crisis to Boom for Kenyan Foundries and Metal Engineering Industries: Technical Possibilities Versus Bureaucratic Obstacles," Working Paper No. 398, Institute of Development Studies, University of Nairobi, August 1983, pp. 2 and 3.

24. Rose, W.D. *op. cit.*, p. 86.

25. Behrman, J.N. *op. cit.*, p.124.

26. Rose, W.D. *op.cit.*, p. 82. The normal level of capacity utilization has been put at 80 per cent of ultimate technical capacity to allow for breakdowns, stopages and failures in supply.

This compares well with the ILO's estimate of 83.3 per cent. (see note 17 above).

27. Rose, W.D. *ibid.*, pp. 82-87.

28. Rose, W.D. *ibid.*, p.11.

29. Haldi and Whitcomb "Economies of Scale in Industrial Plants," in the *Journal of Political Economy*, August, 1967, Part I, p.373. Cited by W.D. Rose, *ibid.*, p.113.

30. Rose, W.D. *op. cit.*, p. 113.

31. Mouly, J. and Costa, E. *op. cit.*, 1974, p. 45

32. ILO *op.cit.*, 1972, p.177.

33. Weeks, J. "Employment Growth in Kenya's Manufacturing: Another Look at Labour Absorption," in D. Ghai and M. Godfrey, eds., *Essays on Employment in Kenya.* Kenya Literature Bureau, Nairobi, p.7.

34. Pack, H. "Employment and Productivity in Kenyan Manufacturing," in D. Ghai and M. Godfrey, eds. *op. cit.*, pp. 22 and 23 and Tables 3.1 and 3.2.

35. Stewart, F. "Employment and Choice of Technique," in D. Ghai and M. Godfrey, eds., *op.cit.*, pp. 47-74.

36. Pack, H. op. cit., p. 24 and the whole paper

37. Pack, H. "The Substitution of Labour for Capital in Manufacturing" in T. Killick, ed., Papers on the Kenyan Economy. Heinemann Educational Books Ltd., Nairobi, p. 259.

38. Langdon, S.W. "Multinational Corporations, Taste Transfers and Underdevelopment : A Case Study from Kenya," in Review of Political Economy, Merlin Press, London, Jan.-April, 1975, Vol.2, p.16, Table 1.

39. Baranson, J. Automotive Industries in Developing Countries. op. cit., 1969, p. 22.

40. Brough, A.T. and Curtin, T.R.C. "Growth and Stability: An Account of Fiscal and Monetary Policy," in T. Killick, ed., op. cit., p.49.

41. ibid. p. 49.

42. Baranson, J. Automotive Industries in Developing Countries. op. cit., 1969. p. 24.

43. Langdon. S.W. op.cit., 1981, p. 69.

44. Baranson, J. Automotive Industries in Developing Countries. op. cit., 1969, p.46

45. Khan, A.U. "Appropriate Technologies: Do We Transfer, Adapt or Develop?" in E.O. Edwards, ed., Employment in Developing Nations. Columbia Univesity Press, New York and London, 1974, pp. 227-8.

46. Pack, H. "Substitution of Labour for Capital in Manufacturring, " in T. Killick, ed. op. cit., p. 260

47. Baranson, J. Industrial Technologies for Developing Economies. op .cit. p. 49.

48. Behrman, J.N. op. cit., p. 141.

49. Khan, A.U. op. cit., p. 229.

50. Behrman, J.N. *op. cit.*, p. 136.

51. Baranson, J. *Automotive Industries in Developing Countries*. *op. cit.*, 1969, p. 27.

52. Baranson, J. *ibid.*, p. 23 note 3.

53. Stewart, F. "Technology Transfer in LDC's, in E.O. Edwards, ed., *op. cit.*, p. 96, citing Baranson, J. "Diesel Engine Manufacturing in India and Japan," in *Automation in Developing Countries*. ILO, 1972, p. 66.

54. Stewart, F. *ibid.* p. 96, citing Fereira, *Technology and Economics in International Development: Report of a Seminar*, Washington, D.C., Office of Science and Technology, USAID, May, 1972 - in future referred to as USAID (1), 1972.

55. Stewart, F. "International Technology Transfer : Issues and Policy Options" World Bank Staff Working Paper, No. 344, Washington, D.C., July 1979, p.24.

56. Langdon, S.W. *op. cit.*, 1975, p. 21.

57. UNCTAD "Major Issues Arising from Transfer of Technology to Developing Countries, "TD/B/AC. 11/10, Rev. 2, 1975, cited in F. Stewart, "International Technology Transfer : Issues and Policy Options", *op. cit.*, p.31, note 2.

58. Langdon, S.W. *op. cit.*, 1975, p. 18.

59. *ibid.*, p. 17.

60. Baranson, J. *Automotive Industries in Developing Countries*. *op. cit.*, 1969, pp. 50-51 and Table 7.

61. Rose, W.D. *op. cit.*, p. 44.

62. Stewart, F. "International Technology Transfer : Issues and Policy Options," op.cit., 1979, p.59.

63. UNIDO "Recent Developments in the Regulation of Foreign Technology in Selected Developing Countries," ID/WG, 275/8, 1968, p.53, cited in F. Stewart, ibid., p. 60.

64. Vaitsos, C.V. "The Process of Commercialization of Technology in the Andean Pact," O.A.S., 1971, cited in F. Stewart, "International Technology Transfer: Issues and Policy Options," op.cit., 1979, p.60.

65. Barek, W. and Ranis, G. Science and Technology. Praeger, 1978, cited in F. Stewart, "International Technology Transfer : Issues and Policy Options", op.cit., p. 63.

66. UNCTAD. "Case Studies in Transfers of Technology: Policies for Transfer and Development of Technology in Pre-war Japan, 1868 - 1937," TD/B/C.6/26, 1978, para.17, cited in F. Stewart, "International Technology Transfer : Issues and Policy Options," op.cit., p.63.

67. Gereffi, G. "Drug Firms in Dependency in Mexico : The Case of the Steroid Hormone Industry, "International Organization. Vol. 32, 1978, cited in F. Stewart, "International Technology Transfer : Issues and Policy Options," op. cit., pp. 75 - 76.

68. Stewart, F. "International Technology Transfer : Issues and Policy Options," op. cit., various pages.

69. Langdon, S.W. op. cit., 1975, p. 19.

70. Vaitsos, C.V. op. cit., cited in F. Stewart, "International Technology Transfer : Issues and Policy Options," op. cit., p.33.

71. Helleiner, G.K. "Manufactured Exports from Less Developed Countries and Multinational Firms," in Economic Journal, Richard Clay. (The Chaucer Press) Ltd., March 1973, Vol. 83, cited in F. Stewart, International Technology Transfer : Issues and Policy Options," ibid., p. 34.

72. Langdon, S.W. op. cit., 1981, p. 35.

73. Baranson, J. Automotive Industries in Developing Countries. op. cit., 1969, p. 35.

74. Behrman, J.N. op. cit., p. 133.

75. Behrman, J.N. ibid., p. 27.

76. ibid., The whole work discusses in great detail, the problems and benefits of integration as exemplified by the Latin American automobile and petro-chemical industries.

77. Baranson, J. Automotive Industries in Developing Countries. op. cit., 1969, pp. 77-80.

78. Rose, W.D. op. cit., p.177.

79. ibid., p. 177.

80. ibid., pp. 170 - 171, note 8.

81. Baranson, J. Automotive Industries in Developing Countries. op. cit., pp. 71 - 80. Provides examples of barter arrangements and production for export.

82. Langdon, S.W. op. cit., 1981, p.122.

83. Kaplinsky, R. "The Role of the Multinational Corporation," in R. Kaplinsky, ed., Readings on the Multinational Corporation in Kenya. Oxford University Press, Nairobi, 1979, p.15, and Chapter 4.

84. Langdon, S.W. op. cit., 1981. pp. 36 - 42.

85. F. Stewart op. cit., "International Technology Transfer. Issues and Policy Options." op. cit., p. 27. citing:

(i) S. Lall, "Transfer pricing by Multinational Firms," and Oxford Bulletin of Economics and Statistics, A.T. Broom, Oxford, August 1973, Vol.35.

(ii) UNCTAD "Dorminant Positions of Market Power of Transnational Corporations : Use of Transfer Pricing Mechanism," ST/MD/6.

