THE ECONOMIC FUTURE OF THE
SOCIAL SECURITY SYSTEM

by

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CHAPTER I

INTRODUCTION

Historical Background and Problem Statement

Established in 1935, the Social Security System provides an insurance program for those workers who are covered under its plan in the event of disability, retirement or death. Recently, the system has been criticized and its long term viability questioned \[2\], \[3\], \[9\], \[12\], \[13\]. Due to a decreasing birth rate, fewer workers are contributing. At the same time, population patterns indicate that there will be a disproportionate number of retirees in future years.

In order to evaluate the future intakes and outlays of the system, a valuable tool would be a dynamic model of the population which includes a breakdown of characteristics by race, age and sex. The important characteristics needed to identify a person's status under social security include marital status, death and birth rates, marriage and divorce rates, retirement and disability rates, as well as salary and employment data.

A generalized population model with aggregated statistics does not lend itself to a specific estimate of system costs. For example, if a death occurs, the only available means of determining the level of earnings of the individual or the number of his dependents is through the use of averaged statistics.

Thus, this study addresses the problem of estimating payments and receipts of the Social Security System by formulating a dynamic model
of the population. This model links specific individuals to their dependents and, as it moves through time, evaluates possible events to an individual (marriage, divorce, birth, death and disability) and the resulting benefit payment ratio.

The Social Security System

To qualify for benefits, all workers and employers in covered professions are required to pay a tax levied on the workers' monthly income. The tax levied when the system originated was only 1% per year on a maximum taxable wage base of $3000 [10]. The tax rates in 1975 are 5.85% on an annual wage base of $14,100 with both scheduled to rise in the future [4].

Through amendments to the original act, the scope of coverage and types of benefits have expanded. Benefits are now available to surviving dependents, the disabled, the self-employed and those workers retiring at age sixty-two. The amount of benefits received is increasing and with the escalator clause established in the amendments of 1972, is scheduled to rise with an annual change in the Consumer Price Index of greater than 3%.

Once a worker has contributed for a specified number of quarters he is eligible to receive benefits, the amount of which depend upon his past contributions.

One credit is given for every quarter in which the taxable salary exceeds $50. In 1975, 24 quarters are required to be eligible for retirement or disability benefits. A further restriction is placed upon a worker who becomes disabled. He needs to have credits covering the twenty quarters immediately preceding the onset of the disability. This restriction is modified for younger workers.
The monthly benefit amount is determined from the AMW (average monthly wage). AMW is computed by averaging monthly earnings over the working years until the time of retirement (62 for women, 62 - 65 for men), death or disability, disregarding the five lowest wages. From Average Monthly Wage, the PIA (primary insurance amount) is calculated (see Table 1). Secondary benefits are available to a worker's spouse and dependent children and are functions of the PIA. A child is eligible to receive benefits from his parents if he is either under 18, between 18 and 21 and in school, or disabled since before age 22.

A ceiling is placed on the amount of benefits a family can receive in one month. This limit is known as MFB (maximum family benefit) and is calculated from the PIA (see Table 1).

Monthly Benefits

A retired worker age sixty-five or older receives a monthly benefit of 100% of the PIA with reduced benefits available at age sixty-two. If the worker's spouse is also sixty-five or older or caring for an eligible child, he or she receives 50% of the PIA. All eligible children receive 50% of the PIA or that amount remaining so as not to exceed the MFB, whichever is smaller.

A disabled worker of any age is eligible for a monthly benefit of 100% of the PIA. His dependents receive the same benefits as the dependents of retired workers.

In the event of a death, a benefit of 100% of the PIA is payable to the widow or widower aged sixty-five or older. If the surviving spouse is under sixty-two and caring for an eligible child, the benefit is 75% of the PIA. All eligible children receive a maximum benefit of 75% of the PIA which is reduced if the total family benefit exceeds the MFB.
### TABLE 1

COMPUTATION OF PIA AND RELATIONSHIP BETWEEN AMW AND MFB (1973)¹

<table>
<thead>
<tr>
<th>PIA</th>
<th>MFB</th>
<th>AMW</th>
</tr>
</thead>
<tbody>
<tr>
<td>119.89% of the first $110 of AMW</td>
<td>117.2% of the first $436 of AMW</td>
<td>Under $628</td>
</tr>
<tr>
<td>+ 43.61% of the next $290</td>
<td>+ 58.6% of the next $191</td>
<td>$628 or more</td>
</tr>
<tr>
<td>+ 40.75% of the next $150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ 47.90% of the next $100</td>
<td>Subject to a minimum equal to</td>
<td></td>
</tr>
<tr>
<td>+ 26.20% of the next $100</td>
<td>1.50 times PIA</td>
<td></td>
</tr>
<tr>
<td>+ 22.20% of the next $250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ 20.00% of the next $100</td>
<td>1.75 times PIA</td>
<td></td>
</tr>
</tbody>
</table>

Subject to a minimum of $93.80

---

A lump sum payment equal to the minimum of three times the PIA and $255 is payable to the family of the deceased at the time of death [19]. Any person who is eligible to receive more than one benefit collects only the maximum one.

