Institute of Economic Development and Research
SCHOOL OF ECONOMICS
University of the Philippines

Discussion Paper No. 69-3 February 5, 1969

SOCIAL SECURITY AND INCOME REDISTRIBUTION IN THE PHILIPPINES

by

Richard E. Rosenberg, 1943-

NOTE: IEDR Discussion Papers are preliminary versions circulated privately to elicit critical comment. References in publications to Discussion Papers should be cleared with the author.

INTRODUCTION

In this paper I am examining the effect that the Social Security System of the Philippines (hence forth SSS) has had on income-redistribution. In my thesis I will also include the effects of the Government Service Insurance System (GSIS). This paper will be divided into two major sections. First, I will attempt to determine to what extent SSS has redistributed income in a single point in time, 1967. Secondly, I will attempt to evaluate what effects the retirement provisions of SSS have on income redistribution over a worker's lifetime. In the long run the retirement program will provide for the major share of SSS transfer payments and, therefore, this program has the greatest potential influence on income redistribution.

Before I actually proceed to evaluate the effect of SSS on income-redistribution, let me briefly outline the feasible role that social insurance institutions in general can play in this process.

SOCIAL SECURITY & INCOME REDISTRIBUTION IN THE PHILIPPINES

Any examination of the relationship between Social Security and income-redistribution faces a large number of difficulties. To attempt such an examination within the framework of the Philippine economy is the purpose of my study. As a starting point, one needs a working definition of social security. The following is to clarify the concept of "income redistribution".

There are different schools of thought concerning the concept of "income-redistribution". I shall use a definition which views "social security as the result achieved by a comprehensive and successful series of measures for protecting the public (or a large sector of it) from the economic distress that, in the absence of such measures, would be considered by the stoppage of earnings in sickness, or old age or after death". This definition incorporates all the major provisions of the Philippine Social Security System.

Part I

THE ROLE OF S.S.S. IN INCOME-REDISTRIBUTION IN DEVELOPING NATION IN GENERAL AND THE PHILIPPINES IN PARTICULAR

Some General Limiting Factors

Redistributive effects of social security operations do not take place in a vacuum but within the framework of conditions determining income distribution and general economic conditions.

In the Philippines, a country with a very unequal distribution of primary income, the Social Security System has prima facie a large scope for affecting a progressive redistribution of income. However, in a developing country like the Philippines, there are numerous factors which severely limit this scope. They are as follows:

(1) The overwhelming majority of the poorest individuals are either subsistence farmers in agriculture or the chronically unemployed. Historical experience has shown it is difficult, if not impossible, to bring these individuals into social insurance schemes.

(2) Since social insurance schemes are almost always financed, at least in part, by payroll taxes, the majority of the wealthy individuals whose wealth consists of landed interests are excluded from the system. It is true that there are many individuals whose wealth consists of entrepreneurial income from

manufacturing and commercial activities. The SSS system has attempted to tap this source of income by having the employer pay a substantial part of the payroll tax. [In the Philippines case, on the average, 3½ percent of the 6 percent payroll tax is paid by employers.] Later I will go into a lengthy discussion of the theory of payroll tax incidence. Most economists, however, believe that in the long run employer taxes are shifted backward to the worker. Therefore, this source of wealth is not tapped by social insurance schemes. It is possible to tax the wealthiest individuals in developed countries by financing part of Social Insurance schemes from general tax revenues. This is possible since many developed countries have general tax structures which are progressive. However, this is not the case in the Philippines where the over all tax structure is regressive.[1/] The above point is only of academic interest since none of the SSS financing comes from general tax revenues in the Philippines.

1/The effective tax rate structure is generally regressive -- the low income groups have an overall effective tax rate of 19.529 per cent and the middle income group of 17.658 per cent. For this conclusion and a detailed study of this problem in the Philippines, see A Study of Tax Burden by Income Class in the Philippines. Joint Legislative-Executive Tax Commission, Manila, Philippines, 1964.

Thus, in the context of a developing country like the Philippines, while the potential scope for income-redistribution is quite large, the actual scope of social insurance institutions like the SSS is severely limited by the inability to include the poorest elements of society in the system, and at the same time by the inability to substantially tax the wealthiest individuals.

It is my hope to determine to what extent SSS is limited by the above considerations in redistributing income and how effective a role it has played and can play within these constraints.

Part II

THE STRUCTURE OF SSS AND ITS POTENTIAL IMPACT ON INCOME REDISTRIBUTION

The Rationale of SSS

The Rationale of SSS is threefold:

(1) It is part of the program of the government of the Philippine Republic to achieve social justice for all its people;

(2) It is to provide protection against the hazards of disability, sickness and old age and death for members;

(3) The system is believed to play a major role in the economic development of the Philippines through the investment of its reserves.

This paper will examine the effect that SSS has had on the promotion of social justice which I will consider to be primarily synonymous with progressive income-redistribution. Thus, the major activity of any institution claiming to promote social justice must be to increase income-redistribution from the wealthy to the poor.

I realize that this objective at times conflict with the other two objectives of the system. I will concern myself primarily with the extent that SSS has affected and will affect income-redistribution and how income-redistribution can be further increased.

One other aspect of social justice I will examine in the final part of this paper is whether the members of SSS "get their money's worth" as compared with private alternatives. This can be determined by seeing whether the present discounted value of retirement benefits are greater than the compounded value of contributions at retirement for workers.

The SSS System

The following description of the present institutional structure of SSS discusses how this structure may affect income-redistribution.

SSS was authorized in 1954 and began operation in 1957. It is therefore just starting its second decade of operation. It provides cash, sickness as well as permanent disability, death and retirement benefits. The System is financed by employer and employee contributions. Since retirement benefits are conditioned by years in covered employment, and since the covered population is growing rapidly and is relatively young, reserve accumulation is very great. This affords a fund for discretionary investment, a large portion of which has been allocated to service loans. (i.e. loans to members at below market rates of interest). These loans include salary loans, educational loans, and housing loans.

SSS total revenues in 1967 was ₱158,048,506, 124,178,000 of which were from member contributions and 32,928, 929, from investment income.

1. Legal requirements as of 1968-coverage in the system is compulsory upon all employees not over sixty years of age and their employers. Employment is defined as any service performed by an employee for his employer except:

(a) Agricultural labor when performed by a share or leasehold tenant or worker who is not paid any regular wage or base pay and who does not work for an uninterrupted period of at least six months in a year.

(b) Domestic service -private home

(c) Employment purely casual

(d) Employment by members of ones family

(e) Government employment (covered by GSIS)

All self-employed are also excluded. In actual fact, the system legally covers wage and salary workers excluding almost all others. Thus, in effect a large portion of the poorest members of the labor force in the Philippines are excluded from legal coverage.

2. Actual Coverage

(a) Registered workers

Net of terminations, the SSS had registered 1,768,222 workers by the end of 1967. The extent of coverage of non-agricultural wage workers is much greater than that of agricultural wage workers.

By comparing SSS registration figures with Bureau of Census and Statistics figures on wage and salary workers from 15-60 years of age in the Philippines, it may be seen that only 300,000 wage earners in non-agriculture while over 850,000 in agriculture still need to be registered. Thus SSS has registered only 60% of these legally eligible (about 3 million are legally eligible.) The total labor force in the Philippines in 1957 was estimated by the Bureau of the Census and Statistics as about 12,7 million workers. This figure compared with the total number registered shows that the potential scope of SSS for redistributing income is again severely limited both by the legal provisions and the incomplete coverage.//

(b) Actual compliance

Compliance in any given period (those members actually contributing and accumulating future benefit rights) is far below the figures for registered employees. In 1967 after an extensive compliance drive by SSS only 39% of the registered employers and 53% of registered wage earners were actually complying. [A sample of 1,000 employers that I have taken from the 1966 data, further reveals that only 2.45 per cent of the complying employees are agricultural workers and they contributed only 1.34 per cent of the total SSS contributions. Thus, SSS is limited, even more than the registration figures reveal, in

its ability to redistribute income to agricultural workers who make up the bulk of the really poor in the Philippines.] The above survey also reveals the fact that 85.38 per cent of contributions and 69.64 per cent of employees come from large-scale establishments with 20 or more workers. Still further examination of this sample's results shows that the average contribution per worker (and therefore approximately the average wage) of the large scale employers covered by SSS is twice the average contribution of the medium (5-15) and small scale employers (less than 5). The fact that the overwhelming majority of the complying workers are from the large scale firms, points up further the failure of SSS to cover the poorer members of the labor force, even of those members registered and complying.

3. Financing

(a) Legal Structure

[Employer and employees contributions are made from the first month of coverage. The employer deducts and withholds employees contributions. At the end of each quarter, the employer pays this amount plus his contribution to the SSS. The schedule of contributions is as follows. (See table 1).

The distribution of the total contribution which is 6 per cent of wage and salary up to 500 pesos a month depends on which salary bracket an employee falls into. As can be

TABLE 1

SSS Contribution Schedule

Salary Bracket	Monthly Salary Wage or Earnings		Monthly Salary Credits	Employer's Contribution	Employee's Contribution	Total Contribution
I	Below	₱10.00	₱ 10	₱ 0.50	0.10	0.60
II	₱ 10—	49.99	30	1.50	0.30	1.80
III	50—	99.99	75	3.00	1.50	4.50
IV	100—	149.99	125	4.40	3.10	7.50
V	150—	199.99	175	6.20	4.30	10.50
VI	200—	249.99	225	7.90	5.60	13.50
VII	250—	349.99	300	10.50	7.50	18.00
VIII	350—	499.99	425	14.90	10.60	25.50
IX	500—	Over	500	17.50	12.50	30.00

seen from the above table, the employer pays a decreasing percentage as the monthly salary increases (from 5 per cent to 3.5 per cent of monthly salary). While the employee pays an increasing amount from 1 per cent to 2 per cent of his monthly wages. If these employer contributions are not shifted (a very unlikely occurrence) they would be progressive for employees. This could lend to a progressive redistribution of income, everything else being equal. The actual incidence of these contributions will be discussed in detail later in the paper.

(b) Actual Contributions

Total contributions were ₱124,178,094 in 1967. They have been increasing at an average rate of 16% since the inception of the system. The 1967 increase over 1966 was 8%.

From a sample distribution of SSS employees by wage class, I computed that 41.04% of total contributions would come from employees and 58.96% from employers, assuming no shifting of the tax. This sample referred to above was a random sample of 2318 SSS employees taken for November and February 1966. See Appendix 1 for data.

4. Benefits

There are three types of benefits paid by SSS: (a) retirement; (b) death and disability; (c) sickness benefits.

(a) Retirement benefits. Upon reaching the age of 60 years and after having paid at least one-hundred and twenty monthly

contributions to the system, a covered employee shall have the option to retire and shall be entitled, for as long as he lives but in no case for less than five years to a monthly basic pension to be computed as follows:

(1) 30 per cent of the first 300 pesos of the average monthly salary credit.

