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PROFILE OF AGRICULTURE RELATED ENTERPRISES  
GUYANA 1970, 1973, & 1975

Prepared by

Samuel R. Daines, Sr. Economist

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# PROFILE OF AGRICULTURE RELATED ENTERPRISES: GUYANA 1970-1973-1975

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## INTRODUCTION

The purpose of this document is to provide a profile of the structure and economic characteristics of agriculturally related enterprises in Guyana.

The document will attempt to provide insight into the employment and income potentials of the existing enterprise system, and an examination of the internal efficiency of representative firms. The intent of this profile is to provide a backdrop for more detailed studies and for the elaboration of intervention strategies on the part of the Guyana public sector.

## DATA AND METHOD

The data for this document is drawn from the Annual Survey of Manufacturing and Commercial Establishments conducted by the Bureau of Statistics. This data was provided in summary form on worksheets which were processed and analyzed. The tables produced from this data set constitute a separate document which was completed prior to this paper.

The basic method of the profile is to make inter-sectoral and over time comparisons in cross tabular fashion. A total of 416 enterprises were included in the sample which provides the statistical basis for this report. Since the complete Survey was sampled the resulting sample includes many enterprises with little or no connection to agriculture or rural products. The coverage of this report is therefore narrower in scope than the cross tabular statistical document which precedes it. This report deals only with those enterprises which may be loosely termed "agribusinesses, agroindustries, or agricultural marketing"

## SECTION ONE: EMPLOYMENT PROFILE

The employment status and potential of agriculturally related enterprises is of considerable importance for economic development planning in Guyana. The elaboration of a profile of the employment characteristics of agribusinesses may be accomplished by examining the relationship between labor and other costs, and between capital and labor.

## A. Labor Proportion of Costs: Labor Intensity

Labor intensity may be defined in many different ways, for the purposes of this study, labor intensity will be defined as the labor proportion of total costs. Table 1 presents a profile of agriculturally related enterprises in terms of their labor intensity.

Table 1  
Labor Intensity Differences by Sector  
Guyana

Sector	Labor Costs as a % of Total Costs		
	1970	1973	1975
Beverages	47.5 %	44.5 %	32.0 %
Baking	81.4 %	72.5 %	47.3 %
Textiles Products	55.2 %	47.1 %	44.9 %
Sawmills	60.0 %	54.8 %	40.7 %
Sugar Processing	72.6 %	74.9 %	47.6 %
Wood Products	80.5 %	50.4 %	
Food Marketing	49.2 %	47.9 %	45.4 %
All Agribusinesses	57.8 %	53.4 %	41.9 %

SOURCE: Sample of Enterprises from the Guyana Survey of Manufacturing and Commercial Establishments, 1970-73-75

It should be noted that the sample sizes of many of the sub-enterprise types are insufficient to provide statistically reliable estimates of the sub-sector as a whole. As a matter of interpretation one should treat the sub-sectoral estimates as generally illustrative only, the only figures which can be trusted to provide stable estimates are those contained in the last row in each table labeled "All Agribusinesses".

#### 1. Intersectoral Comparisons of Labor Intensity

From Table 1 it can be seen that there is considerable variation in the labor intensity of different sectors in 1970 but much less difference in 1975 (regarding wood products as a sample or data error). Baking is understandably the highest in labor intensity on a consistent basis with almost two thirds of its total costs spent on labor.

#### 2. Employment Potential of Agribusinesses

It would appear that about 40% of the total expenditure of agribusinesses in Guyana would be for direct labor. A large proportion of the additional expenditure is for basic raw materials many of which are agricultural in origin and would carry back considerable employment impact to the rural areas. In 1975 it would appear that the more direct industries with agricultural input connections (baking, sugar, and food marketing) also have the highest labor intensity when compared with those sub-sectors with less direct connections to agriculture (beverages, textiles, sawmills and wood products). This would argue that the enterprises which have the highest direct employment intensity also have the highest backward link to employment creation in the rural areas. It would suggest that with employment as a critical objective, public assistance could most advantageously be focused on the more direct connecting agriculturally based enterprises.