86. Vaitsos, C.V. op. cit. , cited in F. Stewart, ibid., p. 29.

87. Roumeliotis, P.V. and Goulemis, P.V. "Transfer Pricing and the Power of Transnational Enterprises in Greece," (prepared for a conference at I D S, Sussex (MIMEO), 1978, in F. Stewart, ibid., p. 29.

88. I L O op. cit., 1972, p. 454.

89. Langdon, S.W. op. cit., 1981, p. 113.

90. Rose, W.D. op. cit., p. 148.

91. Baranson, J. Automotive Industries in Developing Countries. op. cit., p. 16.

92. Rose, W.D. op. cit., p. 149.

93. Behrman, J.N. op. cit., pp. 123 - 124.

94. ibid., p. 124.

95. ibid., p. 136.

96. ibid., p. 146.

97. Rose, W.D. op. cit., p. 124.

98. Baranson, J. Automotive Industries in Developing Countries. op. cit., 1969, p. 37, note 10.

99. Rose, W.D. op. cit., p. 124.

100. Behrman, J.N. op. cit., p. 74.

101 Rose, W.D. op. cit., p. 126

102. Behrman, J.N. op. cit., p. 136.

103. Behrman, J.N. ibid., p. 137.

104. Behrman, J.N. ibid., p. 137.

105. Rose, W.D. op. cit., p. 76.

106. Behrman, J.N. op. cit. , p. 138.

Chapter III:

1. Unnecessary vehicle differentiation; One make of vehicle such as the Land Rover can have several models depending on type of fuel used, body type and carrying capacity. For instance, an 88 inch wheel base Land Rover is assembled in three models: (i) canvas top, petrol (ii) hard top, petrol (iii) station wagon, diesel. The canvas and hard top versions constitute two different models, where one would have been adequate for Kenya. Hence one of the two is unnecessary. But the station wagon is a passenger car, hence it is necessary.

   A second aspect of differentiation has been based on carrying capacity. For pick-ups, one-tonne pick-up would suffice the range from a half-tonne to a three-tonne pick-up. Hence, a two-tonne or any other pick-up within the specified range would be unnecessary. For trucks, unnecessary differentiation has occurred where the combined main axle and the trailer loads overlap. For, instance, a ten-tonne main axle load truck could pull another seven trailer tonnes. This combined load of 17 tonnes eliminates other axle-trailer load combinations for the range ten to 17 tonnes.

2. Kenya. Daily Nation, Nairobi, Friday 29th January 1982, p. 17. It was reported that a 4x4 wheel drive Jeep of American origin will soon be assembled two models by General Motors Kenya Ltd. on contract. Thus, vehicle differentiation will be further increased.

3. Phillips, A. "Industrial Capacity: An Appraisal of Measures of Capacity," in American Economic Review, American Economic Association, California, May 1963. Vol. 53, pp. 275-291. This article critically discusses several major measures of capacity utilization and concludes that a search for more precise measures should be intensified.

4. The output of the assembly industry comprises pick-ups with a load carrying capacity between a half tonne and three tonnes and trucks whose axle-load carrying capacity is up to 40 tonnes and a chain load of about 65 tonnes. Pick-ups are in the majority.

5. Kenya. Ministry of Economic Planning and Development, Kenya Statistical Digest. Government Printer, Nairobi, December 1981. Volume XX, No. 4, table 16.

6. Kenya. Sunday Nation. "Warning Over Jobs", Nairobi, 19.9.82, p. 23.

7. Langdon, S.W., Multinational Corporations in the Political Economy of Kenya. The McMillan Press Ltd.London, 1981, pp. 123-127.

8. Appendix Table XV, row 3, shows that between 1975 and 1981, vehicle retail prices rose at between 10 and 20 per cent per annum. Year to year changes exceeded 20 per cent in some cases.

9. Kenya. Ministry of Economic Planning and Development, Central Bureau of Statistics, Nairobi, 1979, (Unpublished).

10. East African Community. Report on Multinational Industries in the Iron and Steel, Automotive, Chemical and Fertilizer Sectors in the East African Community: Summary of Recommendations. Maxwel Stamp London, September 1971, Vol. 1, p. 9.

11. Maxcy, G. The Motor Industry: Economics of Largescale Products. George Allen and Unwin Ltd., London, 1959, p. 79.

12. Baranson, J. Automotive Industries in Developing Countries. World Bank Staff Working Paper, No. 8, The John Hopkins Press, Baltimore, 1969, p. 37.

13. ibid., p. xii and xiii. Briefly gives the experience of J. Baranson in the automobile industry's operations.

14. Kenya. Attorney General's Offices, "Legal Notice No. 22 of 1980," Government Printer, Nairobi. This notice gives the regulations governing the assembly of vehicles from completely knocked down kits.

15. Rose, W.D. Development Options in the New Zealand Motor Car Assembly Industry. New Zealand Institute of Economic Research (Inc.) Research Paper No. 16. 1971, p. 51, Table 15 and the accompanying notes.

16. Assembly plants, franchise importers and countries from where vehicle CKD kits are imported were separately coded and thus preserve confidentiality.

17. Baranson, J. *Industrial Technologies for Developing Economies*. Frederick A. Praeger, Publishers, New York, 1969, p. 80.

18. Baranson, J. *ibid.*, p. 77.

19. Gershenberg, I. "Multinational Enterprises the Transfer of Managerial Know-how, Technology Choice and Employment Effects: A Case Study of Kenya," Working Paper No. 28, ILO, Multinational Enterprises Programme, 6/83.

20. Kenya. *Auto News*, News Publishers Ltd., Nairobi, September 1983, p. 9.

21. Coughlin, P.E. "Converting Crisis to Boom for Kenyan Foundries and Metal Engineering Industries: Technical Possibilities Versus Political Bureaucratic Obstacles" Working Paper No. 398, Institute of Development Studies, University of Nairobi, August 1983. p. 29, note 27.

22. Langdon, S.W. *op. cit.*, 1981, p. 114.

23. Rose, W.D *op. cit.*, p. 36.

24. Kenya. "Sessional Paper No. 10 of 1965: on African Socialism and Its Application to Planning in Kenya," Government Printer, Nairobi, 1965, p. 14.

25. ILO *Employment, Incomes and Equality: A Strategy for Increasing Productive Employment in Kenya*. ILO, Geneva, 1972, p. 564.

Chapter IV:

1. Konzolo, J. "Capital Goods and Spare Parts Industries: A Case Study of Electrical Motor Reconditioning and Manufacture in Kenya." M.A. Thesis University of Nairobi, 1982, cited in P.E. Coughlin, "Converting Crisis to Boom for Kenyan Foundries and Metal Engineering Industries Technical Possibilities Versus Political Bureaucratic Obstacles." Working Paper No. 398, Institute of Development Studies, University of Nairobi, August 1983, p. 19.

2. Kaplinsky, R. "Capitalist Accumulation in the Periphery: Kenya," in M. Fransman, ed., Industry and Accumulation in Africa. Heinemann, London, 1982, p. 207.

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9. Edwards, E.O., Employment in Developing Nations. Columbia University Press, New York and London, 1974.

10. Fereira. "Technology and Economics in International Development : Report of a Seminar." Washington, D.C., Office of Science and Technology, U.S.A.I.D., May 1972.

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13. Green, R.H. "Economic Independence and Economic Cooperation," in D.P. Ghai, ed., Economic Independence in Africa. East Africa Literature Bureau, Nairobi, 1973.

14. Guillain, R. The Japanese Challenge. J.B. Lippincott Company, Philadelphia and New York, 1970.

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24. Kenya. Ministry of Economic Planning and Development, Development Plan, 1979-83. Government Printer, Nairobi, 1979.

25. Kenya. Ministry of Economic Planning and Development, Kenya Statistical Digest. Government Printer, Nairobi, (quarterly).

26. Kenya. Ministry of Economic Planning and Development, Statistical Abstract. Government Printer, Nairobi, (annual).

27. Kenya. Public Works Department, Annual Report Government Printer, Nairobi (annual).

28. Kenya. Sessional Paper No. 10 of 1965 on African Socialism and its Application to Planning in Kenya, Government Printer, Nairobi, 1965.

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51. UNIDO "Recent Developments in the Regulation of Foreign Technology in Selected Developing Countries," ID/WG, 275/8, 1968.