(2) Plus 6 per cent of the excess over 300 pesos

(3) Plus one sixteenth of one per cent of the average monthly salary credit for each monthly contribution in excess of one hundred and twenty pesos

(4) Provided that the monthly pension shall in no case be less than 30 pesos

This benefit formula is a weighted one giving relatively larger monthly pensions to lower and average paid employees. The progressivity of the formula is further increased by the provision of the minimum benefit of 30 pesos a month. The benefits have been increased substantially since the inception of the system.

In 1962 the benefit formula was 25 per cent of the first 100 pesos, 15 per cent of the next 100 pesos plus 5 % of the next 300 pesos of monthly salary. Although present average pension benefits are clearly above these rates, the relative progressivity of the benefit formula has clearly declined.

The pensions have also been increased by changing the base on which they are computed. In 1962 the benefit depended

on lifetime average earnings. Presently, the benefit are based on the average monthly salary credit which is the result obtained by dividing the sum of the monthly salary credits in the 60 month period before retirement by 60. Lifetime average earning would usually be considerably below earnings in the five years before retirement and therefore benefits have been increased. (See Appendix 11 A.B. for substantiation of increased money earnings with age of SSS members)

The pension also depends to a significant extent on the period of coverage as indicated in provision (3) above. Thus, people with identical earning histories can have different size pensions depending on when they become covered.

(b) Death and disability

Upon the covered employees death or total disability, his beneficiary shall receive a basic lump sum equal to the sum of the 12 highest monthly salary credits in the 36 months preceeding death or disability, plus 5/12 of average monthly salary for each month of coverage over 120 months. There is also a minimum basic lump sum payment of 500 pesos. The minimum benefit is the only aspect which adds progressivity to death and disability benefits. This minimum would increase benefits for those workers earning below ₱75 monthly.

(c) Sickness benefits are equal to 70 per cent of average daily salary credit (for all members with at least one

dependent; this is practically all members). In no case shall the payment be less than ₱2.50 a day nor more than ₱8.00 . The minimum and maximum benefits are the elements in the sickness formula which gives it progressivity. The minimum here would increase relative benefits for those workers whose average monthly salary class (A.M.S.C.) is below 75 pesos a month. The upper limit lowers the benefits of those members who have A.M.S.C. of over 175 pesos a month. Thus, the sickness formula is quite progressive.

5. Investments

(a) Legal Provisions

There are practically no legal provisions constraining the investment of SSS reserves. The investment fund is equal to 80 per cent of total reserves, the other 20 percent being set aside in a "reserve fund" of very liquid investments (in time and saving deposits, etc.) for emergency and contingency purposes. The only other major restriction is that, not more than 40% of the investment fund shall be invested in housing loans.

(b) Actual Reserves

In 1967 ₱113,182,716 were added to reserves, ₱90,634,731 of which went to the investments fund. Thus 71.8 per cent of total revenues in 1967 went to both the reserve funds. Total accumulated investment as of December 31, 1967 was ₱622,006,367, distributed as follows:

TA

Housing Loans
Time and Savings de
Securities (privat
Salary and Educat
Government secur
Fixed Assets

r. I will not try

ts of loans other

ment, commercial

ustrial loans

investments

n for

l

In 1967 the large

benefits (addition to

paid in 1967) is due to

youth of the system, many membe

for substantial benefits; and secondly,

the system is geared to the establishment of a

manent reserve fund. This aspect of SSS severely restrict

ability to effect income redistribution in the present and near future. However, this fact is modified somewhat by the actual investment of reserves. In 1967, for example, ₱80,000,000 in housing and apartment loans were released, ₱35,000,000 in salary loans and ₱10,300,000 in educational loans, making a total of ₱125,300,000 in service feature loans. These loans are all made at below market rates of interest and are therefore transfers to members similar to payments of other benefits. However, these transfers are not equal to the full value of the loans but to the interest savings from the difference between the loan rate and the market rate of interest. This large volume of service feature loans could potentially have a significant effect on income redistribution. Whether they in fact

do, will be discussed later in this paper. I will not try to evaluate the income redistribution effects of loans other than service loans in this paper, (eg. government, commercial and industrial loans). Since commercial and industrial loans were temporarily suspended in 1966, and government investments actually decreased in 1967, so that in the year chosen for this study, 1967, service loans made up over 90% of total new investments. It should be noted that government loans could only be evaluated by finding the total impact of government expenditures on income distribution. This task is beyond the scope of my paper.

SUMMARY OF PART II

The legal provisions concerning coverage, the actual structure of registered members, the structure of compliance, and the method of financing seriously limit at the outset, the scope of SSS for redistributing income. On the other hand, the structure of benefits and contributions, everything else being equal, increases the scope.

The overall picture do not hold out much promise for any major income distribution by SSS. The rest of this paper will be concerned, whenever possible, with determining to what extent the above factors have actually limited the scope for income redistribution, and also to what extent there is income redistribution within the forementioned constraints.

PART III

THE EFFECT OF S.S.S. ON INCOME REDISTRIBUTION IN 1967

Previously we have discussed a number of aspects of the structure of S.S.S. which can effect income-redistribution. These structural biases can be modified or even reversed when actual conditions are analyzed. All the progressive effects, for example, of the retirement benefits structure would be neutralized if all the individuals who retired were in the highest salary bracket. Even though this is a far fetched example, there is no doubt that the distribution of members claiming benefits, and paying contributions has substantial weight in determining the effects of S.S.S. on income-redistribution, aside from the effects of the structure itself. This section is going to examine precisely what the outcome of the meeting of the institutional structure and wage distribution is .

Here I will attempt to determine the family income distribution of retirement, death, and sickness benefits and the family income distribution of the interest savings on service loans. This involves a two step process: first, one needs to determine to what wage and salary brackets benefits and loans actually go; secondly, one must allocate the benefits and interest saving on loans in each wage and salary bracket class to the proper family income bracket. The same process must be carried out for contributions, first, allocating them to the

proper wage and salary brackets and then allocating them to the proper family income bracket.

A. Contributions: The Employee Tax

The employee tax will be assumed to be borne entirely by the employees. Few would argue with this assumption. For the schedule of contributions, see table 1.

B. The Employer Tax--Analytical Considerations

1. Employer Tax--Short Run

In the short run, producers will treat payroll taxes as any other production cost and will attempt to recover the additional cost through higher prices. At higher prices they will not sell as much as before; output, and employment will decline.

2. Employer Tax--Long Run

The classical position and the position of most economists today is that a tax on payrolls paid by employers is shifted to and borne by the workers. In the long run, the impact of the tax depends upon the reaction of wage earners to the reduced wage. It is argued that a payroll tax will not make labor any more productive so employers will have no reason to pay higher total compensation after the imposition of the tax unless some wage earners react to their reduced earnings by withdrawing from the labor force (here the long run supply of labor is less than completely inelastic with respect to wages). The supply of labor is generally considered to be wage

inelastic in the long run. In this situation the same number of workers will be seeking the same number of jobs and the workers will bear the full burden of the tax. This view is based on the Marginal Productivity Theory of Wages which in turn assumes perfectly competitive markets. This incidence may have to be modified depending on the strength of the following conditions:

(a) Institutional aspects of wage determination may modify the backward shifting which would appear under these conditions. Primary among these considerations is union resistance to wage decreases.

(b) If production requires fixed factor proportions (or the factors are strongly complementary), the tax in effect becomes a general excise tax assessed on the total cost of production.

(c) Supplies of other factors may be less than perfectly price elastic and thus some of the burden may be shifted on to these factors.

(d) The tax may not be universally applicable or universally complied with. If within an industry coverage is not complete, workers will be able to resist reductions in their wages by moving into uncovered firms (this will occur to the degree that workers do not place any value on tax associated benefits). Workers may also move into uncovered industries or sectors if coverage is not universal.

To the extent that the above factors prevent the employer from shifting the tax backward on to the worker to that extent they will either be borne by the employer or shifted forward or shifted back on other factors. Factors that may prevent the employer from shifting the tax forward are:

(a) Non-universality of compliance and coverage may cause the employer to fear loss of sales to competitors.

(b) Sufficient but small increases will lead to awkward pricing.

(c) Low level of prosperity in the economy.

(d) Relative elastic demand for product. (Note that the more concentrated an industry is, the more inelastic the demand curve facing particular firms and the easier it is for firms to raise prices).

If the tax cannot be shifted backward, and is borne by the employer or shifted forward, the cost of labor will increase relative to capital and it will become profitable to substitute capital for labor. How profitable it will be depends on the following:

(a) How heavily the tax bears on the industry or firm (i.e. what percent taxes are of value-added or profits or total cost). This in turn depends on the wage structure, as well as the labor costs relative to other costs in the industry.

(b) Technical problems-- "fixed factor proportions" etc.

(c) Financing problems--cost of capital, tightness of money and capital markets.

Note that the above effects will differ from one sector of the economy to another, and within sectors as well, depending on specific conditions.

C. TAX INCIDENCE

PHILIPPINE CONDITIONS-- IMPLICATION OF THEORETICAL CONSIDERATION

The above analysis has shown that in the long run the employers tax will be shifted back on the worker unless some serious imperfections in the market structure prevent or modify this process.

Are there any such imperfections in the Philippines? Of the four factors mentioned above which could prevent the backward shifting of the employer tax, union resistance to wages decreases is potentially the most important. I do not believe unions in the Philippines are strong enough to prevent backward shifting. In the first place a small percentage of the total labor force is strongly unionized. In 1965 there were 109 strikes in the Philippines which involved only 54,994 workers, In the second place, of these 109 strikes, only 34.2 percent involved issues concerning wages hours, and fringe benefits.[2/]

2/ From Work Stoppages in the Philippines, 1960-1966, Asian Labor Education Center (ALEC)

The overwhelming majority of these strikes concerned organization, agreement administration, and plant administration. There would seem to be little organized pressure to prevent shifting of the employer tax back on to workers in the form of lower wage increases over time.

The second factor which may prevent full backward shifting, is if there are fixed factor proportions. Professors Sicat and Williamson have shown, however, that entrepreneurs in manufacturing do in fact change factor proportions in response to changes in factor prices.[3] Thus, in the Philippines the evidence available seems to indicate that factor proportions are not fixed but on the contrary are quite flexible.

The fourth condition discussed above may exist. From the data I have sampled I have found that neither coverage nor compliance is universal and that in fact there is considerable variation in the extent of coverage between some industries and within them. In my sample of 1/5 of all firms registered in manufacturing by S.S.S. only 1224 out of 3089 were complying in 1966, and within each sector of manufacturing there was considerable variation in compliance, as the following table shows:

3/ See: I.E.D.R. Discussion Paper No. 68-21 "Technical Change and Resource Allocation in Philippine Manufacturing, 1957-1965 by Jeffrey G. Williamson and Gerardo P. Sicat, 1968.