### 3. Trends in Labor Intensity Over Time

The most important conclusion from Table 1, is that the labor intensity of agribusiness production in Guyana is decreasing, and that the major decreases have been in more recent years. The decreases from 1970-1973 was only 8% or less than 3% per year while the decrease from 1973 to 1975 was 27% or more than 13% per year. No direct explanation is suggested by the data for such a significant drop, but it does not appear to be compensated for by increases in labor productivity of comparable magnitude. It would appear that for some reason agribusiness firms are either paying increased relative prices for a fixed quantity of non labor goods or there has been a significant decrease in the labor quantity actually utilized in the production process. For a country with substantial un and under employment this finding should be seen with considerable concern, if less and less employment is to be obtained each year in agribusinesses, the unemployment rate is likely to continue to climb.

### B. Capital Labor Relationships

Table 2 contains the estimates of the value of fixed capital goods divided by the cost of labor which provides an index for capital available per labor unit. This index will be biased by differential wage and salary rates for which it has not been adjusted.

#### 1. Sectoral Differences in Capital Availability per Laborer

From Table 2 it would appear that the Beverage industry has the highest capital intensity of agribusinesses and baking the lowest. Sawmills also have a high value of fixed capital

Table 2  
Capital Labor Ratios for Agribusinesses  
Guyana 1970-73-75

Sector	Value of Fixed Capital Goods/ Labor Cost		
	1970	1973	1975
Beverages	2.96	3.60	4.55
Baking	0.60	1.04	0.62
Textiles Products	1.49	2.70	1.37
Sawmills	2.05	2.60	2.96
Sugar Processing	1.93	1.83	0.86
Wood Products	1.12	2.23	2.27
Food Marketing	1.28	1.06	1.67
All Agribusinesses	1.56	1.88	2.00

SOURCE: Sample of Enterprises from the Guyana Survey of Manufacturing and Commercial Establishments, 1970-73-75

invested per labor unit. Wood products, while below the general average for capital intensity for 1970 is substantially above that average by 1975. It is interesting to note that the same enterprise types which have a higher than average capital intensity (Beverages, Sawmills and Wood Products) are also the same industries which exhibit a consistent and significant upward trend in capital intensity over time. This implies that the enterprise types which are relatively higher in their capital requirements are also getting more capital intensive over time, while those with relatively low capital intensity are fluctuating over time but without a clear pattern for increasing.

## 2. Trends in Capital Intensity for All Agribusiness

On the average, agribusinesses as a whole appear to be increasing their capital intensity as defined in Table 2. The degree of change somewhat more marked in the 1970-73 period when capital intensity increased at an average annual rate of 6.8%.

During the period from 1973-75 the increase in capital intensity was only 5.3%.

This trend is consistent with the downward shift in labor intensity noted in the earlier section. A decrease in the proportion of labor costs in overall costs is consistent with (though not the same thing as ) an increase in the quantity of fixed capital goods (machinery, vehicles, installations etc.) available per workers. Where labor is abundant and capital goods relatively scarce, the trend of capital-deepening may be the result of inappropriate pricing policies for capital and may point to the necessity of a careful study of import subsidies of other price distorting mechanisms.

## Section Two: Income and Profitability Profile

### A. Profitability

Table 3 presents a profile of profitability for the agribusinesses in the sample. It should be remembered that the sample sizes for the sub-sectors are too small to provide statistically reliable estimates, only the agribusiness average should be viewed as other than illustrative of a small number of possibly representative enterprises.

Table 3  
Profitability Indices for Agribusinesses

Sub-Sector	Net Income / Total Value of Capital (Fixed and Circulating Capital)		
	1970	1973	1975
Beverages	27.7	5.7	8.1
Bakeries	38.5	32.3	14.3
Textile Products	16.5	10.7	19.6
Sawmills	6.9	11.6	5.3
Sugar Processing	0.7	0.9	10.7
Wood Products	47.5	51.5	NA
All Agribusinesses	18.8	16.3	11.0

SOURCE: Sample of Enterprises from the Guyana Survey of Manufacturing and Commercial Establishments, 1970-73-75

### 1. Sectoral Differences in Profitability

The two sectors with the highest profitability ratios are Bakeries and Wood Products. The sugar processing sector has notably the lowest profitability in 1970 and 1973 while it recovered somewhat in 1975. The differences in profitability between sub-sectors is substantial with Sawmills and Sugar at the bottom of the scale.