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APPENDIX TABLE I: NUMBER OF LOCAL COMPONENTS USED IN SELECTED LOCALLY ASSEMBLED PICKUPS, FOR SELECTED YEARS, 1976-1982.

ASSEMBLER	KENYAN STANDARD	I		III					II		
COUNTRY OF ORIGIN OF CKD		D		D			E		F		C
IMPORTER		(x)		(v)		(xiv)	(xv)		(viii)		(viii)
COMPONENT PART	1982	1978	1981	1979	1981	1982	1977	1981	1976	1980	1976
	1	2	3	4	5	6	7	8	9	10	11
Tyres and tubes	x	x	x		x	x	x	x	x	x	x
Batteries	x	x	x		x	x	x	x	x	x	x
Soft trim		x	x				x	x	x	x	x
Glass		x	x				x	x	x	x	x
Paint		x	x						x	x	x
Wiring harness		x	x				x	x	x	x	
Fuel, oil, greases		x	x						x	x	x
Canvas hood, hood stick		x	x								
Leaf springs	x	x	x								
Bolts and nuts	x										
Radiator block	x									x	
Welding and soldering material			x						x		x
Head-screws	x										
Exhaust pipe system	x	x	x					x			

APPENDIX I: Contd.......

ASSEMBLER	KENYAN STANDARD	I		III					II		
COUNTRY OF ORIGIN		D		D			E		F		C
IMPORTER		(x)		(v)		(xiv)	(xv)		(viii)		(viii)
COMPONENT PART	1982	1978	1981	1979	1981	1982	1977	1981	1976	1980	1976
	1	2	3	4	5	6	7	8	9	10	11
Shock absorbers	x										
Spark plugs	x										
Spare wheel carrier		x	x				x	x			
Brake fluid									x		x
Brake linings	x										
Brake pads											
Brake shoes											
Clutch linning/facing											
Automotive V-belts											
Air, oil, petrol, diesel filters											
Automotive bulbs											
Hydraulic jacks											
Axles for trailers											
Bumpers											
Other consumables		x	x						x	x	x
Total	10	12	13	Nil	2	2	6	7	10	9	9

Source: Kenya Government.

Note : Other consumables include adhesives, sealers, undersealing.

APPENDIX TABLE II: NUMBER OF LOCAL COMPONENTS USED IN SELECTED LOCALLY ASSEMBLED MEDIUM AND HEAVY TRUCKS FOR SELECTED YEARS, 1976-82.

ASSEMBLER	I				III				II	V
COUNTRY OF ORIGIN OF CKD	F		D		F		D	C	F	G
IMPORTER	(x)		(x)		(vii)		(xiv)	(xv)	(viii)	(ix)
	1978	1982	1978	1982	1977	1980	1982	1981	1980	1981
	1	2	3	4	5	6	7	8	9	10
Tyres and tubes	x	x	x	x	x	x	x	x	x	x
Batteries	x	x	x	x	x	x	x	x	x	x
Soft trim	x	x	x	x		x	x	x	x	x
Glass	x	x	x	x	x	x		x	x	x
Paint	x	x	x	x					x	x
Wiring warness	x	x	x	x		x	x	x	x	x
Fuel, oil, greases	x	x	x	x						
Canvas hood, hood stick	x		x							
Leaf springs		x		x					x	x
Bolts and nuts										
Radiator block		x		x						
Welding and soldering material		x		x						
Head-screws										
Exhaust pipe system		x		x						x
Shock absorbers										
Spark plugs										
Spare wheel carrier		x								

APPENDIX II Contd......

ASSEMBLER	I				III				II	V
COUNTRY OF ORIGIN OF CKD	F		D		F		D	C	F	G
IMPORTER	(x)		(x)		(vii)		(xiv)	(xv)	(viii)	(ix)
	1978	1982	1978	1982	1977	1980	1982	1981	1980	1981
	1	2	3	4	5	6	7	8	9	10
Brake fluid										
Brake linings										
Brake pads										
Brake shoes										
Clutch linning/facing										
Automotive V-belts										
Air, oil, petrol, diesel filters										
Automotive bulbs										
Hydraulic jacks										
Axles for trailers										
Bumpers										
Other consumables	x	x	x	x			x	x	x	x
Total	9	13	9	12	3	5	5	6	8	9

Source: Kenya Government.

APPENDIX TABLE III: · STRUCTURE OF COSTS OF ASSEMBLY OF SELECTED PICKUPS IN SELECTED YEARS · 1976/1982.

PERCENT

ASSEMBLER -	I		III					II		
COUNTRY OF ORIGIN OF CKD	D		D			E		F		C
IMPORTER	(x)		(v)		(vix)	(xv)		(viii)		(viii)
	1978	1981	1979	1981	1982	1977	1981	1976	1980	1976
	1	2	3	4	5	6	7	8	9	10
Price fob. overseas										
without deletion								51.4		
with deletions		38.0	52.8	39.7	n.a.	53.0	45.2	49.8	49.5	48.9
Freight and other expenses		3.6	14.4	7.0	n.a.	0.4	6.0	11.2	9.5	6.4
Landed cost (c.f.)	49.0	41.6	67.2	46.7	46.6	54.0	52.5	61.0	59.0	55.3
Customs duty on landed cost	25.0	16.1	17.5	19.8	16.3	13.5	18.3	16.0	21.3	14.5
Sales tax					n.a					
Local context (l.c.):										
Tyres and tubes	4.4	3.2	–	2.6		4.4	3.7	3.1	2.1	
Batteries	0.8	0.4	–	0.7		0.4	0.6	0.3	0.4	
Soft trim	4.8	2.7	–	–		3.3	2.2	0.6	0.8	
Glass	0.1	0.1	–	–		0.2	0.5	0.6	0.3	
Paint	2.5	1.7	–	–				0.3	0.8	
Wiring harness	2.8	1.7	–	–		2.4	1.6	–	1.1	
Fuel, oil, greases	0.3	1.6	–	–						
Canvas hood and hood stick	3.0	0.3	–	–				–	–	
Leaf springs	7.4	2.1	–	–				–	–	

APPENDIX III: Contd......

ASSEMBLER	I		III					II		
COUNTRY OF ORIGIN OF CKD	D		D			E		F		C
IMPORTER	(x)		(v)		(vix)	(xv)		(viii)		(viii)
COMPONENT PART	1978	1981	1979	1981	1982	1977	1980	1976	1980	1976
	1	2	3	4	5	6	7	8	9	10
Welding and soldering material	-	0.4	-					-	-	
Exhaust pipe system	-	-	-	-		0.3		-	-	
Spare wheel carrier	-	-	-	-		0.5	0.4	-	-	
Brake linings	-	-	-	-		-		-	-	
Radiator block	-	-	-	-				-	1.3	
All other consumables	0.3	0.3	-	-				0.7	0.6	
Sub-total	26.4	14.4	-	3.3	5.3	11.2	9.3	5.6	7.4	18.3
Assembly charges	n.a	18.6	-	20.3	18.4	17.6	19.1	8.8	9.7	3.2
Total (l.c)	26.4	33.0	-	23.6	23.7	28.8	28.4	14.4	17.1	21.5
All other local expenses		9.3	15.5	10.0	13.3	3.7	0.7	9.6	2.6	8.7
Total ex-assembly value	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Kenya Government.

Notes to Appendix Tables I, II and III

An Yes in Column 1 (Appendix Table I) means that there is an approved Kenyan standard for the item in question. An X in the remaining columns indicates that the item is being used as original equipment in the corresponding vehicle make/model.

The capital Roman numbers allocated to assembly plants, capital letters to countries of origin of CKD kits and small Roman numbers to importers, respectively, were determined by use of random numbers*. The procedure used was to:

(i) obtain lists of assemblers, countries of origin of CKD, and importers.

(ii) Order each list separately alphabetically and to number them serially in that order.

(iii) Consult tables of random numbers.

APPENDIX TABLE IV: STRUCTURE OF COSTS OF ASSEMBLY OF SELECTED TRUCKS IN SELECTED YEARS, 1976 – 1982.