Table 2

Industries ISIC No.	% Compliance of total sample[1]	Industries ISIC No.	% Compliance of total sample
20	.36%	30	.50%
21	.51	31	.59
22	.39	32	.79
23	.46	33	.42
24	.22	34	.39
25	.36	35	.77
26	.44	36	.32
27	.42	37	.44
28	.38	38	.33
29	.47	39	.33

[1] Percent of total employers complying in the months sampled (April and October) 1966.

However, despite these conditions, I do not believe workers resisted wage reductions by moving into uncovered firms for the following reasons. The uncovered and covered firms differ on the whole considerably. When one considers the "dualistic" structure of most developing economies, the Philippines included, this becomes quite evident. The complying firms are "high wage islands". They are the more modern, larger, more sophisticated firms and on the whole the non-covered are the small scale, the "lower wage", less technologically advance firms, etc. No worker is going to give up his job in the "high wage sector" for the more backward low wage sector. This is especially true since the payroll tax is a low 6% of wages. Thus I do not believe that there is any major obstacle to prevent the backward shifting of the employer tax in the Philippines. Of the factors discussed above that could prevent forward shifting,

the low level of prosperity seems to be the most i

A study by Professor Licat (as yet unpublished) shown that Philippine manufacturing in 1960 is quite concentrated. If this pattern holds for all of the Phi economy, and most evidence on concentration in less devel countries substantiates this position of high concentratio then it would seem that the major barrier to forward shiftin does not exist in the Philippines. Thus, it seems unlikely to me that forward shifting would not take place.

D. A SURVEY OF VIEWS

The following is a reproduction of part of a sample survey I sent to a large scale employers in manufacturing in October of 1968.

Has the cost of SSS premiums:

4.) Forced you to reduce wage

Yes 3 No 65 Uncertain 5

5.) Kept you from raising wages to some extent

Yes 15 No 30 Uncertain 6

6.) Forced you to increase the price of your product

Yes 19 No 51 Uncertain 7

7.) Reduced your profits

Yes 54 No 16 Uncertain 3

The overwhelming response of most businessmen was that SSS employer tax reduces their profits. I would discount this finding especially since this is what is in the self-interest of business men to have the public believe. However, it is interestigg that both forward and backward shifting of the tax was admitted to by approximately 25 percent of those responding (question 4 and 5). This reveals that both forward and backward shifting seem to be significant and about equally strong.

Based on this admittedly incomplete evidence, I have decided to analyze the allocation of SSS contribution under the three following assumptions:

(1) The employer tax is borne 1/3 by the employer , 1/3 is shifted forward to consumers and 1/3 is shifted backward on to the worker. This assumption applies most realistically to the very short run. (2) 1/2 employer tax shifted backward and 1/2 forward. This applies to the short run situation, and (3) in the long run the full employer tax will be assumed to be shifted backward on the worker. I have given equal weight to both forward and backward shifting since my analysis of Philippine economic conditions and the results of my survey lead me to believe that, in the short run, both are equally probable.

E. THE ALLOCATION OF S.S.S. CONTRIBUTIONS TO FAMILY INCOME CLASSES

1. THE SALARY DISTRIBUTION OF S.S.S. CONTRIBUTIONS

(1) Full Backward shifting of employer tax

The data used is a sample taken at S.S.S. of 2,318 employees. Only those actually complying in the two months sampled were used to estimate the salary distribution of members. Only 1143 complied in February and 1157 in November. The following table gives the distribution of these complying members for each of the two month.

Table 3
Distribution of Contributing *
(Non delinquent) Employees, Feb. & Nov. 1966

Salary Bracket	Number of Employees Feb.	%	Number of Employees Nov.	%
I	1	0.10	7	.61
II	45	3.94	53	4.60
III	107	9.37	81	7.55
IV	213	18.65	187	16.20
V	303	26.34	304	26.34
VI	164	14.36	167	14.46
VII	169	14.79	183	15.86
VIII	64	5.61	86	7.45
IX	77	6.75	81	7.03
	1143	100%	1157	100.0

* From a random sample of 2,318 employees
Appendix I shows the estimate of total contributions based on this distribution.

The total number contributing in each wage category was multiplied by the appropriate total contribution rate for that category to determine the total contributions for each

wage class. Then the percentages of total contributions in each wage was calculated. These percentages were then multiplied by the annual contributions. This gave the total actual contribution of each wage class. (See appendix I for actual data). The problem now is to allocate to the proper family income class.

2. THE SALARY-FAMILY INCOME DISTRIBUTION Matrix

In order to allocate data which are distributed by salary brackets to family income brackets, one has to know what percentage of wages and salaries in each salary bracket belongs in each family income bracket. These percentages vary from salary bracket to salary bracket and from income bracket to income bracket, primarily with the following variations: (1) Percentages of wage income to other types of income by family income brackets, (2) the number of wage earners in each family by income class.

Previously, both these factors were analyzed whenever this problem arose and, then, allocation was made by subjective assumptions based on this data. This was at best a very imprecise procedure. I believe I have found a way to solve this problem in a more precise manner. What is needed is a wage and salary family income distribution matrix. That is the number of wage and salary workers for each family income class for each salary bracket. Thus, if one knows that P50.000 in contributions falls in the P0-500 wage and salary bracket,

TABLE 4

RURAL-URBAN SALARY-FAMILY INCOME DISTRIBUTION
IN OTHER INDUSTRIES INCLUDING THE GOVERNMENT (Expanded)

Family Income / Salary	500 Below	500-999	1000-1499	1500-1999	2000-2499	2500-2999	3000-3999	4000-4999	5000-5999	6000-7999	8000-9999	
500-below	59,800 10.45	105,225 18.38	112,700 19.69	101,200 17.68	66,125 11.55	27,600 4.83	47,725 8.34	23,000 4.03	12,075 2.12	12,075 2.12	2,300 .41	2
500-999		33,925 10.18	61,525 18.45	49,450 14.82	46,575 13.98	32,200 9.66	47,150 14.13	24,150 7.24	8,625 2.59	17,250 5.17	6,906 2.08	1
1000-1499			49,450 14.12	89,700 25.62	49,450 14.12	28,174 8.06	46,575 13.32	25,875 7.40	20,125 5.75	22,425 6.41	6,900 1.98	11
1500-1999				47,725 18.69	50,025 19.60	35,650 13.95	29,325 11.49	29,900 11.71	22,425 8.79	12,650 4.96	12.075 4.73	15
2000-2499					75,900 18.19	66,700 15.99	68,425 16.40	44,850 10.74	40,825 9.78	41,400 9.93	29,900 7.17	49
2500-1999						32,775 14.90	54,625 24.83	22,725 10.18	36,800 16.72	23,000 10.45	24,150 10.95	26
3000-4999							28,750 17.06	21,850 12.96	25,300 15.04	3,050 18.43	13,225 7.85	47
4000-999								9,200 20.27	6,325 13.95	9,725 21.43	6,325 13.95	13
5000-5999									4,600 17.79	4,025 15.55	7,600 17.79	12
6000-7999										4,025 13.72	10,350 35.29	14
8000-9999											4,60 30.78	
10000-ABOVE												
	59,800 2.41	139,180 5.67	223,675 9.13	288,075 11.73	288,075 11.73	223,100 9.09	323,605 13.20	201,251 8.19	177,100 7.21	171,675 7.25	121,32 4.93	

and also one knows that for this salary bracket 25 percent of the wage and salary members fall into the family income class below ₱500 a year and 20 percent fall in the family income bracket of ₱501 - 1000, 15 percent in the 1000 to 1500 bracket, etc. then by multiplying the amount in the salary bracket by the percentage of total wage and salary in each family income bracket, one can allocate the distribution of total wages and salaries to the appropriate family income-bracket. Thus, we can transform any wage and salary distribution into a family income-distribution.

This type of data is not readily available. However, I was fortunate enough to be able to gain access to the 1965 Household Survey of the Bureau of Census and Statistics (BCS). Then, by going through the over 5000 sampled households and by placing each wage and salary worker in each family in the appropriate income bracket, I was able to construct such a matrix. Since agricultural contributions make up such a small portion of total contributions to S.S.S., the matrix used was one covering only urban non-agricultural workers in the Philippines. The sample was then blown up by the appropriate expansion factors. This provided an approximation of salary-family income distribution for the Philippines in other (non-agricultural) industries including government. The matrix appears below in table 4.

One problem that deserves brief mention here is that the salary distribution brackets for allocation according to S.S.S. were not the same as the brackets used for the sampled B.C.S. matrix. Thus in order to equate the two, a cumulative frequency distribution was graphed of the S.S.S. salary distribution and the matrix salary brackets were then marked off and the percent of total salary within each matrix salary bracket was determined. This process might have imparted a small degree of error to my allocation process which I do not believe is significant.

3. Allocation of contributions

It is now a simple matter to allocate each salary bracket contribution to the appropriate family income class. The results under the assumption of full backward shifting are in column, Ac, of Table 5.

The total employee contribution under the other two assumptions, including that share of employer tax shifted back on the employees, was allocated in the same manner as above.

The portion of the employer tax shifted forward was allocated according to the non-food consumed at home expenditures for each income bracket.[4]

---

[4] Data was taken from Family Living and Expenditure in the Philippines, 1965. Special Release No. 65, series of 1968, month of April, BCS.

Non-food consumed at home expenditures by income class were chosen instead of total expenditures because it was believed that the overwhelming majority of price increases caused by S.S.S. would be in non-food expenditures. This is because agriculture and fishing are for all practical purposes not covered by S.S.S. and only a small percentage of contributions for S.S.S. comes from small scale establishments where the great majority of the food is bought by Filipinos. Allocation, of the portion of the tax shifted forward, according to total expenditures by income class, would have made forward shifting a lot more regressive than it is under the above assumption.

The employer tax, borne by the employer, was allocated to the ₱6,000 a year class and above. Most, if not an overwhelming majority of employers, probably fall in this class. The total tax borne by employers was divided proportionally according to the relative amount of income in each family income bracket above ₱6000. The distribution of contributions by income bracket for assumption B_C, 1/2 forward and 1/2 backward, and for assumptions C_C, 1/3 forward, 1/3 borne by employer and 1/3 shifted backward, appear in Table 5.

Allocation of the tax according to the three above assumptions differs most noticeably in the following manner.

1. Assumption A (Full backward)

Here the tax rate of contribution is the same for all wage brackets except ₱500 and above. Of the three assumptions, this

one distributes the smallest total of contributions to the low income brackets.

2. Assumption B (1/2 of employer tax shifted forward and 1/2 backward). This is the most regressive of the assumption. This is true because shifting has the most regressive incidence since expenditures(above non-food expenditures as is the case here) make up a greater proportion of total income of low income families than of high income families.

3. Assumption C (has a mixed effect). This is so since forward shifting is more regressive than backward shifting of the tax while the part of the tax actually borne by the employer has a very progressive effect on the distribution of contributions. The assumption tends to redistribute contributions away from the middle income groups to both the lower and upper groups, as compared to assumption A, where the tax is fully borne by the employee.