### 2. Over Time Trends in Profitability

The over time trends in profitability are sporadic, though there appears to be a general decrease between 1970 and 1975 of 59%. Profitability is an indicator which normally fluctuates considerably and the sporadic change observed in the sub-sectors is probably as much a result of small sample sizes as it is a reliable finding of a trend pattern. There is much less variation in the profitability rates in 1975 than in 1970, the range in 1970 is from a low of 0.7 (sugar) to a

high for Wood Products of 47.5. The total range in 1970 was therefore 46.8 percentage points. In 1975 the range was only 14.3 percentage points or less than one third of the range in 1970 profitability ratios. This would indicate that by 1975 profits had both drops<sup>2</sup> and become more stable at the lower level with less range from one sub-sector to another.

### 3. Profitability and Labor Intensity

One of the principal concerns of an economy with surplus labor must be the productive absorption of the unemployed labor force. An obvious alternative for increasing employment is to expand the production of those products which require relatively more labor per unit output, i.e. expand labor intensive subsectors. A second alternative is to utilize technologies which require more labor, i.e. encourage labor intensive technology. Both of these strategies are often questioned on the basis of profitability, many have wondered if the labor intensive approach (either labor intensive products or technology) would so compromise profitability and productivity that little added production would result from the added employment. The data in this document provide a basis for Guyana to evaluate in part this danger. Table 4 presents a rank ordering of the subsectors based on their labor intensity (from Table 1) and their profitability (from Table 3). The idea of this comparison is to see if those sub-sectors with higher labor intensity are also the least profitable.

The conclusion of Table 4 is that the<sup>2</sup> most labor intensive sub-sectors in 1970 are also the most profitable. The situation

Table 4  
 Labor Intensity and Profitability  
 Rank Order Comparisons  
 by Sub-sector  
 Guyana 1970-73-75

Subsector	Rank Order for Each Sub-Sector					
	1970		1973		1975	
	Labor Intensity Rank	Profit Margin Rank	Labor Intensity Rank	Profit Margin Rank	Labor Intensity Rank	Profit Margin Rank
Beverages	3	6	6	5	5	4
Bakeries	1	2	2	2	2	2
Textile Products	5	4	5	4	3	1
Sawmills	4	5	3	3	4	5
Sugar	3	6	1	6	1	3
Wood Products	2	1	4	1	na	na

SOURCE: Tables 1 and 3

in the other years varies slightly from that pattern, yet it would appear that the basic trend is consistent with all three years of data. The notable exception is sugar processing where consistently low profitability is linked with consistently high labor intensity. To clarify the patterns which emerge from the combination of the three years of rank-order data, Table 5 presents an average ranking for each sector for the combination of the the three years.

From Table 5 it appears that on the average for all three years, bakeries are consistently high in both labor intensity and profitability. Beverages are consistently low in both labor intensity and profitability. Textiles and Sawmills are in the midrange on both factors. Wood products is very high in both labor intensity and profitability in 1970 but does not follow the general pattern for 1973. The one sector which is definately not consistent with this trend is sugar processing as noted above. In 13 of 17 possible comparisons the rankings are consistent with

Table 5  
Composity Three Year Average Rankings  
for Profitability and Labor  
Intensity by Sub-Sector

SubSector	Average Three Year Ranking	
	Labor Intensity Rank	Profitability Rank
Beverages	4.7	5.0
Bakeries	1.7	2.0
Textile Products	4.3	3.0
Sawmills	3.7	4.3
Sugar	1.7	5.0
Wood Products	3.0	1.0

SOURCE: Table 4

with the hypothesis that high labor intensity is accompanied by high profitability. This data would appear to contradict the oft mentioned objection to employment creation through labor intensity, that it implies a loss in profitability. If anything, the data presented here appears to favor the opposite hypothesis.

#### 4. International Comparisons in Agribusiness Profitability

Similiar data have been gathered in other countries, and it may be useful to see how Guyanese agribusinesses compare on the basis of profitability. The average agroindustry in El Salvador in 1971 realized almost double the profit rate at 34.7%<sup>1</sup> of that experienced by the Guyana enterprises, 18.8%. Brazilian agribusinesses in 1970 were much closer to the Guyana average with enterprises realizing between 16.8-25.8% profits depending on scale<sup>1</sup>. While the 1970 average profitability rates are comparable to Brazil, there is no evidence that the Brazilian profitability has fallen in recent years as far as the Guyana data implies.