PERCENT

	I				III				II	V
	F		D		F		D	C	F	G
	(x)		(x)		(vii)		(xiv)	(xv)	(viii)	(ix)
	1978	1982	1978	1982	1977	1981	1982	1981	1980	1981
	1	2	3	4	5	6	7	8	9	10
Price (f.o.b) overseas –										
without deletion	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
with deletions	35.8	36.0	47.9	32.4	50.8	47.7	46.4	55.9	41.1	
Freight and other expenses	6.3	2.6	3.9	13.4	6.3	4.1	6.9	7.2	15.3	
Landed cost (c.f.)	38.2	38.6	51.8	45.8	57.1	51.8	53.3	63.1	56.4	55.5
Customs duty	10.4	16.5	14.1	16.8	14.8	19.1	22.4	14.8	19.6	22.2
Sales tax on landed cost							6.1			11.7
Local content (l.c)										
Tyres and tubes	7.3	7.0	7.1	6.9	9.4	9.3	–	5.9	7.4	4.3
Batteries	0.7	0.5	0.8	1.0	0.5	0.5	–	0.3	0.3	0.5
Soft trim	3.4	1.1	0.9	1.1	–	2.6	"	0.8	1.3	0.7
Flat glass	0.1	0.1	0.1	0.1	0.2	0.1	"	0:2	0.1	0.1
Paint	0.4	0.6	0.3	0.7					0.5	
Wiring harness	1.0	0.8	0.8	1.1			"	0.5	1.0	0.3
Fuel, oil, greases	0.1	0.6	0.1	0.9			"		0.3	
Canvas hood and hood stick	1.5	1.0	–				–		–	

APPENDIX IV Contd.......

	I				III				II	V
	F		D		F		D	C	F	G
	(x)		(x)		(vii)		(xiv)	(xv)	(viii)	(ix)
	1978	1982	1978	1982	1977	1980	1982	1981	1980	1981
	1	2	3	4	5	6	7	8	9	10
Leaf springs	-	3.2	-	-			-		3.1	2.1
Welding and soldering material	-	0.4	-	0.3			-		-	
Exhaust pipe system	-			0.3			-		-	0.2
Spare wheel carrier	-			..			-		-	
Brake linings	-						-		-	
Radiator block	-	0.6					-		-	
All other consumables	3.8	0.5	0.2	0.5	0.8	-	-	0.2	0.1	0.6
Sub-total	18.3	16.4	10.3	12.9	10.9	12.5	5.8	7.9	16.1	8.8
Assembly charges	22.9	17.0	13.3	8.8	5.1	10.5	12.0	5.6	5.9	1.8
Total (l.c.)	41.2	33.4	23.6	21.7	16.0	23.0	17.8	13.5	22.0	10.6
All other local expenses	10.0	11.4	10.4	15.7	12.1	6.0	1.4	8.8	2.3	..
Total ex-assembly value	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Kenya government.

APPENDIX V. THE AVERAGE STRUCTURE OF THE EX-ASSEMBLY VALUE OF VEHICLES ASSEMBLED IN KENYA BETWEEN 1976 - 1982.

	TRUCKS		PICKUPS		AVERAGE
	Share	Share x.265	Share	Share x.735	Col.2 +61.3
	1	2	3	4	5
Landed cost	52.34	13.87	54.49	40.05	53.92
Local components:					
Tyres, tubes	6.61	1.75	2.40	1.76	3.51
Batteries	0.52	0.14	0.37	0.27	0.41
Soft trim	1.22	0.32	1.47	1.08	1.40
Flat glass	0.11	0.03	0.18	0.13	0.16
Paint	0.26	0.07	0.53	0.39	0.46
Wiring harness	0.56	0.15	0.98	0.72	0.87
Fuel, oil, greases	0.20	0.05	0.19	0.14	0.19
Canvas hood, stick	0.26	0.07	0.34	0.25	0.32
Leaf springs	1.06	0.28	0.97	0.71	0.99
Welding, soldering material	0.07	0.02	0.04	0.03	0.05
Exhaust pipe system	0.05	0.01	0.03	0.02	0.03
Spare wheel carrier	-	-	0.09	0.07	0.07
Radiator block	0.06	0.02	0.13	0.10	0.12
Other consumables	0.69	0.18	0.19	0.14	0.32
Sub-total (3 to 16)	11.67	3.09	7.91	5.81	8.90
Assembly charges	10.53	2.79	11.83	8.70	11.49
Sub-total (17 + 18)	22.20	5.88	19.74	14.51	20.39
All other local costs	7.99	2.12	7.51	5.52	7.64
Sub-total (19 + 20)	30.19	8.00	27.25	20.03	28.03
Sub-total (1 + 21)	82.53	21.87	81.74	60.08	81.95
Customs duty	17.47	4.63	18.26	13.42	18.05
Total (22 + 23)	100.0	26.50	100.0	73.50	100.00

Source: Kenya Government

Note: The 0.265 and 0.735 are the proportions of trucks and pickups respectively in total registered vehicles in 1981.

APPENDIX TABLE VI: THE IMPORT CONTENT IN LOCAL COMPONENTS, 1976-1982.

		Share in the ex-assembly value of the vehicle	Import content in the component	Import content in ex-assembly value of the vehicle Col.1 x Col.2	Rough estimate of import content in the ex-assembly value of the vehicle
		1	2	3	4
1	Tyres and tubes	3.50	0.6	0.21	0.21
2	Batteries	0.40	0.2	0.08	0.08
3	Soft trim	1.40	0.7	0.98	0.98
4	Flat glass	0.20	(0.8)	0.16	0.10
5	Paint	0.50	(0.8)	0.40	0.25
6	Wiring harness	0.90	(0.8)	0.72	0.45
7	Fuel, oil, greases	0.20	(0.8)	0.16	0.10
8	Canvas hood	0.30	(0.8)	0.24	0.15
9	Leaf spring	1.00	(0.8)	0.80	0.50
10	Welding and soldering material	0.05	(0.8)	0.04	0.025
11	Exhaust pipe system	0.03	(0.8)	0.02	0.015
12	Spare wheel carrier	0.07	(0.8)	0.06	0.035
13	Radiator block	0.10	0.3	0.03	0.03
14	Other consumables	0.25	(0.8)	0.24	0.125
15	Total	8.90	XX	4.14	3.050

Source: Kenya Government.

Notes: 1. Figures in brackets are the expected maximum import contents, on the arbitrary assumption that local labour costs, dividends and other local costs add upto 20 per cent of the ex-factory value of the componet.

2. Minimum import content in the vehicle (see Column 4) has been arbitrarily assumed to be 50 per cent of component shares (Col.4 is half of Column 1) where actual information is not available.

3. XX stands for not applicable.

APPENDIX TABLE VII : THE IMPORT CONTENT IN THE VEHICLE ASSEMBLY CHARGES, 1976-1980. PERC

		Share in the ex-assembly value of the vehicle	Import content in the item	Import content in the ex-assembly value of the vehicle Col.1 x Col.2	Rough estimate of import content in the ex-assembly value of the vehicle
		1	2	3	4
1	Expatriates' salaries	0.642	0.33	0.212	0.212
2	Other salaries	2.188	nil	nil	nil
3	Transport	0.190	(0.80)	0.152	0.095
4	Fuel and water	0.280	(.800)	0.224	0.140
5	Maintenance and repairs	0.560	.800)	0.448	0.280
6	Interest payments	0.090	0.81	0.07	0.07
7	Depreciation	1.510	1.000	1.510	1.510
8	Foreign management	0.380	1.000	0.380	0.380
9	Other expenses	0.280	.800)	0.224	0.140
10	Net profits (before tax)	5.370	0.480	2.578	2.578
11	Sub-total (1 to 10)	11.490	XX	5.798	5.405
12	Non-assembly expenses	7.640	(.800)	6.112	3.820
13	Total (11 + 12)	19.130	XX	11.910	9.225

Source: Kenya Government.

Notes:
1. Figures in brackets are estimated; some are arbitrary
2. The minimum import content in expenditure items for which actuals are not available has been taken as 0.8 (also arbitrary).
3. Import content in the ex-assembly value of the vehicle i.e. Column 4 = Column 1 ÷ Column 2
4. XX : stands for not applicable
5. Non-assembly expenses include marine insurance, clearing and forwarding, inland freight etc.

APPENDIX TABLE VIII : THE STRUCTURE OF ASSEMBLY EXPENSES IN A SELECTED PLANT, 1980.