F. Distribution of Benefits

Disability benefits were not included because of inability to get data on them. They amounted to only 1,230,987 pesos in 1967 and thus would not significantly affect my results.

The data - In all those cases data was sampled which would enable one to determine the amount of benefits going to a particular salary bracket. The salary bracket determinable from S.S.S. data was in all cases the salary of the worker before he made his benefit claims.

TABLE 5

Distribution of; Contribution, Benefit and Benefits plus Loan, 1967

Family Income Bracket	A_C Contribution A. ASS Full Background Shifting (1)	B_C Contribution B. ASS ½ Backward ½ Forward (2)	C_C Contribution C 1/3 1-1/3 1-1/3 (3)	A_B Benefit A (4)	B_B Benefit B (5)	A_{B+L} Benefit plus Loan (6)
Below 500	77,610	1,251,568	837,624	81,683	3,294,704	81
	.065	1.01	.60	.30	12.161	
500 - 999	350,730	2,737,937	1,846,021	588,576	1,745,757	588
	.281	2.22	1.50	2.17	6.444	1
1000-1499	1,757,990	4,477,830	3,128,192	1,481,989	2,354,035	1,48
	1.42	3.63	2.54	5.5	8.688	2
1500-1999	5,300,620	6,984,800	5,315,268	2,615,684	2,714,515	2,62
	4.24	5.65	4.31	9.6	10.020	5
2000-2499	8,197,170	8,778,162	6,938,413	2,710,482	2,601,899	2,78
	6.58	7.12	5.62	10.00	9.603	5
2500-2999	8,539,610	8,837,102	7,037,067	2,145,861	2,101,929	2,33
	6.05	7.16	5.70	7.92	7.758	4
3000-3999	14,120,970	14,322,473	11,393,969	3,254,997	2,959,791	3,697,
	11.33	11.60	9.22	12.01	10.925	7.29
4000-4999	11,700,920	10,967,502	8,829,002	2,469,863	1,717,405	2,93
	9.39	8.88	7.15	9.12	6.337	5.64
5000-5999	13,096,000	10,531,436	9,334,410	2,441,369	1,407,307	3,16
	10.51	8.53	7.56	9.01	5.193	6.28
6000-7999	14,382,170	12,283,052	14,366,356	2,537,303	1,512,887	4,37
	11.54	9.95	11.64	9.36	5.584	8
8000-9999	13,447,640	11,310,524	13,534,252	2,052,035	918,359	6,72
	10.789	9.16	10.96	7.57	3.388	13
10000 & Above	33,699,850	31,027,476	40,947,566	4,619,140	3,767,083	19,85
	27.032	25.13	33.16	17.05	13.904	39
T O T A L	124,671,280	123,509,862	123,508,137	27,099,014	27,095,721	50,66

TABLE 6

1967 DISTRIBUTION OF BENEFIT & INTEREST SAVING ON LOANS

Family Income Bracket	Total % of Families in Bracket	Total Income (In Thousands)	ALLOCATED TO BEFORE CONTINGENCY BRACKET — BENEFITS: DEATH	SICKNESS	RETIREMENT
BELOW 500	.8	188,574 .92	2,450 .034	51,642 .411	27,591 .4082
500-999	2.4	683,724 5.26	19,737 .259	505,771 3.987	63,068 .932
1000-1499	5.3	1,058,016 8.12	95,677 1.256	1,248,631 9.8402	137,680 2.083
1500-1999	9.0	1,194,732 9.18	301,119 2.948	2,002,096 15.772	312,469 4.612
2000-2499	11.9	1,140,968 8.76	531,262 6.966	1,767,213 13.929	412,007 6,080
2500-2999	9.9	1,051,479 8.07	516,387 6.771	1,320,860 10.408	408,554 6.029
3000-3999	14.8	1,573,230 12.08	850,384 11.150	1,740,261 13.708	664,452 9.804
4000-4999	10.3	1,040,815 7.99	732,506 9.604	1,118,807 8,816	618,550 9.127
5000-5999	7.3	786,786 6.04	867,187 11,370	831,648 6.555	742,534 10.956
6000-7999	7.7	877,974 6.74	919,200 12.052	811,879 6,398	806,224 11.897
8000-9999	6.3	709,815 5.46	808,126 10.596	509,594 4.011	734,315 10.836
10,000- Above	14.3	2,721,224 20.89	1,983,508 26.066	785,869 6,193	1,849,758 27.294
GRAND TOTALS		13,027,337 100%	7,627,543 100%	12,694,264 100%	6,777,207 100%

TABLE 6
(continuation)

Salary	Educational	Housing	Total (A_b) Benefits	Interest Savings on Total Loans
	L O A N S			
0	4 .001	-	81,683 .3036	4 .000
12 0	71 .0108	-	588,576 2.1745	83 .0004
961 .045	686 .1035	-	1,481,988 5.469	1,647 .0090
7,208 .320	6,708 1.01	-	2,615,684 9.655	13,916 .0601
23,534 1.04	18,335 2.76	37,432 .18	2,710,482 10.001	29,301 .3347
67,533 2.49	28,821 4.34	94,261 .45	2,145,801 7.920	190,615 .8078
161.928 7.18	62,286 9.39	217,975 1.05	3,254,997 12.012	442,189 1.869
165,981 7.36	58,014 8.74	236,546 1.14	2,469,863 9.116	460.541 1.946
270,112 11.98	74,426 11.21	383,703 1.85	2,441,369 9.009	728,241 3.077
305,498 13.55	86,262 13.00	1,448,948 6.98	2,537,303 9.363	1,840,708 7.779
334,439 14.83	87,987 13.26	4,254,312 20.50	2,052,035 7.573	4,676,738 19.761
918,091 40.71	240,004 36,167	14,075,630 67.84	4,619,140 17.046	15,233,725 64.366
2,255,297 100%	663,604 100%	20,708,807 100%	27,099,014 100%	23,667,708 100%

TABLE 6
(Cont'd)

ASSUMPTIONS

(1) A_C = Full backward shifting of employer tax

(2) B_C = ½ backward and ½ forward shifting of employer tax

(3) A_C = 1/3 backward, 1/3 forward shifting of employer tax and 1/3 borne by the employer

(4) A_B = Benefits allocated to before contingency family income position.

(5) B_B = Benefits allocated to after contingency family income position

I. Retirement Benefits (From the Abstract of Retirement Check of all retired members receiving benefits). As of May 1968, a total of 391 retirees monthly retirement benefit were randomly sampled. Using the benefit formula, it was a simple matter to calculate the average monthly salary of most of those members were at retirement. The amount of contributions in each of the nine S.S.S. salary brackets was then computed. It was then assumed that this distribution represented the distribution of retirement benefits in 1967. This is a reasonable assumption since approximately 80 percent of those on the list had retired within the last 4 years.

Once the value of retirement benefits going to each wage class was estimated, the values were allocated to family income brackets by use of the salary income distribution matrix. The retirement benefits allocated in this manner appear in Table 6.

2. SICKNESS BENEFIT -334 Sickness Benefit Vouchers were randomly sampled. In computing sickness benefits the average of the 6 highest months of the last 12 before sickness were computed. Thus, it was possible to tell the salary bracket to which the amount of each claim should be allocated. The percentage of total contributions in each salary bracket was computed. The total for 1967 was computed and the allocation to family income bracket was done through use of the salary-family-income matrix. Sickness Benefits appear in Table 6.

3. DEATH BENEFIT -464 death benefit vouchers were randomly

sampled. Procedures followed those of sickness benefits claimants except added complications existed because numerous death benefit claimants had not met full legal condition and thus, the number of months of contribution varied. Therefore, average salary before death had to be computed for all those that did not contribute for the required number of months. Death benefits by family income bracket appear in Table 6.

4. ANALYSIS OF FINDINGS

In order to simplify this analysis, low income will be defined as below ₱2,499 annual income; middle income between ₱2,500-5,999, and upper income ₱6,000 and above. The lower income group thus contains 29.4 percent of families; and the middle income group 42.6 percent, and the upper income group 28.3 percent of the families.

(a) Benefits. First, let us look at the allocation of benefits to the before contingency income position.

(b) Sickness Benefits. Table 6 show that of the three. benefits, sickness has the greatest proportion going to the low income group--47.63 percent. Retirement has the next largest proportion--14.06 percent and the death has lowest proportion of 12.47 percent.

Both retirement and death benefits have less than proportional share of total income going to this group. Of these benefits, sickness has 39.48 percent going to the middle income group while death and retirement benefits have 38.39 and 35.92 percent

Sickness has the least going to the upper income group--16.60 percent, while death and retirement have 48.7% and 50.01% respectively. The difference between distribution of death and retirement benefits is insignificant. However, between retirement and death, and sickness benefits, there is a great difference, the latter being distributed progressively while the other two are mildly regressive. There are no provisions in the legal structure of these benefits to explain this great difference since all benefits structures have similarly progressive features. However, there is an explanation. It seems that many of those claiming sickness benefits are really unemployed members. The administrator of the S.S.S. benefit department told me that they have refused many sickness claim precisely for this reason. But many more are able to process their claims since it is very difficult to varify a sickness claims as being false. Since many of the claimants are unemployed, it is not surprising that the majority of these benefits find their way to the low income brackets.