### Section Three: Resource Productivity and Efficiency:

Productivity implies an output per unit input. If the productivity ratio is to be a guide to efficiency the input should be a relatively scarce resource. In labor scarce capital abundant societies, labor productivity is an acceptable rough measure of efficiency. In Guyana capital is probably the scarcest input in most situations. For the purposes of this document, capital productivity will be used as a rough proxy for efficiency. Capital productivity is defined as the value added per unit to total capital (fixed capital plus working capital).

Table 6  
Capital Productivity by Sub-sector

	Value Added/Capital Value
	(1970-1973-1975 average)
Beverages	0.61
Bakeries	1.09
Textiles Products	0.82
Sawmills	0.63
Sugar Processing	1.03
Wood Products	1.36
Food Marketing	1.08
All Agribusinesses	0.94

SOURCE: Sample of Enterprises from the Guyana Survey of Manufacturing and Commercial Establishments, 1970-73-75

The wood products sector has the highest capital productivity. From comparing this sub-sector's labor intensity and profitability, it would appear that its high capital productivity is not due to high labor intensity but rather to higher internal efficiency. This sector also had the highest profitability rank, so it would appear that from

both private and societal perspectives wood products would be the most efficient of the agribusiness sectors. Its labor intensity is not the highest, but it is possible that in recent years this intensity compares favorably, there are data errors for this sector in 1975 which prevent good estimates of its labor intensity or profitability in that year. Bakeries are second in capital productivity but followed closely by marketing and sugar processing. The fact that capital productivity is high for sugar, but profitability is consistently low indicates that private efficiency (profitability) and societal efficiency (as estimated by capital productivity) do not necessarily go hand in hand. Beverage and Sawmill enterprises have low capital productivities, low labor intensity and low profitability. These sectors would appear be the lowest priority from all three perspectives.

#### Section Four: Summary of Economic, Private and Employment Perspectives

The purpose of this profile document is to provide a preliminary view of agribusinesses which would assist in the selection of sub-sectors for host country intervention and support. In order to provide a balanced view of the subsectors a variety of different perspectives must be taken. There are three principal viewpoints from which to assess the potential of an agribusiness. These three perspectives focus on three desirable outcomes from agribusiness interventions, increased output (economic perspective), increased employment (employment perspective), and financial feasibility (Private perspective).

#### A. Economic Efficiency

Economic efficiency is defined for the purposes of this document as capital productivity for the reasons given in Section Three above. It is a measure of the value added to society per unit of society's scarcest resource, capital.

#### B. Employment Perspective

Increasing employment will be affected by increased production, but the degree of employment per unit output varies considerably between agribusiness types. This perspective asks how much employment will increase relative to other sub-sectors, if the intervention or support is given to a particular sub-sector.

#### C. Private Profitability Perspective

If profitability and hence financial efficiency is low, expansion of a sub-sector will have to be a subsidized intervention. This perspective focuses on the feasibility that expansions would be financial viable and self-sustaining.

#### D. Summary Findings of the Overall Potential of Agribusiness Interventions for Employment and Production Increases

Table 7 presents the summary findings taken from each of the preceding three sections, it indicates how each of the agribusiness subsectors rank on each criteria, and a final composite ranking of the factors taken together. This final ranking is perhaps less useful than the comparison of the three components since it adds concepts which cannot realistically be summed together.

Table 7  
 Employment, Productivity and Profitability  
 Rank by Subsector for Agri-  
 businesses in Guyana

Sub-sector	Employment Potential Index	Production Potential Index	Financial Feasibility Index	Composite Potential Index
	Employment Impact	Economic Impact	Self- Sustaining Potential	(Computed from unrounded raw scores)
(Rank order, 1 through 6)				
1st Wood Products	3	1	1	1.7
2nd Bakeries	1	2	2	1.9
3rd Sugar	2	3	5	3.2
4th Textiles Products	5	4	3	3.8
5th Sawmills	4	5	4	4.3
6th Beverages	6	6	6	5.2

SOURCE: Tables 5 and 6

Both wood products and the baking enterprises appear to have considerable potential from all perspectives. The sugar industry appears to have the only disadvantage that its pricing structure reduces the financial viability of expansion. Public subsidies are neither uncommon nor difficult to implement since sugar refining is usually dominated by a few large firms such that price controls are implementable. Textile enterprises present an intermediate situation, very limited employment potential at current technology being the most negative element.