		I	II	III	Total	Total
1	Assembly charges:	%	%	%	%	Ksh.
2	Variable costs:and salaries and wages	3.0	5.9	17.1	5.6	36,514
3	Transport	0.2	0.5	1.3	0.4	3,030
4	Fuel and water	0.3	0.3	2.4	0.5	3,419
5	Sub-total (1+2+3)	3.5	6.7	20.8	6.5	42,963
6	Fixed costs:					
7	Maintenance and repairs	0.6	0.5	3.3	0.9	5,602
8	Interest payments	0.1	1.2	2.6	0.7	4,823
9	Depreciation	1.6	7.4	11.9	4.3	11,198
10	All other expenses	0.7	1.6	3.0	1.7	28,098
11	Net profits	5.7	-1.2	14.7	4.3	27,831
12	Sub-total (7 to11)	8.7	9.5	35.5	11.9	77,552
13	Total (10 to 12)	12.2	16.2	56.3	18.4	120,515

Source : Central Bureau of Statistics (unpublished).

Codes I, II, III represent the larger three assembly plants. Plant I has been used in this paper, but not the other two.

APPENDIX TABLE IX:

FREIGHT AND HANDLING CHARGES AS PERCENTAGES OF OVERSEAS EX-FACTORY AND CIF MOMBASA VALUES FOR VARIOUS YEARS, 1970 - 1980.

Percentage

		Ex-factory overseas	Packing and inland transport (overseas)	Ocean Transport	Mombasa (c.i.f.)	Col.2 + Col.3
PICK-UPS		1	2	3	4	5
1	A	100.0	n.a.	13.0	113.4	13.0
	B	88.2	n.a	11.5	100.0	11.5
2	A	100.0	9.4	4.3	117.9	13.7
	B	84.8	8.0	3.6	100.0	11.6
3	A	100.0	8.4	4.1	113.6	12.5
	B	88.0	7.4	3.6	100.0	11.0
4	A	100.0	8.6	4.8	119.7	13.4
	B	83.5	7.2	4.1	100.0	11.3
5	A	100.0	n.a.	16.9	117.3	16.9
	B	85.3	n.a.	14.4	100.0	14.4
6	A	100.0	11.5	10.8	122.4	22.3
	B	84.4	9.4	8.8	100.0	18.2
7	A	100.0	8.6	10.4	114.4	19.0
	B	87.3	7.5	9.1	100.0	16.6
Simple mean	A	100.0	9.3	8.6	117.6	17.9
	B	85.6	7.9	5.8	100.0	13.7
TRUCKS:						
1	A	100.0	4.7	2.8	107.5	7.5
	B	93.0	4.3	2.6	100.0	6.9
2	A	100.0	5.9	2.9	108.9	8.8
	B	91.9	5.4	2.6	100.0	8.0

APPENDIX TABLE IX. (Contd..)

TRUCKS:		Ex-factory overseas	Packing and inland transport (overseas)	Ocean Transport	Mombasa (c.i.f.)	Col. 2+ Col. 3
		1	2	3	4	5
3	A	100.0	4.1	2.9	107.1	7.0
	B	93.4	3.9	2.2	100.0	6.1
4	A	100.0	3.6	4.2	107.8	7.8
	B	92.7	3.3	3.8	100.0	7.1
5	A	100.0	9.0	7.0	116.0	16.0
	B	86.2	7.8	6.0	100.0	13.8
6	A	100.0	6.3	3.9	127.3	10.2
	B	78.6	4.9	3.1	100.0	8.0
7	A	100.0	8.3	4.0	112.3	12.3
	B	89.0	7.4	3.6	100.0	11.0
8	A	100.0	5.5	3.2	108.7	8.7
	B	92.0	5.1	2.9	100.0	8.0
9	A	100.0	10.5	19.0	129.2	29.5
	B	77.4	7.9	14.7	100.0	22.6
10	A	100.0	9.9	6.4	116.4	16.3
	B	85.9	8.5	5.5	100.0	14.0
Simple mean	A	100.0	6.8	3.9	114.1	10.7
	B	88.0	5.9	4.7	100.0	10.6
CBU AND CKD COMPARED -SELECTED TRUCK						
1 CKD	A	100.0	9.9	6.4	116.4	16.3
2	B	85.9	8.5	5.5	100.0	14.0
1 CBU	A	100.0	6.3	17.9	132.3	24.2
2	B	75.6	4.7	13.5	100.0	18.2

Source: Kenya Government.

Note: Pickups 1 and 5 have not been included in the computation of the mean because some information on them is lacking.

A : Ex-factory (overseas) value equals 100 per cent.
B : Mombasa c.i.f. value equals 100 per cent.

APPENDIX TABLE X : MAKES AND MODELS OF VEHICLES ASSEMBLED IN KENYA IN 1982.

		Make	Model	Propulsion	Carrying capacity tonne / passengers	Chain load
A 1	General Motors Kenya Ltd. :					
1		Isuzu Pick-up	Petrol		1	
2			Diesel		1	
3			4 x 4		1	
4			Short		1	
5			Long - Petrol		1	
6			-Diesel		1	
7					3	
8		Isuzu-Truck	Dumping-short		7	
9			Long		7	
10					9-10	
11		Bedford	Dumping-short		7	
12			Long		7	
13					13	
14			Bus		52 - 62 P	
B	Associated Vehicle Assemblers :	Pickup				
1		Datsun 1200	Petrol		0.5	
2	D.T. Dobie (K) Ltd	Datsun	Petrol		1	
3		"	Diesel		1	
4		"				
5		4 x 4	Petrol		1	
6		" 4 x 4	Diesel		1	
		Datsun-Double cab	Petrol		1	
7			Diesel		1	
8			4 x 4-Petrol		1	
9			4 x 4-Diesel		1	

(2)

APPENDIX TABLE X: MAKES AND MODELS OF VEHICLES ASSEMBLED IN KENYA IN 1982.

		Make	Model	Propulsion	Carrying capacity tonne / passengers	Chain load
10		Nissan	E23-Minibus	-Petrol		10
11			E23-Minibus	-Diesel		10
12			Caball	=Diesel	2 26-28	10
		Trucks:				
13		Mercedes	L 1924	Diesel	26-28	n.a.
14			LS 1924	Diesel	42-48	n.a.
15			L 2624	Diesel	15	31-33
16			LS 2424	Diesel	35-40	51-53
	Westlands Motors (K) Ltd	Pickups:				
1	Rhino Motors Ltd.	Toyota Hilux	Hilux	Petrol	1	
2			Hilux	Diesel	1	
3			Corolla van		0.5	
		Trucks:				
4		Toyota	DA 116-3	Long	7	
5			"	Dumping	7	
6		Hino	KR 360	-Long	8.5	
7				=Dumping	8.5	
	Hughes Ltd. (inc. Eastern Motors Ltd)	Pickups:				
1		Mazda	B 1600	Petrol	1	
2			D 2200	Diesel	1	
3				Diesel	3	
		Trucks:				
4		Ford	D 1210	108" Dumping	7	
5			D 1311	156" "	7	
6			D 1311	182"	8	
7			D 1311	206" "	9	
8			D 1711	154	15	

(3)

APPENDIX TABLE X (Contd..)

		Make	Model	Propulsion	Carrying capacity tonne / passengers	Chain load
	Marshalls (K) Ltd. (incl. Amazon Motors Ltd.)	Pickups				
1			404	Petrol	1	
2			404	Diesel	1	
3			504	Petrol	1	
4		Trucks				
4		Volvo		4 x 2	19	40
5		"		6 x 4	30	75
	Ryce Motors Kenya Ltd.	Pickups				
1		Daihatsu			0.5	
2		"			0.5	
3		"			3	
C	Leyland Kenya Ltd.	Pickups	(4x4)			
		Land Rovers				
1		"	88" Canvas	Petrol	1	
2		"	88" Hard top	Petrol	1	
3		"	88" Station wagon	Diesel	6 p	
4		"	109" Standard T-Cab	Petrol		
5		"	109" Hard top Plain	Petrol	1	
6		"	109" Hard top Special	Petrol	1	
7		"	109" Hard top Special	Diesel	1	

(4)

APPENDIX TABLE X (Contd...)

		Make	Model	Propulsion	Carrying capacity tonne / passengers	Chain load
8	Leyland Kenya Ltd.	Land-Rover	109" Station-Wagon	Petrol	9 P	
9		"	109" Station-wagon	Diesel	9 P	
10		"	109" Station-wagon V8		9 P	
11		"	109" G.S. Cargo			
12		"	Army FFR		1	
13			100" Range Rover Passenger car		4 P	
14			109" Standard T-Cab	Diesel		
15		Trucks & Buses	Bx.1200 131" Truck		8	
16			Dx.1200 171" Truck		8	
17			E2CD4016. DN/Dt Truck		9	
18			ERE.4021. DN/DY Truck		9	
19			SEL.4122. BL/DY Truck		16-18	
20			Land Train 30.28 Truck - Primemover		30	

(5)

X (Contd...)