**Literature Review**

The increasing taxes needed to cover the increasing benefits has caused much criticism of the system. The problem is complicated by the fact that the birth rate is declining and the ratio of wage earners to pensioners is decreasing. The assets of the system which are kept in a trust fund are currently at a level below that of its annual payments [12]. As noted in an article by Warren Shore [9], the shrinking trust fund is a great concern to future beneficiaries. In commercial plans the reserves are rigidly monitored and if they fall below a specified level, future payments become contingent upon future sales or income.

To assess the economic future of the Social Security System, the annual difference between the benefits paid and payments received must be calculated. Studies have been undertaken in this area but have either considered forecasts of the population as a whole or have determined future benefits and taxes using fixed rates.

A study conducted by the Social Security Administration predicts monthly benefits reaching as much as $2000 for a retired couple by the year 2000 [12]. A maximum tax of $3386 for a worker and his employer is expected as compared to the current rate of $1660. Also anticipated by the year 1990 is a $20 billion deficit for the system.

Assumptions made in this study include a leveling off of inflation to 3% in the late 1970's and an annual rise in wages of 5%. This study
is inaccurate as the projected fertility rates used were between 2.3 and 2.8 children per woman, considerably higher than the 1.9 rate realized [3]. Also, it only considers retirement benefits and it is unclear how the $20 billion deficit was figured.

The Social Security Administration Actuarial Studies make some erroneous assumptions for long-range planning. They assume a population with characteristics (mortality rates, birth rates, etc.) only distinguished by age and sex. This is a poor assumption as the mortality and birth rates differ considerably among races. An aggregate population model is unable to account for the effect of an event on the Social Security System except through the use of averaged statistics. Another limiting assumption made in this study was that average money wages and prices remain unchanged, neglecting the effect of inflation upon the system. One such study performed in the 1940's estimated the cost of the system in 1970 to be between $7.5 and $10.8 billion. In actuality, total benefits were around $40 billion [5].

A study conducted by Richard A. Brown forecasts social security outlays for future beneficiaries using a 3% annual increase in the Consumer Price Index [1]. This study does not consider the level of the tax rates associated with these benefits. Two poor assumptions made in this study are first, that a worker has paid the maximum tax in previous years and will continue to do so and second, that an event resulting in a benefit can only occur at the beginning of a year.

In a reported study by U.S. News and World Report using annual increases in wages of 5% and in the Consumer Price Index of 2.75%, sees a maximum benefit of $33,000 annually by 2011 [2]. The large deficit seen in this study is due in part to an underestimation of the taxable
wage base. The base is seen to be only $12,600 in 1975, $2500 lower than realized. A similar schedule predicted in 1970 shows a maximum taxable wage base in 1975 of only $10,200 [14]. However, rapid inflation in the 1970's has caused the wage base and benefit schedules to rise rapidly. Legislation has compounded the problem by easing eligibility requirements and causing the trust fund to dwindle.

One final study by Han Nguyen [6] develops a model which evaluates the expected rate of return for an individual given his past working history. This study does not calculate the payment benefit ratio for the entire system.

**Thesis Organization**

In chapter II, a development of a simulator to initialize the characteristics of a representative population using a base year of 1970 will be presented. In chapter III, this initialized population's future will be simulated with social security benefits and payments analyzed. Chapter IV will present four test cases and results. Chapter V will present conclusions of the research and recommendations for further study.
CHAPTER II

INITIALIZATION SIMULATOR

Introduction

Simulation is a tool used when the development of a mathematical model would be impractical due to the size and requirements of the model [7], [8]. Examples of such models include large scale economic and demographic systems which involve the modeling of populations. A complex system can be simulated in a fraction of real world time and the model allows exploration of hypotheses about the represented system.

It is possible to manually initialize a representative population, however, this would be a huge task. It must be determined how many people belong to each age, sex and race grouping and this information stored in the proper computer storage locations. Each individual must be assigned a marital status and if married or divorced, the age of the spouse is needed and the couple must be linked together. Single and widowed persons must also be properly identified. Family make-up must be specified for each adult who can be responsible for children. The age, sex and race of the children must be determined and the family linked together. Any child who is between the ages of eighteen and twenty-one is eligible for dependency if he is in school or disabled. A check for these events must be made and the appropriate information stored. Once all families are assigned, the salaries of those employed and the status of all individuals under social security is needed. It can easily be seen that a manual attempt
at such a large problem would be impractical. The simulator is found to be more flexible as any size population can be developed simply by changing the required sample size. The accuracy of the simulator depends upon the limiting assumptions and the accuracy of the statistics used.