The least attractive of the enterprise types are sawmills and beverage producing firms, these enterprises have uniformly low priority potentials in employment, production and are of marginal profitability. Though the results of this analysis are negative with reference to these two types of enterprises the negativism is relative, it may be that compared to non-agricultural

related enterprises their potentials are impressive. It should also be said that at least in the case of sawmills, their raw product is a necessary input into the wood products sector for which potential impacts are very favorable.

Food marketing is difficult to compare to enterprises which manufacture a product, the economic ratios have slightly different meaning when applied to retail commerce. It is therefore difficult to directly compare the marketing alternatives with other sub-sectors. While the labor intensity of marketing is not high, the economic efficiency, as measured by capital productivity compares very favorably with the other sub-sectors. The linkage effects of marketing may have strong impacts on the farms which produce the food products marketed which may justify marketing investment outside the framework elaborated in this paper.

## M A N U F A C T U R I N G   S E C T O R

The following categories were used in the distribution sector to determine the subsequent economic indicators.

	2. Other income	
1. Sales value		
3. Imported direct	Purchases	
4. Imported indirect	" "	
5. Local goods	" "	
6. All other goods		
7. Foreign	Services	
8. Local	" "	
9. Royalty	Payments to government	
10. Export duty	" "	
11. All others	" "	
12. Depreciation		
13. Total wages and salaries including bonuses		
14. Other labor income		
15. Abroad	Pensions	
16. Locally	" "	
18. Finished goods	Production stocks	31-12-70
20. Work in progress	"	"
22. Raw materials	"	

### Economic indicators

(A) Net income

$$(1) - [(6 \text{ through } 14) + (12 * 15 \text{ yrs} * 0.1) + ((18 + 20 + 22) * 15 \text{ yrs} * 0.1) + ((6 \text{ through } 14) * 0.25 * 0.1)]$$

(B) Profitability

$$\text{Net income (as found above)} / [((18 + 20 + 22) * 0.25 * 0.1) + ((6 \text{ through } 14) * 0.25 * 0.1) + (12 * 15 \text{ yrs} * 0.1)]$$

(C) Working capital

$$((18 + 20 + 22) * 0.25) + ((6 \text{ through } 11 + 13 + 14) * 0.25)$$

(D) Fixed capital

$$(12 * 15 \text{ yrs})$$

(E) Value added

$$(1) - (3 + 4 + 5)$$

(F) Labor intensity as a percent of costs

$$(13 + 14) * 100. / (6 \text{ through } 14)$$

(G) Labor as a percent of sales

$$(13 + 14) * 100. / (1) :$$

(H) Labor/Capital

$$(13+14)/(12*15\text{yrs})$$

(I) Capital/Labor

The reciprocal of (H) note: if (D) = 0 (H) & (I) = 0

(J) Other costs as a percent of total costs

$$(6 \text{ through } 11) * 100. / (6 \text{ through } 14)$$

(K) Interest as a percent of total costs

$$[((18+20+22)*0.25*0.1) + (12*15\text{yrs}*0.1) + ((6 \text{ through } 13)*0.25*0.1)] * 100. / (6 \text{ through } 14)$$

(L) Interest

$$(18+20+22)*0.25*0.1$$

## S E R V I C E S   S E C T O R

The following categories were used in the services sector to determine the subsequent economic indicators.