		Make	Model	Propulsion	Carrying capacity tonne/ passengers	Chain load
	Leyland (K) Ltd	Trucks & Buses				
21			Cub OCU 435 - Bus		46 P	
22			ECD.23.ELW Bus		62 P	
23		"	ECD.23.EYW Bus		67 P	
24		"	ECD.45.Turbo Bus		62/67 P	
25		"	Guy 680 Engine Bus		68 P	
		Nissan Diesel				
26			UG.780 Haulage Truck		8	
27			DU.780 Tipper Truck		8	
28			Nissan CB. 20NXN Bus		62 P	
29		Contra-ctual	Guy Victory Bus		62/67 P	
30		Volks wagen	Microbus		10 P	
31		Mitsu-bishi	Canter FE 101 Pickup		2.5	
32			Canter FE 111 Truck		4	
33			L.200 1-ton Pick-up			

(6)

APPENDIX X (Contd..)

		Make	Model	Propulsion	Carrying capacity tonne / passengers	Chain load
34	Leyland (K) Ltd.	Suzuki	LJ.80 VRM van		0.5	
35			LJ.81 KR van		0.5	
36			SS.80 VRAN van		0.5	
37			1100FF W.B. Bus		56P	
D	Fiat K. Ltd.	Trucks	682 N3		10	18
1 2			682 T3 Tractor Prime-mover.		29	35
3			619 Prime-mover		10 - 12	40
4			110 Semi-trailer		7	"

Source - Survey interviews.

Notes:- Capacity for pick ups, vans and trucks is in tonnes and for buses is in passengers(P)

APPENDIX TABLE XI: A COST STUDY OF A PROPOSAL FOR AN ASSEMBLY PLANT TO PRODUCE FIVE MODELS, 1971.

		PERCENT
A	Receiption area	
1	Assembly fixture	6.4
2	Cab welding area	11.4
3	Cab shop metal finishing line	1.3
4	Paint shop	16.8
5	Trim shop	1.0
6	Seat assembly	0.4
7	Chassis frame rivetting, springs, axles, engine	5.1
8	Chassis line	2.4
9	Final assembly conditioning line	2.0
10	Heavy repair area	1.5
11	Material handling equipment	5.1
12	Maintenance department	5.1
13	Plant services	16.9
14	Sub-Total	91.4
B.	Equipment for assembly plant	
15	Paint shop	1.3
16	Miscellaneous plant and tool	1.2
17	Jigs and specialized equipment for cab assembly	6.1
18	Sub-Total	8.6
19	Grand total (A + B)	100.0

Source: Kenya Government.

APPENDIX TABLE XII

USE OF FOREIGN EXCHANGE: LOAN INSTALMENTS, INTEREST AND DIVIDENDS DUE, 1977-1980. K£'000

		1977	1978	1979	1980	Total	Mean
1	Loan repayments	1	2	3	4	5	6
2	Local	-	8,355	5,951	7,320	21,626	5,406
3	Foreign	2,467	9,323	6,602	3,836	22,228	5,557
4	Total	2,467	17,678	12,553	11,156	43,854	10,964
5	Foreign: % of total	100.0	52.7	52.6	34.4	50.7	50.7
6	Interest payments						
7	Local	31	199	200	25	455	144
8	Foreign	7	712	764	1,173	2,656	664
9	Total	38	911	964	1,198	3,111	778
10	Foreign: % of total	18.4	78.2	79.3	97.9	85.4	85.4
11	Dividends						
12	Local	-	73	535	102	710	178
13	Foreign	250	459	163	196	1,068	267
14	Total	250	532	698	298	1,778	444
15	Foreign: % of total	100.0	86.3	23.4	65.8	60.1	60.1
16	Total						
17	Local	31	8,627	6,686	7,447	22,791	5,698
18	Foreign	2,724	10,494	7,529	5,205	25,952	6,488
19	Total	2,755	19,121	14,215	12,652	48,743	12,186
20	Foreign: % of otal	98.9	54.9	53.0	41.1	53.2	53.2

Source: Kenya, Central Bureau of Ststics, unpublished and provisional.

APPENDIX TABLE XIII

USE OF FOREIGN EXCHANGE: LOAN INSTALMENTS, INTEREST PAYMENTS, AND DIVIDENDS PAID, 1977-1980. K£'000

		1977	1978	1979	1980	Total	Mean
1	Locan repayments	1	2	3	4	5	6
2	Local	-	8,355	5,951	7,320	21,626	5,406
3	Foreign	2,467	9,323	6,602	3,836	22,228	5,557
4	Total	2,467	17,678	12,553	11,156	43,854	10,964
5	Foreign: % of total	100.0	52.7	52.6	34.4	50.7	50.7
6	Interest payments						
7	Local	31	199	194	25	446	112
8	Foreign	7	574	744	575	1,900	475
9	Total	38	770	938	600	2,346	586
10	Foreign: % of total	18.4	74.5	79.3	95.8	81.0	81.0
11	Dividends paid						
12	Local	-	73	222	51	346	86
13	Foreign	250	119	146	181	696	174
14	Total	250	192	368	232	1,042	260
15	Foreign: % of total	100.0	62.0	39.7	78.0	66.8	66.8
16	Total						
17	Local	31	8,624	6,367	7,396	22,418	5,604
18	Foreign	2,724	10,016	7,492	4,592	24,824	6,206
19	Total	2,755	18,640	13,859	11,988	47,242	11,810
20	Foreign: % of total	98.9	53.7	54.1	38.3	52.5	52.5

Source: Kenya, Central Bureau of Statistics, unpublished and provisional.

APPENDIX TABLE XIV:

USE OF FOREIGN EXCHANGE: LOAN INSTALMENTS, INTEREST AND DIVIDENDS DUE AND PAID, 1977-1980.

K£ '000

		1977	1978	1979	1980	Total	Annual mean
1	Loan repayments						
2	Due	2,467	17,678	12,553	11,156	43,854	10,964
3	Paid	2,467	17,678	12,553	11,156	43,854	10,964
4	Paid %	100.0	100.0	100.0	100.0	100.0	100.0
5	Interest payments						
6	Due	38	911	964	1,198	3,111	778
7	Paid	38	770	938	600	2,346	586
8	Paid %	100.0	84.6	97.3	50.2	75.0	75.4
9	Dividends						
10	Due	250	532	698	298	1,778	444
11	Paid	250	192	368	232	1,042	260
12	Paid %	100.0	36.1	52.7	78.1	58.7	58.7
13	Total						
14	Due	2,755	19,121	14,215	12,652	48,743	12,186
15	Paid	2,755	18,640	13,859	11,988	47,242	11,810
16	Paid %	100.0	97.5	97.5	94.8	96.9	96.9
	Total paid	2,755	18,640	13,859	11,988	47,242	11,810
	Percentage shares						
	Loans repaid	89.5	94.8	90.6	93.1	92.8	92.8
	Interest paid	1.4	4.1	6.8	5.0	5.0	5.0
	Dividends paid	9.1	1.0	2.6	1.9	2.2	2.2

Source: Kenya, Central Bureau of Statistics, (Unpublished and provisional).

APPENDIX TABLE XV: RETAIL PRICES OF SELECTED VEHICLES, 1975-1982.

A Pickups and minibuses

	88" Land Rover Canvas	88" Land Rover Hard top	109" Land Rover station wagon 10 seater (petrol)	Datsun 1 ton pu	Mazda 1 ton pu	Chev Luv 1 ton pu	VW Microbus fixed roof 8 seater	Toyota Stout (1.720T)	Peugeot 404 1 ton pu
1975	61,528	66,925	94,070	39,055	59,900	43,114	107,945	50,811	
1981	171,824	183,180	251,511	96,842	101,000	105,000	177,625	84,750	
Growth rate per annum (%)	18.7	18.2	17.9	16.3	12.3	19.5	10.5	10.8	
Year to year changes (%)									
1975/76	28.3	9.7	1.5	7.7	N.A	N.A	N.A	2.5	
1976/77	8.3	7.3	22.4	6.5	"	9.2	"	45.1*	
1977/78	12.9	14.7	22.2	33.00**	"	25.4	2.6	14.8	
1978/79	39.0	37.7	31.9	11.9	"	2.9	4.0	-2.4	
1979/80	20.3	20.4	16.9	19.9	"	20.1	27.1	–	
1980/81	14.5	13.8	14.2	21.2	"	44.0	21.3	N.A	
1981/82	-0.5	-0.5	-0.4	14.6	"	N.A	N.A	N.A	

APPENDIX XV: Contd..........