(5) AFTER CONTINGENCY

The above benefits have been allocated under the condition that their proper position on the salary distribution, and thus the income distribution, is the position before the particular contingency actually occurs. For sickness benefits which on the average would cause only a month's (from a separate sample the average length of sickness benefits was shown to be 29.7 day) reduction in salary a family's income

Table 7

Distribution of Benefits by Wage & Salary and Income Brackets-1967*

(Wage & Salary-Family Y Matrix)

I. DEATH BENEFITS
II. SICKNESS BENEFITS
III. RETIREMENT BENEFITS

Total Contributions	%	Individual Salary \ Family Income	Below - 500	500-999	1000-1499	1500-1999	2000-2499	2500-2999	3000-3999	4000-4999	5000-5999	60
I. 23,486	.31		2450	4312	4620	4148	2661	1134	1959	946	498	
II. 495.129	3.2	Below - 500	51642	90906	97392	87440	56098	23915	41294	19953	10497	
III. 264,533	3.		27591	48568	52034	46717	29972	12777	22062	10661	5608	
I. 151,525	2.0			15425	27941	22441	21183	14637	21410	10970	3924	
II. 4,075,295	32.1	500 - 999		414865	751484	603551	569726	393673	565839	29505	105550	2
III. 142,441	2.1			14500	26266	21096	19913	13760	20127	10313	3689	
I. 447,000	5.9				63116	114521	63116	36028	59540	33076	25702	2
II. 2,831,124	22.3	1000-1499			399755	725334	399755	228189	377106	209503	162790	18
III. 420,540	6.2				59380	107742	59380	33896	56016	31120	24181	2
I. 856,119	11.3					160009	167799	119429	98368	100251	75253	4
II. 3,135,819	24.7	1500-1999				585771	614621	437447	360306	367204	275638	15
III. 732,554	10.8					136914	143581	102191	84170	85782	64391	3
I. 1,197,051	15.8						217744	191408	196316	128563	117072	11
II. 698,259	5.5	2000-2499					127013	111652	114514	74993	68290	6
III. 874,994	12.9						159161	139912	143499	93074	85574	8
I. 1,031,888	13.62							153751	255908	105046	172532	10
II. 845,528	6.66	2500-2999						125984	209691	86075	141372	8
III. 711,527	10.49							105018	176459	72433	118967	7
I. 1,271,298	16.78								216883	164760	191203	23
II. 360,556	2.84	3000-3999							61511	46728	54228	6
III. 950,285	14.01								162119	123157	142923	17
I. 951,881	12.3									188892	129997	1
II. 95,217	.75	4000-4999								19300	13283	
III. 942,823	13.9									191110	131524	
I. 849,300	16.21										151006	
II. ---		5000-5999									---	
III. 931,293	13.73											
I. 342,447	4.52											
II. 66,525	.524	6000-7999										
III. 340,502	5.02											
I. 178,800	2.36											
II. 34,786	.274	8000-9999										

Table 7 Continued
Distribution of Benefits by Wage & Salary and Incc
(Wage & Salary-Family Y Matrix)

I. DEATH BENEFITS
II. SICKNESS BENEFITS
III. RETIREMENT BENEFITS

Total Contributions	%	Family Income / Individual Salary	Below - 500	500- 999	1000- 1499	1500- 1999	2000- 2499	2500- 2999
I. 295,475	3.9							
II. 57,384	.452	10,000 - Above						
III. 293,700	4.33							
I. 7,576,270			2450	19737	95677	301119	531262	516387
II. 12,695,623	TOTALS		51642	505771	1248631	2002096	1767213	1320860
III. 6,782,903			27591	63068	137680	312469	412007	408554
27,054,796	GRAND TOTAL	27,099,014	81683	588576	1481988	2615684	2710482	2145801
I.			.0037	.2593	1.2557	3.9485	6.9665	6.7712
II.	PERCENTAGES TO		.4106	3.9871	9.8402	15.7722	13.9209	10.4075
III.	TOTALS		.4082	.9320	2.0328	4.6120	6.0802	6.0285
	PERCENTAGES TO GRAND TOTAL		.3036	2.1745	5.4698	9.6545	10.0014	7.9201

income position is changed little. Thus, the above assumption is not far from reality, since the family income positions would not have changed drastically after the contingency. However, for retirement and death benefits this assumption is very unrealistic. Both death and retirement can drastically reduce family incomes permanently. This is in fact precisely why social security systems are needed to modify such drastic reductions. Allocation of retirement and death benefits to before contingency family income positions therefore seriously underestimate the effect that S.S.S. has on income-redistribution. Ideally, what is needed would be detailed information on what the income positions of family retirees and death beneficiaries would be in the absence of S.S.S. retirement and death benefits. However, these data are not available and my limited time and resources prevented me from actually carrying out the type of family survey that would be required to get this information.

I have, however, thought of a method using the salary-family income distribution matrix which I believe allows me to determine rather accurately what the after contingency family income bracket is for these families. Starting from the allocation of retirement and death benefits to their proper position in the salary-family income distribution matrix, it was assumed that death and/or retirement would reduce the family income by the full amount of the reduction

in wage and salary income. The following procedure is then used to transform the before contingency distribution.

From Table 7, take one cell of this above matrix, family income of 2500-2999, and wage and salary of 1000-1499. What family income brackets will the benefits in this family income bracket and salary bracket be allocated to? We can assume that those families' income have been reduced by the full amount of the wage and salary reduction. Further, assume that wages and salaries and family incomes are equally distributed within their respective brackets. That is, that there was an equal number of individuals in the wage and salary bracket of 1001 and 1002....1499 and similarly for family incomes. Next, subtract the upper salary bracket from the lower income bracket and the lower salary bracket from the upper income bracket. Thus, in this case, 1499 will be subtructed from 2500 to get 1001 and 1000 from 2999. This gives the full range (1001 to 1999) of possible income brackets into which individuals could possibly fall after reduction in family income less of wage and salary income. The range is 1001 to 1999.. Those individuals with the lowest wage and salary possible in this cell and the highest income would now have a maximum of 1999 family income. While those individuals whose wages and salaries were the highest possible and the family income the lowest possible would have a family income position of 1000. The value of benefits in this cell (63,116 and ₱59,380 in retirement benefits) can then be allocated

equally to the 1000-1499, and the 1500-1999 family income brackets. Allocating these benefits equally assumes that the number of families in this cell with high incomes and low wages amd salaries equals the number with low incomes and high wages and salaries.

This is an unrealistic assumption since within any income bracket wages and salaries are probably related to family incomes. If wages and salaries are perfectly correlated with family incomes within brackets, then we should subtract the lower wage and salary bracket from the lower family income bracket and the upper wage and salary from the upper family income bracket. This is true as the highest (or lowest) wage and salary would be coupled with the highest family income (lowest) within each cell. The above case would result in all the benefits being allocated to aproximately the P1500 family income (2500-1000=1500, and 2999-1499=1500). But P1500 is midway between the family income bracket 1500-1999 and 1000-1499. Thus, we should allocate half the benefits to one bracket and half to the other. Thus, in this case different assumptions do not really change the income redistribution at all. In some other cells where the size of the bracket differs, there may be some change in the redistribution. However, since the assumption (upper from lower and lower from upper) actually tends to spread the income distribution over a wider range of income brackets, rather

than to either low or high income brackets exclusively, the overall effect will not influence the conclusion.

The same procedures were followed for each cell. There were some special difficulties in the largest cells since the upper brackets of these cells were not known. This difficulty was averted by assuming that the 10,000 and above salary bracket had a 15,000 upper boundary and that the 10,000 and above income bracket had a 30,000 upper boundary. However, this last assumption appears to be an unrealistic assumption for family income brackets for practical purposes. Nevertheless, it was adequate since a higher boundary would have allocated income in a similar manner mainly to the two upper income brackets.

The resulting distribution of benefits by family income brackets, under the assumption of allocating benefits to the family income position after the contingency of death and retirement has occurred, appears in Table 5. Comparing this after contingency allocations distribution with the distribution of benefits before contingencies in Table 5, we see that this assumption distributes a greater proportion of total benefits to the lower income groups, 37.29% as compared to 17.47% under the before contingency assumption. Thus, as expected, the income progressivity of benefits is greater under the after contingency allocation.

G. THE ALLOCATION OF SERVICE LOANS

Service loans (loans to members), unlike retirement and other benefits, are not pure transfers. They have a cost in the interest payments which are spread out over the period of the loan. Salary, educational and housing loans are all made at rates of interest well below market rates. The transfer value of these loans is equivalent to the interest savings of the members due to the difference between the loan rate and the market rate. The difference in the interest payments occur over different periods of time depending on the loan. (10 years for housing loans and 1 year to 13 months for salary and educational loans.) Therefore, the transfer value of the loans for a particular year is equivalent to the difference in the present discounted value between the interest payments actually made and the present discounted value of payment at market rates of interest.

1. EVALUATION OF INTEREST

(a) SAVINGS

The interest savings on loans were estimated in the following manner. The periodic payment necessary to pay off a loan of one dollar at assumed market rates of interest and at actual interest rates charged by S.S.S. was found from interest tables. The differences between the two measures the interest savings per period. Then, the

present discounted value of one dollar payable periodically (at the market rate of interest) was multiplied by the difference between the two figures to get the present value of the interest saving per dollar of funds loaned. The total amount loaned on each loan was multiplied by the above sums to get the total interest for each type of loan. Table 8 indicates the total interest savings of each type of loan.

Table 8

Type of loan	Interest Savings		Interest rate
Housing	20,800,000	market rate	13%
		loan rate	6%
Salary loan	2,257,500	market rate	13%
		loan rate	53%
Educational	664,350	market loan	13%
		loan rate	53/4%

The loan rates, were the rates actually used by S.S.S. The market rate was determined after a consideration of all relevant information on rates of interest for such loans. The rate shown is probably conservative. If this were true, the interest savings is under valued somewhat.

2. THE DISTRIBUTION OF S.S.S. SERVICE LOANS

(a) Housing Loans

The distribution of housing loans was taken from a special report on housing by S.S.S. made in October 1967. This report showed that of total housing loan fund released,

88 percent went to members whose salaries were above ₱500 a month. The remaining 12 percent was attributed to lower salary brackets in relatively decreasing amounts. Their distribution is shown in Table 6 by family income.

(b) Salary and educational loans distribution

The distribution of salary and educational loans was obtained from a total enumeration of the number of salary and educational loans granted between July 1967 and June 1968, distributed by wage brackets. Since almost all salary and educational loans are equal to one month salary, the amount loaned in each salary bracket was easily calculated. This distribution is shown in Appendix III.

The distribution of salary and educational loans was then put into the salary family income distribution matrix to get the family income distribution of loans. This distribution of loans is shown in table 6.

3. ANALYSIS OF LOANS

(a) Loans. 95 percent of the housing loans, 62.43 percent of the educational loans and 69.14 percent of the salary loans go to the upper income brackets. This is due to two factors. There is no progressivity built into the loan procedure. On the contrary, the lower income group has very limited paying capacity and has access to far smaller amounts loanable funds than the middle and upper income groups. In

addition, employers have access to housing loans which further distorts their distribution.

Comparing the distribution of service loans with benefits (see table 6 and table 5) it can be seen that service loans are highly regressive while benefits are relatively progressive.

Part IV

ANALYSIS OF EFFECT OF S.S.S. ON INCOME REDISTRIBUTION IN 1967

There are two accepted methods for evaluating the effects of S.S.S on income redistribution at a given point in time. Both will be used since they shed light on different aspect of the problem.

The first method analyzes the benefit contribution ratios for each income bracket. The method best reveals the nature of income redistribution among the complying members of the system.

These ratios enable one to compare the burden of the tax to the transfer value of benefits and loans for each income class. If low income brackets have higher ratios than high income bracket, then there is an implicit transfer of income from high to low incomes. These benefit contribution ratios are analyzed in two parts: for regular benefits and for interest savings on service loans. The following symbols are used to represent the assumptions made in the estimation of the income-redistribution of benefits and loans.

A_c = Contributions: Full backward shifting

B_c = Contributions: 1/2 backward, 1/2 forward

C_c = Contributions: 1/3 backward, 1/3 employer, 1/3 forward

A_b = Benefits allocated to "before contingency" salary and income position.

B_b = Benefits allocated to "after contingency" salary and income positions

Table 9 gives these ratios. There are six combinations of assumptions.