1. Gross receipts
2. Other receipts
3. Salaries and wages
4. Other labour income
5. Depreciation
6. Purchase of goods and services
7. Other expenses
8. Equipment
9. Vehicles
10. Buildings
11. Issues of share capital
12. Depreciation reserves
13. Undistributed profits
14. Other capital reserves
15. Debenture stock
16. Loans within country
17. Loans from abroad
18. Advance from head office
19. Other - specify
20. Total (11-19)
21. Annual addition to general reserves    31-12-70
22. Income tax

Gross receipts and gross income were considered to be synonymous

- |                    |           |   |                                       |
|--------------------|-----------|---|---------------------------------------|
| (2) Other receipts | Banks     | - | Interest received                     |
|                    | Hospitals | - | Other receipts                        |
|                    | Schools   | - | School tax collected                  |
|                    |           |   | Government grants to teachers' salary |
|                    |           |   | All other receipts                    |
| (7) Other expenses | Banks     | - | Interest paid on deposits             |
|                    |           |   | Head office expenses in Guyana        |
|                    |           |   | All other                             |
|                    | Cinema    | - | Entertainment tax                     |
|                    |           |   | Head office expenses in Guyana        |
|                    |           |   | All other                             |
|                    | Schools   | - | Rent paid                             |
|                    |           |   | All other expenses                    |
|                    |           |   | Overseas examination fees             |
|                    |           |   | Ministry of Education                 |
|                    |           |   | Directly overseas                     |
|                    |           |   | Local fees                            |

Economic indicators

- (A) Net income  
 $(1+2) - [(3 \text{ through } 7) + (5*15\text{yrs}*0.1) + (3 \text{ through } 7)*0.25*0.1]$
- (B) Profitability  
Net income (as found above)/ $[(5*15\text{yrs}*0.1) + (3 \text{ through } 7)*0.1*0.25]$
- (C) Working capital  
 $(3 \text{ through } 7)*0.25$
- (D) Fixed capital  
 $(5*15\text{yrs})$
- (E) Value added  
 $(1+2)$
- (F) Labor intensity as a percent of costs  
 $(3+4) * 100./(3 \text{ through } 7)$
- (G) Labor as a percent of sales  
 $(3+4) * 100./(1+2)$
- (H) Labor/Capital  
 $(3+4)/ \text{Fixed capital (as found above)}$
- (I) Capital/Labor  
The reciprocal of (H) note: if (D) = 0 (H) & (I) = 0
- (J) Other costs as a percent of total costs  
 $(6+7) * 100./(3 \text{ through } 7)$
- (K) Interest as a percent of total costs  
 $[(5*15\text{yrs}*0.1) + (3 \text{ through } 7)*0.25*0.1]/(3 \text{ through } 7)$
- (L) No way to determine interest

## D I S T R I B U T I O N   S E C T O R

The following categories were used in the distribution sector to determine the subsequent economic indicators.

1.	Purchases		
2.	Sales		
3.	Local principal	Receipts from other sources	
4.	Foreign principal	"	"
5.	Other income	"	"
6.	Total	"	"
9.	Total	Wages and Salaries	
10.	Other labour income	Other costs	
11.	Foreign	"	"
12.	Local	"	"
13.	Other goods		
14.	Payment to government		
15.	Depreciation		
16.	Income tax		
17.	Total stocks	1-1-70	
18.	Total stocks	31-12-70	

### Economic indicators

(A) Net income

$$(2+6) - [(9 \text{ through } 15) + (15*15\text{yrs}*0.1) + (18*0.25*0.1) + ((9 \text{ through } 15)*0.1*0.25)]$$

(B) Profitability

$$\text{Net income (as found above)} / [(15*15\text{yrs}*.1) + (18*0.1*.025) + ((9 \text{ through } 15)*0.1*0.25)]$$

(C) Working capital

$$(18*0.25) + (9 \text{ through } 14)*0.25$$

(D) Fixed capital

$$(15*15\text{yrs})$$

(E) Value added

$$(2+6) - (1)$$

(F) Labor intensity as a percent of costs

$$(9+10) * 100. / (9 \text{ through } 15)$$

(G) Labor as a percent of sales

$$(9+10) * 100. / (2+6)$$

- (H) Labor/Capital  
 $(9+10)/ \text{Fixed capital (as found above)}$
- (I) Capital/Labor  
The reciprocal of (H) note: if (D) = 0 (H) & (I) = 0
- (J) Other costs as a percent of total costs  
 $(11 \text{ through } 14) * 100./ (9 \text{ through } 15)$
- (K) Interest as a percent of total costs  
 $[(18)*0.1*0.25 + (15)*15\text{yrs}*0.1 + ((9 \text{ through } 15)*0.1*0.25)] * 100./$   
 $(9 \text{ through } 15)$
- (L) Interest  
 $(18)*0.1*0.25$