B. Trucks

	Ford - 18 tonnes	Ford - 9 tonnes	Toyota - 8 tonnes DA 116.3
1975	141 440	142 600	198 950
1981	318,080	356,940	295,000
Growth rate per annum	17.6	20.1	14.0
Year to year changes			
1975/76	N.A	N.A.	N.A
1976/77	15.4	16.0	"
1977/78	14.3	10.7	"
1978/79	20.9	26.6	5.0
1979/80	37.6	30.1	3.9
1980/81	2.5	18.3	35.9
1981/82	N.A	N.A	N.A

Source: Survey interviews.

Notes: (1) Mazda: 1977 and 1982 June- prices.
(2) Chev Luv 1979 and 1981 prices:
(3) VW microbus fixed roof prices: 1977 and 1981
(4) Toyota prices are for 1975 and 1980
* The big jump in price between 1976 and 1977 was probably caused by a model change (other Toyota vehicle, did not experience even half that jump).
** Dutsun: The big jump in price between 1977 and 1978 marks the introduction of locally assembled pick-ups on the market.
(5) Median growth rate for pick-ups is 17.1 per annum.
(6) Prices are for 1976 and 1981 - Ford (8 tonnes).
(7) Prices are for 1976 and 1981 - Ford (9 tonnes).
(8) Toyota DA 116,3: prices are for 1978 and 1981.
(9) Median growth rate for trucks is 17,6 per cent per annum.

APPENDIX TABLE XVI: NEW REGISTRATIONS OF COMMERCIAL VEHICLES, 1961-1980.

	NUMBER				PERCENTAGE			
	Utilities	Trucks	Buses	Total	Utilities	Trucks	Buses	Total
1961	2,844	1.149	206	4,199	67.7	27.4	4.9	100.0
1962	3,177	1,049	246	4,472	71.0	23.5	5.5	100.0
1963	3,184	1,093	310	4,587	69.4	23.8	6.8	100.0
1964	3,575	885	302	4,762	75.1	18.6	6.3	100.0
1965	3,925	1,035	289	5,249	74.8	19.7	5.5	100.0
1966	4,101	1,520	289	5,910	69.4	25.7	4.9	100.0
1967	4,742	1,945	331	7,018	67.6	27.7	4.7	100.0
1968	3,814	1,769	297	5,880	64.9	30.1	5.0	100.0
1969	4,652	1,999	323	6,974	66.7	28.7	4.6	100.0
1970	5,445	2,776	468	8,689	62.7	31.9	5.4	100.0
1971	6,042	2,343	660	9,045	66.8	25.9	7.3	100.0
1972	5,288	1,809	421	7,518	70.3	24.1	5.6	100.0
1973	3,067	1,953	579	5,599	54.8	34.9	10.3	100.0
1974	3,528	1,402	585	5,515	64.0	25.4	10.6	100.0
1975	3,878	1,262	404	5,544	69.9	22.8	7.3	100.0
1976	4,156	1,417	417	5,990	69.4	23.7	6.9	100.0
1977	7,354	1,887	385	9,626	76.4	19.6	4.0	100.0
1978	5,717	2,848	374	8,939	63.9	31.9	4.2	100.0
1979	5,979	2,669	491	9,139	65.4	29.2	5.4	100.0
1980	7,454	2,255	425	10,134	73.6	22.2	4.2	100.0
Growth rates (%)								
1961-71	7.8	7.4	12.4	8.0				
1961-80	5.2	3.6	3.9	4.7				
1971-80	2.3	-0.4	-0.5	1.3				

Source: 1961-1963 Statistical Abstract, 1971, Table 153
1964-1970 Statistical Abstract, 1974, Table 165
1971-1979 Statistical Abstract, 1980, Table 185
1980 Statistical Abstract 1981, Table 185

Note : New registrations include government vehicles transfered to private ownership, plus transfers of secondhand vehicles from other countries. Utilities are light commercial vehicles e.g. pickups, vans.

APPENDIX TABLE : XVII: VEHICLES WITH CURRENT ROAD LICENCES, 1962-1980.

	NUMBER				PER CENT			
	Utilities	Trucks	Buses	Total	Utili-ties	Trucks	Buses	Total
1962	24,177	10,424	1,362	35,963	67.2	29.0	3.8	100.0
1963	24,943	10,475	1,536	36,954	67.5	28.2	4.2	100.0
1964	26,024	10,313	1,684	38,021	68.5	27.1	4.4	100.0
1965	27,347	10,317	1,805	39,469	69.3	26.1	4.6	100.0
1966	28,713	10,805	1,913	41,431	69.3	26.1	4.6	100.0
1967	30,584	11,669	2,053	44,306	69.0	26.3	4.6	100.0
1968	31,338	12,270	2,142	45,750	68.5	26.8	4.7	100.0
1969	34,425	13,656	2,358	50,439	68.2	27.1	4.7	100.0
1970	37,415	15,319	2,653	55,387	67.5	27.7	4.8	100.0
1971	41,058	16,591	3,159	60,808	67.5	27.3	5.2	100.0
1972	33,735	17,405	3,424	54,564	61.8	31.9	6.3	100.0
1973	35,828	17,943	3,523	57,294	62.5	31.3	6.2	100.0
1974	40,004	19,635	4,196	63,835	62.7	30.7	6.6	100.0
1975	43,740	20,875	4,605	69,220	63.2	30.2	6.6	100.0
1976	44,543	20,732	4,706	69,981	63.7	29.6	6.7	100.0
1977	48,264	21,007	4,772	74,043	65.2	28.4	6.4	100.0
1978	50,203	22,185	4,825	77,213	65.0	28.7	6.3	100.0
1979	52,249	23,115	4,985	80,349	65.0	28.8	6.2	100.0
1980	55,524	23,594	5,075	84,193	66.0	28.0	6.0	100.0
Growth rates (%):								
1962-71	6.0	5.3	9.8	6.0				
1962-80	4.7	4.7	7.6	4.8				
1971-80	3.4	4.0	5.4	3.7				

Source: 1962-1964: Statistical Abstract 1971, Table 152
1965-1971 " 1974, " 164
1972-1980 " 1981 " 184

Note : Apparently there was a break in the series between 1971 and 1972.

APPENDIX XVIII: THE VEHICLE ASSEMBLY INDUSTRY IN KENYA: AN ECONOMIC EVALUATION

QUESTIONNAIRE:

Date of interview -----------

PLEASE ANSWER THE FOLLOWING QUESTIONS:

1. Name of assembly plant ---------------------------------
2. Address ---
3. When did you first start assembly in Kenya?
   (Month and Year) ---------------------------------------
4. CAPACITY UTILIZATION:

a. What is your average actual production per week?--------

b. How many shifts are you currently working? ------------

c. What is the length of a shift? -------------------------

   During the ---- shift(s) that you are working:
   what is the maximum production, with no additional
   men, capital or overtime ---------------------------------

d. What are the reasons for the discrepancy between
   maximum production and actual production? --------------

e. During the --- shift(s) you are currently working,
   what is the maximum output with --- more men but
   without any additional overtime and with only
   negligible additional capital? ---------------------------

f. If you introduced additional shift(s) would you
   expect productivity to fall? Yes/No ------------------
   If yes, by what percentage? (i) 2nd shift---------------
   (ii) 3rd shift ---

g. How many days a week are you currently working? --------

h. If you established a seven day work week would you expect productivity to decline, and if so by how much?: 2nd shift -----%, 3rd shift --------%.

i. Is there a shift differential (allowance) built into the agreement with the employees' union? What is the differential? 1st shift ------%, 2nd shift --------%, 3rd shift ------------%.

j. Does the differential for weekend shifts differ from what you have stated above,and by how much? 1st shift ------%, 2nd shift --------%. 3rd shift ---------%.

5. SEASONALITY:

Is there any seasonality in your production?