$\frac{A_B}{A_c}, \frac{A_B}{B_c}, \frac{A_B}{C_c}$ $\frac{B_B}{A_c}, \frac{B_B}{B_c}, \frac{B_B}{C_c}$. Almost all of these reveal that the social security system, excluding loans, is progressive. This is true as the ratios in general steadily decline as we move up the income scale. Under assumption B_b, however, the degree of progressivity is far greater than under assumption A_b. That is, for low income brackets,

$$\frac{B_B}{A_c} > \frac{A_b}{A_c}, \quad \frac{B_b}{B_c} > \frac{A_B}{B_c}, \quad \frac{B_B}{C_c} > \frac{A_B}{A_c}$$

For upper income brackets, the reverse is true. Assumption $\frac{B_b}{A_c}$ yields the most progressive structure. While $\frac{A_B}{C_c}$ yields the least progressiveness in fact this assumption still yields a mildly regressive structure since the ratios are increasing for the first four brackets. This assumption indicates a mild income-redistributiom from both lower income groups to middle income families. In my opinion, however, $\frac{B_b}{A_c}$ is the most realistic combination of assumptions in the long run. Thus, it would seem (excluding the effects of service loans for the moment) that the S.S.S. has a favorable effect on redistribution among its members.

TABLE 9

Ratio of Benefits to Contribution

Family Income Bracket	A_B/A_C	A_B/B_C	A_B/C_C	B_B/A_C	B_B/B_C	B_B/C_C
Below 500	1.052	.065	.098	42.452	2.632	3.933
500-999	1.678	.215	.319	4.977	.638	.946
1000-1499	.843	.331	.474	1.339	.526	.753
1500-1999	.493	.374	.492	.512	.389	.511
2000-2499	.331	.309	.391	.317	.296	.375
2500-2999	.251	.243	.305	.246	.238	.299
3000-3999	.231	.227	.286	.210	.207	.260
4000-4999	.211	.225	.280	.147	.157	.195
5000-5999	.186	.232	.262	.107	.134	.151
6000-7999	.176	.207	.177	.105	.123	.105
8000-9999	.153	.181	.152	.068	.081	.068
10,000 Above	.137	.149	.113	.112	.121	.092

A. ANALYSIS OF EFFECTS OF SERVICE LOANS AND BENEFIT ON THE INCOME-REDISTRIBUTION IN 1967.

The ratios for benefits and loans appear in Table 10. Again there are six possible combinations of assumptions

$$\frac{A_B + L}{AC}, \quad \frac{A_B + L}{B_C}, \quad \frac{A_B + L}{C_C} \quad \& \quad \frac{B_B + L}{A_C}, \quad \frac{B_B + L}{B_C}, \quad \frac{B_B + L}{C_C}$$

For five of the six sets of assumptions, these ratios indicate a redistribution of income from the middle income groups to both the upper and lower income groups. Going from the lowest to the highest family income brackets, we find that the ratios decline until they reach the upper middle brackets and then they rise again. Assumption $\frac{A_B + L}{A_C}$ is the exception. Here, the ratios rise, fall and then rise again. This would indicate a redistribution from the lowest income brackets and the upper middle to the highest and the lower middle.

The above general pattern of an income redistribution from the middle to the lower and upper income groups can be explained by the fact that service loans greatly favor the 3 highest income brackets. Thus, they tend to counteract the benefits which favor the lower income brackets. So, we find both extremes in family incomes being favored at the expense of the middle income group. This finding is really quite surprising. The fact that total benefits are (P27,099,014)

TABLE 10

Ratio of Benefit and Loans to Contributions

Family Income Bracket	$\frac{A_B + L}{A_C}$	$\frac{A_B + I}{B_C}$	$\frac{A_B + L}{C_C}$	$\frac{B_B + L}{A_C}$	$\frac{B_B + L}{B_C}$	$\frac{B_B + L}{C_C}$
Below 500	1.05	.065	.098	42.452	2.632	3.933
500-999	1.68	.215	.319	4.978	.638	.946
1000-1499	.844	.331	.474	1.340	.526	.753
1500-1999	.496	.376	.495	.515	.391	.513
2000-2499	.340	.318	.402	.327	.305	.386
2500-2999	.274	.264	.332	.268	.259	.326
3000-3999	.241	.258	.324	.241	.238	.299
4000-4999	.250	.267	.332	.186	.199	.247
5000-5999	.242	.301	.340	.163	.203	.229
6000-7999	.304	.356	.305	.233	.273	.233
8000-9999	.500	.595	.497	.416	.495	.413
10,000 Above	.589	.640	.485	.564	.612	.464

and interest savings on loans are approximately the same amount (₱23,662,708) gives these two features almost equal weight in affecting income re-distribution. Re-distribution overall, as indicated by these ratios, is greater toward the lower income brackets.

A conclusion which is not surprising, is that the ratios for most income brackets, (all except the lowest) under all the above assumptions, are well below one. That is, most income groups contribute more than they receive. Thus, while S.S.S. benefits may be allocated in a progressive manner, most income groups experience real income losses and there is a real income redistribution from the membership to the S.S.S. or to the non-S.S.S. members in the Philippines. This situation is due to the method of financing S.S.S. which is based on a large build-up of a permanent reserve fund out of which to finance contributions. For example, only 1/3 of the revenues were transferred to the public in the form of benefits or interest savings in 1967.

The fact that I did not include disability benefits (₱1,230,987) in 1967 and non-service loans (approximately ₱10,000,000 in 1967) had a small effect on the low level of these ratios.

B. NET - INTERBRACKET TRANSFERS OF S.S.S. IN 1967

I have also calculated the net interbracket transfers of total benefits, that is (B + L) -C or benefits plus interest

Table 11: NET INTERBRACKET TRANSFERS FAMI

Family Income Bracket	Total Income (In Thousands)	Net Transfers $(A_B + L) - A_C$ % of Family Y	Net Transfers $(A_B + L) - B_C$ % of Family Y	$(A_B + L) -$ %
Below 500	188575	+ 4074	-1169884	- 755940
	.92	+ .0022	- .6205	- .4010
500- 999	683724	+ .237929	-2149278	-1257368
	5.26	+ .0349	- .3144	- .1840
1000- 1499	1058016	- 274355	-2994195	-1644557
	8.12	- .0256	- .2827	- .1551
1500- 1999	1194732	- 2671020	-4355200	-2685665
	9.18	.2236	- .3651	- .2253
2000- 2499	1140968	- 5407387	-5988379	-4148632
	8.76	- .4743	- .5252	- .3638
2500- 2999	1051479	- 6203194	-6500686	-4700651
	8.07	- .5897	- .6183	- .4471
3000- 3999	1573230	-10423784	-10625287	-7696783
	12.08	- .6624	- .6758	- .4895
4000- 4999	1040815	- 8770516	- 8037098	-5898598
	7.99	- .8427	- .7726	- .5670
5000- 5999	786786	- 9926390	- 7361826	-6164800
	6.04	- 1.2617	- .9358	- .7828
6000- 7999	877974	-10004159	- 7905041	-9988345
	6.74	- 1.1399	- .9019	-1.1388
8000- 9999	709815	- 6718867	-4581751	-6805480
	5.46	- .9467	- .6456	- .9588
10,000- ABOVE	2721224	- 138469985	-1117464	-21094701
	20.89	- .5091	- .4106	- .7751
GRAND TOTALS	13027337	-74004654	-72843236	-72841521
	100%	100%	100%	100%

savings on loans minus contribution for each income bracket. This gives a clearer picture of the absolute effect of S.S.S. on income distribution. By calculating net transfers as a percentage of total income in each family income bracket, we can find out the effect of the social security system on income redistribution for the whole population. Benefit contribution ratios show only the income-redistribution effect within the covered population. These two measures will not necessarily reveal the same conclusion. The benefit contribution ratios could show progressive redistribution while the effect on the whole population might actually be regressive.

Table 11 shows the net inter-bracket transfer of income under six sets of assumptions $(A_B + L) - A_c$, $(A_B + L) - B_c$, $(A_B + L) - C_c$, $(B_B + L) - A_c$, $(B_B + L) - B_c$, $(B_B + L) - C_c$. The inter-bracket transfer for all but the lowest income brackets are negative. Again, this is not surprising in the light of our previous discussions. If one examines the relative effects, it can be seen that the effect on income-redistribution on the whole economy is similar to the relative effects in our previous examination. Here, as one moves from the lowest to the highest income bracket, the net transfer as a proportion of total income declines (negative percentage increase) up to the ₱6000-₱7999 bracket where the proportion quite suddenly declines (negative percentages decrease)

for the two highest brackets. Thus, as was indicated by the benefit contribution ratios the relative income-redistribution appears to be from the middle income group to both the lower and upper income groups.

Under assumption $(B_B + L) - A_C$, which is most progressive, there is a positive transfer to the lowest income bracket (₱500 and below) of 1.706% of family income. To the next bracket (₱500-999), the transfer is .2041 %; to the third lowest (₱1000-1499 it is, .0568%. If we look at the most conservative assumptions $(A_B + L) - C_C$, and $(A_B + L) - B_C$ we see that no income bracket has a positive transfer. Thus, even though there is a relative income-redistribution, in actuality the income- redistribution is regressive for most brackets. It is important to note further the total transfer to the lower income brackets. Below ₱2,499, family income is always negative, even under the most progressive assumption discussed above, $(B_B + L) - A_C$.

C. CONCLUSIONS

1. Under the most realistic assumption, there is a relative redistribution from the middle income bracket to the upper income and lower income brackets. This is verified for both the member population and whole population of the Philippines. Few would argue that a redistribution from the middle income groups to the upper is undesirable. Steps should be taken to remedy this situation, the main cause of which is inequitable distribution of service loans. Some measures have recently been taken by S.S.S. in this direction. The maximum limit on housing loans has been reduced from ₱60,000 to ₱15,000. However, this in itself will not automatically improve income-redistribution. The S.S.S. has plans and is already committed to participating both directly and indirectly in the construction of low income houses. While this is a step in the right direction, as far as income redistribution is concerned, its effects will be felt quite slowly. Other steps could be taken to insure more equitable distribution of loans. Service loans should be reduced absolutely and increased benefits should be granted to more low income members. This could be accomplished through an extensive permanent effort to register and maintain compliance of wage and salary workers in agriculture and small scale establishments. In my opinion, this step of extended effective coverage is the major step that can be taken

S.S.S. to affect favorably the redistribution of income to lower income workers. Another step which could be taken would be to remove the maximum limit on contributions from wage and salaries above ₱500 a month. This would do much to end the relative redistribution of income from the middle to the upper income groups.

The above would only have a minor effect on the magnitude of transfer payments, however. Without for the moment considering increasing contributions, the one major step that can be taken would be to change the financial basis of the system from a reserve financial system to a "pay-as-you-go" system. This would approximately triple total transfers. If they were distributed as they are now, the S.S.S. could at least positively transfer a substantial amount of income to the lower income groups.