This chapter will describe the initialization of a sampling of the United States population, the components of the simulator and the assumptions made in its development. A flow chart of the simulator components follows the corresponding description.

**Requirements of Simulator**

One of the requirements of this simulator is that it create a representative sample of the population which has characteristics relating it to the Social Security System. The characteristics of each person needed in such a model include his employment status, his eligibility for benefits under the system and the number and age of his dependents.

In order to have this information available for one individual, it is necessary to use data packing to reduce the amount of computer storage needed. Each person is identified through a position in an array. Three words of storage are used for each individual's identification.

For adults, the first word contains the age, sex, race, marital status and current status under social security of the person and his or her spouse, if married. The second word contains his spouse's number and the amount of monthly benefits currently being received by the individual. The third word contains his salary and the number of his oldest eligible child. A dictionary of precise locations and digits used to describe individuals is found in Table 2.
### TABLE 2

**DICTIONARY OF DATA PACKING LOCATIONS**

<table>
<thead>
<tr>
<th>Position</th>
<th>Identification</th>
<th>Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 3</td>
<td>Age</td>
<td>1 - White Male</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - White Female</td>
</tr>
<tr>
<td>4</td>
<td>Sex and Race</td>
<td>3 - Black Male</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 - Black Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 - Other Male</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 - Other Female</td>
</tr>
<tr>
<td>5</td>
<td>Marital Status</td>
<td>0 - Dependent Child</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - Married</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Divorced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 - Widowed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 - Single</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 - Spouse Remarried</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 - Orphan</td>
</tr>
<tr>
<td>6</td>
<td>Number of Younger Siblings (If Child)</td>
<td>1 - Employed &amp; Covered</td>
</tr>
<tr>
<td>7</td>
<td>Number of Older Siblings (If Child)</td>
<td>2 - Disabled &amp; Retired</td>
</tr>
<tr>
<td>8</td>
<td>Status of Woman (Mother or Spouse)</td>
<td>3 - Retired</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 - Disabled</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 - Dead</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 - Parent Remarried - Children Collecting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Benefits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 - Unemployed</td>
</tr>
<tr>
<td>Position</td>
<td>Identification</td>
<td>Symbols</td>
</tr>
<tr>
<td>----------</td>
<td>----------------</td>
<td>---------</td>
</tr>
<tr>
<td>9</td>
<td>Status of Man (Husband or Father)</td>
<td>(Same as for Status of Woman)</td>
</tr>
</tbody>
</table>

**WORD 2**

1 - 5  Spouse's or Parent's Number

6  Identifier for Positions 1-5


<table>
<thead>
<tr>
<th>1</th>
<th>Single &amp; Independent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Spouse</td>
</tr>
<tr>
<td>3</td>
<td>Father's Number - Mother Living</td>
</tr>
<tr>
<td>4</td>
<td>Father's Number - Mother Dead</td>
</tr>
<tr>
<td>5</td>
<td>Mother's Number - Parents Divorced</td>
</tr>
<tr>
<td>6</td>
<td>Mother's Number Father Dead</td>
</tr>
<tr>
<td>7</td>
<td>Disabled Dependent</td>
</tr>
<tr>
<td>8</td>
<td>Divorced Spouse's Number</td>
</tr>
</tbody>
</table>

7 - 9  Amount of Monthly Benefit

**WORD 3**

1 - 5  Oldest Eligible Child's Number (If Parent)

or

Next Younger Sibling's Number (If Child)

6 - 9  Monthly Salary
For children, word one contains the age, sex, race, number of older siblings, number of younger siblings and the status of his parents under social security.

If his parents are not divorced, word two contains his father's number, otherwise it contains his mother's. If only one parent is living, this number is stored with the children. Also included in word two is the amount of monthly benefit being received by this child and the marital status of his parents. Word three holds the number of his next younger sibling.

It is seen that a family is linked together as the parents identify with each other and to their oldest child who in turn is linked to his next younger sibling and so on. Thus, if a person becomes eligible for benefits, the status of his dependents and their eligibility for benefits is easily determined.

**Simulator Logic**

The simulator is broken down into a main program and twelve subroutines. To properly identify each individual and his characteristics, the simulator uses the following procedure.

Using as a basis the 1970 population broken down into age, sex and race (see Table 3), a representative sample of size N is found by dividing the number in each category (of age, sex and race) by the number of people in the population. This results in a probability distribution for all people. This distribution is multiplied by the desired sample size, N, to obtain a representative sample of people.