Yes/No --

If yes, please give for

(a) Peak production: (i) month ----------------------

(ii) average production: quantity ------- value------

(iii) production workers ------- (iv) hours worked----

(b) Lowest production (i) month --------------------

(ii) average production: quantity ----------- ------

value --------------- (iii) production workers -------

(iv) hours worked ----------------------------------

6. PRICING POLICY:

(a) How do you arrive at the final price of an assembled vehicle? ---------------------------------------

(b) Are retail prices of your vehicles uniform throughout the country? Yes/No, If no, explain why ---------------------------------------

(i) Who bears the cost of transporting a finished vehicle to the dealer? ---------------------------------------

(ii) How much is the cost as a percentage of the ex-assembly cost of the vehicle? ---------------------------------------

(c) What mark-up percentage do you allow a wholesaler to take? ---------%.

(d) If your competitor raised or lowered his price what would you do? ---------------------------------------

7. EXPORTS:

(a) Are there any restrictions (contractual or policy) by the mother company, on where you may export to? ---------------------------------------

(b) Do you export any of your products? ---------------------------------------

(c) What percentage of your total production is currently exported? ---------------------------------------

(d) What makes of vehicles or equipment are you currently exporting and to what countries?---------------------------------------

(e) Are you planning to expand your export market?

Yes/No --

If yes, explain ---------------------------------------

If no, explain why ------------------------------------

8. VEHICLE DIFFERENTIATION:

(a) Number of makes and models of vehicles produced

(i) When you started production: makes ---------------

models --------- ------------------------------------

(ii) currently: makes ---------- models ---------------

(b) What is your reason(s) for increasing/decreasing the range of vehicles you were intially producing? -----------------------------------

(c) Does the increase in the range of vehicles produced raise your unit production costs? Yes/No. If Yes, how and to what extent? ---------

(d) If the increase in the range of vehicles produced raises unit costs, would you prefer to narrow down the range? Yes/No. -------------

If yes,to how many makes -----, models---------?

Please specify the preferred makes and reasons for preference ----------------------------------

(e) Do you produce any components in this plant? ------

If you do, state which ones and cost of production ---------------------------------------

(f) How do the prices of such components compare with those produced by (i) Other domestic producers? ----------- (ii) Foreign (parent company, or -----------) ---------------------------------------

(g) What is the level of production which would enable you to reap economies of scale fully?-------- (i) In how many makes? -------- (ii) To what extent would production costs fall? ------ percent.

9. AVAILABILITY OF IMPORTED INPUTS:

(a) Do you experience any difficulties in obtaining

(i) import licences? Yes/No ----------------------

If yes, what are they? ------------------------------

(ii) Foreign exchange? Yes/No --------------------

If yes, elaborate ------------------------------

(b) What are the effects of the difficulties mentioned in (a) on your production e.g. overstocking, production slow down etc. ------------

(c) If the difficulties mentioned in (a) were eliminated completely, what would be the effect on --

(i) inventories (magnitude of reduction)---------%

(ii) production (magnitude of increase) ----------%

(d) From what country or countries do you buy your imported inputs (e.g. CKD kits)? (Give make of vehicle) --

(e) What proportion of imported components (in CKD) is manufactured by your parent (principal) company? ----- value --------%, number of items-------, give major items ---

(f) Has the degree of CKD breakdown increased since you imported your first kit? Yes/No -------- If yes, give (for each make) the percentage on the basis of items and value involved ----------------------------

(g) Does the cost of freight of a CKD kit decrease with an increase in the number of items omitted? Yes/No. Elaborate ---------------------------------

(h) Are there any restrictions limiting your choice of source of inputs? Yes/No ---------------------------

(i) If yes, from what source must you buy and why?--------------------------------------

(ii) In your opinion, is the source you are limited to, the cheapest? Yes/No. If no, give examples ------------------------------------

(iii) If you were free to choose the source, would you select the cheaper one? Yes/No. Which is that cheaper source, and what items are involve(And by how much are the items cheaper, compared to the present source? ------------%-------

(iv) If there are no restrictions about source of inputs, do you buy from the cheaper source? Please give examples--------------------------------

(i) What is the basis for determining royalties, technical management etc. fees? e.g. --------% of sales (i) for how many years? ----------------
(ii) is this percentage negotiable? ---------------

10. LOCAL COMPONENTS:

(a) Do you partly or wholly own any of the local firms supplying your plant with domestic components Yes/No. (i) If yes, which ones? -------------------

(b) (i) How many components go into a vehicle? -----------
(ii) How many components are locally obtained currently? ------------------------------------
(iii) How many were obtained locally when you initially started production?----------------------------
(iv) In your opinion what are the reasons for the slow progress in raising the number of locally produced components e.g. design changes ----------

(c) Are you aggressively searching to increase the number of local components? Yes/No. If yes, explain

----

(d) Are there any particular problems that you have been facing in connection with domestically produced components? (be as specific as possible e.g. radiators,bent glass)-----------------------------

(e) Please explain how you try to solve the above problems: (e.g. quality, quantity)-----------------------

(f) Who decides on the acceptability of a local component? --

(g) Has the Kenya Bureau of Standards (KBS) been of assistance in determing and checking quality standards Yes/No ---

(h) Are you bound by the decision of KBS concerning quality standards? Yes/No. If no, explain -----------

(i) Are there any instances when you have felt that components satisfying KBS standards do not meet your firm's standards Yes/No (Explain) --------------

(j) In your opinion are such standards excessively stringent? (Please give examples)-----------------------

11. EMPLOYMENT:

How many production workers does your firm employ?-----

How many expatriates are there? -------------------------

12. TRAINING:

How many workers has your plant trained since you started production? ----------- What is the average cost of training a worker? ----------------

13. RESIGNATIONS:

What is the proportion of all workers who resign their posts every year? ------%.Among those trained by your firm, what is the proportion of those who have so far resigned? ----------------------------------

14. AGREEMENT WITH THE GOVERNMENT OF KENYA:

(a) Is there any agreement between your firm and the government regarding your operations in Kenya? Yes/No. If yes, what are the main points or conditions involved? --------------------

May I please have a copy of the agreement?----------

(b) Are there any weaknesses in that agreement? Yes/No. If yes (a) what are they? ----------------

(c) Have you ever raised these weakness.with the government? Yes/No ------------------------------

(d) If yes, what has the government's reaction been? --

(e) Is the government pressuring you to adhere to the conditions contained in the agreement? Yes/No. If yes, how? ----------------------------

f. Has the government on its part adhered to the conditions in the agreement? Yes/No. If no, explain. --

g. Has there been any meetings between your firm and government to review CKD status? Yes/No. If yes, how often? --

In your opinion, have such reviews contributed to an increase in parts omitted from the imported CKD kit? ------- (give examples of items omitted) -----

15. TRAINING:

Do you have a training school of your own? -----------

How many trainees does it accommodate at a time?-------

What is the seating capacity of the school?-----------

ADDITIONAL QUESTIONS FOR THE ANCILLARY INDUSTRY:

The vehicle assembly industry questionnaire to be used with the following additions:

16. a. What is your profession? ----------------------

b. What were you doing before you started/joined this company? ------------------------------

c. Did you have any experience in the manufacture of autoparts or any other items before? ---------

(i) For how long? ------------------------------

(ii) Where? (country and company) ------------------

d.(i) What items are you producing currently? --------

(ii) Did you carry out a feasibility study for each of---- the items you are currently producing? -------------

(iii) What were your main attractions? ------------------

17. Production process: Please explain briefly the stages of your production ----------------------------

18. Who are your major customers? -----------------------

19. Do you face any particular problems in having your customers accept your product? Yes/No --------------
If yes, please elaborate -----------------------------

20. How do you ensure that your product(s) is of an acceptable quality as per KBS Standards? ------------

21. TECHNICAL ASSISTANCE ARRANGEMENT:

(a) Do you have a technical assistance arrangement with any local or foreign firm? Yes/No ----------
To what extent, in your opinion, has that arrangement been beneficial to you? ------------

(b) What is the basis for determing technical, royalties etc. fees? -------% of sales, and for how many years? ---------------------------
Is this percentage negotiable? -----------------

(c) Is your source of inputs the cheapest? Yes/No. If no, would you rather shift to a cheaper source if it existed? -----------------

THANK YOU VERY MUCH FOR ANSWERING MY QUESTIONS