On the whole, however, it seems that the Social Security System has been limited and will be limited in the future in having a major effect on income-redistribution primarily by those factors discussed at the beginning of the paper. That is that most of the very poor and very wealthy are out of reach of S.S.S.

This can be seen from the following hypothetical example. Assume the financing of S.S.S. was switched to a "pay-as-you-go system" total in-coming revenues would then be transferred to members. Total revenue in 1967 was approximately ₱150,000,000.

Benefit transfers under the present financing system amount to approximately ₱27 million. Transfers then could be increased approximately 5 times. Further, let us assume that the present distribution of benefit and contributions remains, and that the total transfers are allocated according to this distribution. Then, calculate the maximum net transfer to the lower income brackets under the most favorable assumptions $(B_B - A_C)$.

Total benefits to those income brackets average approximately ₱7.429 million. Five times this amount is ₱37,395,000. Total contributions in these brackets are approximately ₱18,064,000. Which leaves a net transfer to the low income brackets of ₱19,331,000. Total family income to the low income brackets is ₱7,479,000,000.

Since the system no longer accumulates reserves, there are no longer any funds (new) available for service loans. Therefore, service loans are excluded from the above hypothetical illustration. Thus, the system could transfer amounts equal to only one-quarter of one percent of family income to the four lowest income brackets. If payroll taxes were doubled, with the present structure and "pay-as-you-go" financing, the net transfer could be doubled. But even with a 12 percent payroll tax and "pay-as-you-go" financing, transfers could be made to the low income brackets of at most only one-half percent of family income in these brackets.

Thus although improvement can be made in the S.S.S. institutional structure which could significantly affect the progressivity of the structure towards its members, little can be done through S.S.S. to basically improve the income distribution in the Philippines at the present time. However, it should be remembered that the S.S.S. is still young and that the Philippine economy is still immature. As the economy develops, and more and more of its population shifts from agriculture to industry and from non-wage and salary employment the overall potential impact of the S.S.S. will increase substantially. It is thus of prime importance that elements of S.S.S. which have regressive effects on the income redistribution of its members be changed as quickly as possible so that S.S.S. may play an ever increasing role in the progressive redistribution of income in the Philippines, a country where this distribution is one of the most inequitable in the world.

PART V

THE DISTRIBUTION OVER TIME OF S.S.S. RETIREMENT FUNDS THE BENEFIT/ COST APPROACH

It is possible under certain simplifying assumptions to compute the present discounted value of retirement benefits as compared to the accrued value of total contributions paid up until retirement. These calculations will be carried out for different wage classes and wage histories. By making these calculation, one can estimate the comparative treatment of different individuals (i.e. in different wage classes and with different wage histories as well as providing information on comparative treatment. This analysis enables judging the overall equity of the retirement system by determining whether individuals "get their money's worth" as compared to private alternatives.

A. THE BASIC FORMULAS

(1) $$B = \sum_{n=0}^{39} \frac{B_n - P_n}{(1+i)^n} e \Rightarrow \frac{B_n \times P_n}{(1+i)^n}$$

B = present expected value of benefit stream, or the value of an annuity that pays a specific retirement premium until death.

B_n = yearly benefit

n = years after retirement at age 60

(0 at age 60; 1 at age 61, etc.)

e = n

i = annual rate of interest

p = the probability that a male aged 60 will live to reach age n.

(2) $T = \sum_{k=a}^{60} t_k (1 + i)^w$

T = accumulated taxes at retirement

k = age of worker

w = 60 - k $\qquad$ t_k = tax for age k

(3) $v = B/T$. If V is greater than or equal to 1, the value of a workers retirement benefits equals or exceeds the value of his taxes, at the assumed rate of interest.

B. GENERAL ASSUMPTIONS

(1) For the market rate of interest, I used a range of rates 6%, 10% and 15%.

(2) All workers work continuously from date of entry to retirement.

(3) All workers enter the system at the same time and retire at the same age.

(4) Total employer tax is shifted back on to the worker.

(5) Full contribution is used while in fact the share in total contribution of sickness benefits should be excluded. Only 6% of total contribution is used to finance sickness benefits, however, so in order to simplify this analysis, total contributions were used.

C. THREE BASIC WORKER HISTORIES WERE USED

(1) Entry 1958, retirement 1968 after 10 years of service. This is the minimum time necessary to meet full retirement benefits.

(2) Entry 1958, retirement after 20 years of service in 1978.

(3) Entry 1958, retirement after 30 years of service in 1988.

D. THREE COMBINATIONS OF WAGE AND INSTITUTIONAL ASSUMPTIONS

(a) Static wage and institutional assumptions

It was assumed (1) that members entry is one of the 9 wage categories and that they stay there until retirement with no increase in wages, (2) Benefits remain at 1968 levels for full retirement and (3) All aspects of structure remain the same as they are today.

(b) Dynamic Wage Assumption

It was assumed that wages increase with average increase in money wages and with the increasing age of the worker. Here, I made use of two samples taken by S.S.S., one in 1961 and the other in 1966. Those samples covered 10% of S.S.S. membership in the respective years. (See appendix II for actual data). These samples gave the wage distribution by ages of S.S.S. membership and the average wage for each age group.

I then estimated the average growth in average wages for the five years in between these two years. I then used these rates to estimate future average wage rates for each age group from 1958 to 1988. Then I calculated for each year of service the 1/3, 2/3, 1 1/3 and 1 2/3 average wages. For every year, I then had estimates of five wage profiles for each age bfackets (5 year age brackets). (See appendix IV for this data). Thus, an individuals contribution to S.S.S. in any given year was easily found in the following manners. First I assumed each workers relative position in his age group remained constant. A member retiring in 1968 after 10 years of service at 60 years of age would be in the same relative position as in 1958. Using the table of wage distributions by age groups for each year, one can find the wage of any of the profiles. Once the wage is found by using this table, the contribution schedule (Table 1) is used to find the workers contribution in each period. Using this method, I was able to take into account the general increase in money wages and increases due to age. To base estimates of growth rates to be used for up to 30 years on only two years experience is quite speculative. I realize the shortcomings of such estimates as these projections. However, they are based on the best data that is available. In order to save time and space, the "wage-ages-by years matrix "

appears in appendix IV for only the first 10 years, and only for ages 40-64.

(c) Dynamic Wage Assumption , Dynamic Benefit Assumption

Benefits have been assumed here to increase by 25 percent every 10 years for 30 years, starting from 1968 until 1998 when they level off. This assumption is probably reasonable. Benefits in the first 10 years of S.S.S. existence have increased by well over 40 percent (although it should be mentioned that they were extremely low to start with). If the real value of benefits are to remain constant, benefits will have to be increased by at least 25 percent every 10 years, assuming the continuance of present rates of inflation (around 5 percent a year). When benefits are increased, they are increased for all past retirees as well as present and future retirees. Thus, for a 1968 retiree, his benefits are assumed to increased in 1978 and 1988 etc. These increases are then incorporated into his benefit stream.

Mortality data used in discounting retirement benefits was taken from a 1960 study of the actuarial department of GSIS. This is the most complete study of mortality for individuals above age 60 available in the Philippines. This study involved 10 years of observation (Jan. 1, 1951 to Dec. 31,1960.) 6,024 lives and 1,252 deaths and a total of 351,267 life years of exposure.

The estimate of V (ratio of workers retirement benefits to his SSS taxes) were divided into the above three acts of assumptions in order to isolate the effects of different variables. The value of V appear in Table 12,13, and 14 at 3 different interest rates for each retirement history.

From previous discussion, it was shown that four aspects of the retirement benefit formula can affect the size and progressivity and thus the overall equity of the pension, (a) the benefit rate structure is progressive decreasing significantly above an average monthly salary of ₱500, (b) the benefit increases with each month of coverage over 10 years, (c) There is a minimum monthly benefit of ₱30, and (d) retirement benefits are based only on the last five years of earning history.

Two facts quickly meet the eye when looking over these tables: first, the value of V are very sentitive to both the interest rate used and number of years of contribution. The higher the interest rate the lower V since, at retirement, higher rates of interest make future benefits worth less and past contributions worth more. Also it will be observed that under all calculations the system is generally progressive, usually giving higher value of V to the relatively lower income groups. See p. 68

TABLE 12

Value of V*

Static Assumptions

(i.e. No. increases in wages, or benefits from entry date and retirement date respectively)

Age 50 - 1958 - Retire at Age 60 - 1968, 10 years continuous service

Interest	Average monthly salary								
	Below 10	10-49	50-99	100-149	150-199	200-245	250-349	300-499	500 & above
6%	51.68	17.16	6.85	5.15	5.15	5.15	5.15	3.93	3.50
10%	27.21	9.07	3.51	2.72	2.72	2.72	2.72	2.07	1.85
15%	13.92	4.64	1.75	1.39	1.39	1.39	1.39	1.06	.94

Age 40 - 1958 - Retire at Age 60 - 1978, 20 years continuous service

6%	18.28	6.08	2.43	2.23	2.23	2.23	2.23	1.80	1.67
10%	7.44	2.45	.97	.89	.89	.89	.89	.73	.67
15%	2.54	.84	.33	.31	.31	.31	.31	.25	.23

Age 30 - 1958 - Retire at Age 60 - 1968, 30 years continuous service

6%	10.75	3.57	1.56	1.56	1.56	1.56	1.56	1.30	1.21
10%	3.51	1.17	.51	.51	.51	.51	.51	.43	.40
15%	.55	.18	.08	.08	.08	.08	.08	.07	.06

* V = Ratio of workers retirement benefits to his SSS taxes.

How are these computed

TABLE 13
Value of V
Dynamic Economic Assumption
(i.e. wages increasing with age and with general increase in wages relative position remain constant. Static Institutional Assumption, i.e. contribution schedule and benefit formula remain as they were 19 1968.)

Age 50 -1958 - Retire at Age 60-1968, 10 years continuous service

AMS at Retirement	1/3 Avr.	2/3 Avr.	Avr. Wage	1-1/3 Avr.	1-2/3 Avr.
6%	6.82	6.02	6.04	4.80	4.31
10%	3.51	3.22	3.25	2.55	2.30
15%	1.75	1.69	1.71	1.34	1.21

Age 40 -1958 - Retire at Age 60 -1978, 20 years continuous service

AMS at Retirement	1/3 Avr.	2/3 Avr.	Avr. Wage	1-1/3 Avr.	1-2/3 Avr.
6%	3.50	3.83	2.74	2.21	1.95
10%	1.51	1.57	1.19	1.05	.826
15%	.58	.61	.47	.38	.32

Age 30 -1958 - Retire at Age 60-1988, 30 years continuous service

AMS at Retirement	1/3 Avr.	2/3 Avr.	Avr. Wage	1-1/3 Avr.	1-2/3 Avr.
6%	1.92	1.76	1.28	1.06	.93
10%	.72	.69	.46	.37	.31
15%	.20	.19	.13	.10	.08

AMS = Average monthly salary

There are some minor exceptions. In the second set of calculations for 10 years of contributions, the average wage worker fares better than the two thirds average wage worker. For 20 years of contributions, the 2/3 average wage worker fares better than the 1/3 average wage worker. This can be explained by the joint working of (d) above and the dynamics of the wage structure. Those workers in high wage categories that fared better than those in the lower did so because they ended up in relatively higher wage categories as compared to their wage categories at entry. This fact, together with provision (d) above, increased their benefits relative to contributions. In both the above cases, the retirement benefit was above the minimum benefit. Otherwise this effect would not have occured. This is a good illustration of how wage patterns can nullify the progressivity of the rate structure benefit formula. In this case, however, these effects are relatively minor and the overall progressivity of the structure is not impaired.

In Table 12 (the least realistic of the 3 sets of assumptions), the degree of progressivity seems to be tremendous. The high degree of progressivity comes from the minimum benefits without which the three lowest wage categories (I II III) would have identical values of V with categories IV to VII. (salary brackets) In reality though, very few retirees have A.M.S. (average monthly salaries) falling into these categories.

(see age and wage distribution of S.S.S. 1966 for 54 to 60 year old category. Appendix IV.

To be affected by the minimum benefit, one has to have an A.M.S. at retirement of less than ₱99. From Table 3 it can be seen that for those retiring today only 1/3 of the average wage profile is affected by the minimum benefit feature. For those retiring in 1978, none of the profiles examined here are affected. Thus, it would seem that in order to maintain existing progressivity of the retirement system the minimum benefit must be raised substantially in the near future.

E. OVERALL EQUITY

As can be seen from three Tables, 12,13 and 14, V is greater than one for all those individuals retiring in 1968. The only exception would be for an individual in the maximum salary bracket on the date of his entry in 1958, assuming the highest discount rate of 15 percent. The picture is not as clear cut for those retiring in 1978 with 20 years of service. At both 10 percent and 15 percent rates, if we assume no increase in benefits and the dynamic wage assumptions (Table 13), individuals falling into 6 out 15 cells of our table do not get their money's worth. If benefits are increased, as assumed in the third set of calculations (Table IV), at all except a 15 percent

discount rate, retirees easily get their money's worth. Individuals with 10 years of contributions consistently do better than individual with 20 and 30 years of contributions despite the feature of this system which provides for a 3/4 percent increase per year in overall benefits for every year of contributions over 10 years. This shows that this feature does not make up for the great added cost of contributions for a longer period of time. It should be noted that almost all S.S.S. systems have given a windfall gain to those individuals who are in the first group or groups to meet full retirement provisions.

F. Conclusions

Retirement insurance is progressive under realistic assumptions (dynamic wage assumption and increasing benefits). Values of V for the 1/3 average wage worker are consistently 1 1/2 to 2 times the value of V for the 1 2/3 average wage worker. This progressivity is built into the benefit structure (see Table 1) and is not substantially modified by the dynamic interaction of this structure with wage movements. (see Tables II & III).

Redistribution of income to the lower wage brackets is in part affected by the provision of ₱30 minimum monthly benefit (see Table 2), the minimum benefit appears to be out of line with actual wage histories both now and increasingly in the future. Therefore, if present progressivity is

to be maintained, it is recommended to increase the minimum benefits.

Not surprisingly, almost all present S.S.S. retirees have "received their money's worth from S.S.S. It is not as certain that this will be true for those retiring in the next 20 years. If benefits are increased and if rates of discount are no higher than around 10 percent, almost all workers will at least get their money's worth. It is my belief that this is the maximum time preference rate of discount that applies to members of the S.S.S. Thus, it seems likely that in the next ten years, most S.S.S. members will be treated equitably by the S.S.S.

Table 13, shows that for those retiring in 1988, even at 6% discounts only some individuals "get their money's worth". If benefits are not increased in the next 20 years, it is likely that many members will not be treated equitably by the SSS. Thus, it would seem that the SSS benefit structure will need to be revised periodically in the forthcoming years.

TABLE 14

Value of V
Dynamic Wage and Benefit Assumptions
Increasing Benefits
25% Every 10 Yrs.

	Age 50 1958, Retire 1968, 10 years continuous service				
	1/3	2/3	over	1 1/3	1 2/3
6%	7.50	7.69	7.72	5.94	5.49
10%	3.68	3.76	3.79	2.99	2.68
15%	1.84	1.84	1.87	1.46	1.31

	Age 40 1958, Retire 1978, 20 years continuous Service				
6%	5.38	5.89	4.32	3.50	3.04
10%	2.161	2.25	1.76	1.52	1.21
15%	.79	.83	.66	.52	.440

APPENDIX I

AN ESTIMATE OF THE TOTAL CONTRIBUTION TO S.S.S.
(1966)

FROM SAMPLE OF 2318 S.S.S. WORKERS [1]

Wage Category	Employer's Contribution	Amount of Employer's Contribution [2]	Employee's Contribution	Amount of Employee's Contribution	Total Contribution	Total Amount of Contribution
I	₱ 0.50	₱ 4.00 .02	₱ 0.10	₱ 0.80 .01	₱ 0.60	₱ 4.80 0.02
II	1.50	147.00 .84	0.30	29.40 .24	1.80	176.40 0.59
III	3.00	582.00 3.31	1.50	291.00 2.38	4.50	873.00 2.93
IV	4.40	1,760.00 10.02	3.10	1,240.00 21.34	7.50	3,000.00 21.39
V	6.20	3,763.40 21.42	4.30	2,610.10 21.34	10.50	6,373.50 21.39
VI	7.90	2,614.90 14.87	5.60	1,853.60 15.16	13.50	4,468.50 15.00
VII	10.50	3,696.00 21.04	7.50	2,640.00 21.58	18.00	6,336.00 21.26
VIII	14.90	2,235.00 12.72	10.60	1,590.00 13.00	25.50	3,825.00 12.84
IX	17.50	2,765.00 15.74	12.50	1,975.00 16.15	30.00	4,740.00 15.90
TOTAL		₱17,567.30 58.96		₱12,229.90 41.04	GRAND TOTAL	₱29,797.20

TOTAL NUMBER OF EMPLOYEES REGISTERED AT S.S.S. = 1,519,572
TOTAL NUMBER OF SAMPLES = 2,318

29,797,20 x 6 = 178,783.20
1,510,572 ÷ 2,318 = 655.55
655.55 x 178,783.20 = ₱ 117,281,648 = ESTIMATE TOTAL SAMPLE CONTRIBUTION FROM

₱ 114,831,000 = ACTUAL CONTRIBUTION 1966

1/ Equals No. of Employed sampled in each wage category x employed contribution

2/ Same as (1) except for Employers contribution.

APPENDIX IIa
DISTRIBUTION OF MEMBERS BY AGE GROUPS
AND WAGE CLASSES
As of 1 January 1962

Wage Class	Monthly Wages Credit (Pesos)	Number of members of each Wage g Age Groups						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
I.	10	111	872	745	637	456	401	127
II.	30	1,534	11,061	10,727	8,191	4,737	3,022	2,637
III.	75	1,794	25,774	28,994	20,136	11,757	8,140	7,064
IV.	125	2,046	38,380	56,161	41,899	24,009	16,394	14,174
V.	175	314	9,420	21,386	20,881	14,367	10,618	8,584
VI.	225	138	3,286	19,063	11,186	8,165	6,256	5,676
VII.	300	61	1,775	6,635	8,750	7,936	6,053	5,56?
VIII.	425	0	495	2,234	4,131	4,397	3,023	3,47
IX.	500	0	261	1,099	3,198	4,231	3,737	3,7?
TOTAL		5,995	91,324	137,064	119,009	80,055	57,644	51,0
Per Cent		1.00	15.22	22.84	19.84	13.34	9.61	8.5
Average Monthly Wage Credit (Pesos)		90.32	113.14	137.13	160.92	184.20	190.64	199

pfi
28.X.68

APPENDIX IIb

DISTRIBUTION ON MEMBERS BY AGE GROUPS AND WAGE CLASSES
(MALE AND FEMALE) / s of December 1966

Salary Bracket / Age Group	15-19	20-24	25-29	30-34	35-39	40-44	45-49
10	480	1,560	960	1,560	720	360	360
30	2,400	15,843	15,002	11,642	7,561	4,921	4,921
75	3,721	29,406	28,445	20,283	15,122	8,761	6,841
125	6,241	60,370	60,250	43,687	29,045	16,323	12,362
175	8,161	96,855	115,338	80,773	56,409	27,844	23,044
225	600	30,005	47,408	38,886	30,245	17,643	14,042
300	240	17,043	36,726	34,205	31,205	16,923	15,242
425	0	4,921	19,563	19,923	17,883	13,082	8,162
500	0	2,520	11,642	23,164	14,004	21,603	17,643
T O T A L	21,843	258,523	335,334	274,123	212,194	127,460	102,617
%	1.46	17,23	22.36	18.27	14.15	8.50	6.84
Average Salary	126.87	164.04	197.20	220.86	238.65	259.92	255.95

Actuarial Staff
June 14, 1967
:pfi: 28.X.68

APPENDIX IIb
(continuation)

Salary Bracket	Age Group 50-54	55-59	60-64	Total Workers	%
10	360	360		6,720	0.45
30	3,721	1,080	840	67,931	4.53
75	5,641	3,120	1,440	122,780	8.19
125	9,482	5,281	2,280	245,321	16.35
175	19,563	12,362	4,201	444,550	29.64
225	12,482	8,041	2,760	202,112	13.47
300	13,082	8,401	3,841	176,908	11.79
425	8,162	7,561	2,280	101,537	6.77
500	14,882	10,632	6,001	132,141	8.81
TOTAL	87,375	56,888	23,643	1,500,000	
%	5.82	3.79	1.58		100.00
Average Salary	260.83	280.86	291.68	218.36	

Actuarial Staff
June 14, 1967

:pfi:28.X.68

APPENDIX III

	A.M.S.C.*	Salary Loan Amount	%	Educational Loan Amount	%
I	10	-		-	
II	30	4,860	.01	870	.007
III	75	174,000	.37	23,400	.15
IV	125	1,363,750	2.89	230,375	1.498
V	175	6,586,300	13.95	1,638,000	10.66
VI	225	8,958,150	18.97	2,564,325	16.69
VII	300	8,944,200	18.94	4,011,000	26.12
VIII	425	10,196,175	21.59	3,421,250	22.27
IX	500	10,993,000	23.28	3,471,000	22.60
TOTAL		47,220,435		15,360,220	

* A.M.S.C. Average monthly salary credit

Salary Bracket	Housing Loan Amount
Below 2000	000
2000 - 2499	205,900
2500 - 2999	411,800
3000 - 3999	481,009
4000 - 4999	543,628
5000 - 5999	323,680
6000 - 7999	7,669,376
8000 - 9999	3,990,272
10,000 over	6,626,048