Each of these N people must be described. Their respective age, sex and race is known and inserted into the first word of storage. Next, the marital status of each adult is determined. Beginning
<table>
<thead>
<tr>
<th>Age</th>
<th>White Male</th>
<th>White Female</th>
<th>Black Male</th>
<th>Black Female</th>
<th>Others Male</th>
<th>Others Female</th>
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<tbody>
<tr>
<td>Under 1</td>
<td>1501250</td>
<td>1433830</td>
<td>244504</td>
<td>242695</td>
<td>32161</td>
<td>30828</td>
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<td>29406</td>
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<td>4</td>
<td>1533819</td>
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<td>6</td>
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<td>276000</td>
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<td>7</td>
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<td>1760037</td>
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<td>30184</td>
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with each woman whose age is fifteen or more, subroutine MAR is invoked to find her marital status given her age and race. In subroutine MAR, a random number is obtained from subroutine RANDU and is compared with the cumulative distribution of probabilities that a woman is either single, married, divorced or widowed (see Tables 4A, 4B, 4C). Her marital status is returned to the main program.

If the woman is widowed, this is indicated in her identification. If she is single, it is next determined if she is independent of her parents. If her age is between eighteen and twenty-one, subroutine SCHOOL is called. This subroutine checks if she is currently in school and thus eligible for dependency. It acquires a random number from subroutine RANDU and checks it against the probability of being in school (see Table 5). If she is in school, she is a dependent and is assigned a status indicating this. If either she is not in school or is over age twenty-one, determination of her eligibility for dependency due to disability is made. Subroutine DISABL generates twenty-two random numbers and checks if any one is less than the probability of becoming disabled in a given year, $0.00642 \times 10$. If she is disabled, the woman is described as a dependent due to her disability, otherwise she is single and independent of her parents.

Under the Social Security System, ex-wives are eligible to collect benefits from their husbands. Therefore, if a woman is divorced, a husband is assigned to her. Thus, for any woman who is currently married or divorced, subroutine SPOUSE is referred to in order to find the age and race of her spouse, given her age and race. A cumulative distribution of differences in age between husbands
# TABLE 4A

**AGE - SPECIFIC CUMULATIVE PROBABILITY DISTRIBUTION OF THE MARITAL STATUS OF A WHITE FEMALE**

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<td>0.972</td>
<td>0.999</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>18 - 19</td>
<td>0.760</td>
<td>0.992</td>
<td>0.998</td>
<td>1.000</td>
</tr>
<tr>
<td>20 - 24</td>
<td>0.348</td>
<td>0.971</td>
<td>0.997</td>
<td>1.000</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0.112</td>
<td>0.951</td>
<td>0.996</td>
<td>1.000</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0.061</td>
<td>0.947</td>
<td>0.992</td>
<td>1.000</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0.036</td>
<td>0.928</td>
<td>0.985</td>
<td>1.000</td>
</tr>
<tr>
<td>40 - 44</td>
<td>0.040</td>
<td>0.910</td>
<td>0.966</td>
<td>1.000</td>
</tr>
<tr>
<td>45 - 54</td>
<td>0.041</td>
<td>0.872</td>
<td>0.928</td>
<td>1.000</td>
</tr>
<tr>
<td>55 - 64</td>
<td>0.057</td>
<td>0.764</td>
<td>0.805</td>
<td>1.000</td>
</tr>
<tr>
<td>65 - 74</td>
<td>0.070</td>
<td>0.560</td>
<td>0.591</td>
<td>1.000</td>
</tr>
<tr>
<td>75 and Over</td>
<td>0.068</td>
<td>0.293</td>
<td>0.309</td>
<td>1.000</td>
</tr>
</tbody>
</table>

---

# TABLE 4B

**AGE - SPECIFIC CUMULATIVE PROBABILITY DISTRIBUTION**

**OF THE MARITAL STATUS OF A BLACK FEMALE**

<table>
<thead>
<tr>
<th>Age</th>
<th>Single</th>
<th>Married</th>
<th>Divorced</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 - 17</td>
<td>0.983</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>18 - 19</td>
<td>0.831</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>20 - 24</td>
<td>0.470</td>
<td>0.976</td>
<td>0.996</td>
<td>1.000</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0.210</td>
<td>0.912</td>
<td>0.986</td>
<td>1.000</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0.116</td>
<td>0.880</td>
<td>0.975</td>
<td>1.000</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0.106</td>
<td>0.872</td>
<td>0.955</td>
<td>1.000</td>
</tr>
<tr>
<td>40 - 44</td>
<td>0.086</td>
<td>0.827</td>
<td>0.913</td>
<td>1.000</td>
</tr>
<tr>
<td>45 - 54</td>
<td>0.051</td>
<td>0.751</td>
<td>0.841</td>
<td>1.000</td>
</tr>
<tr>
<td>55 - 64</td>
<td>0.031</td>
<td>0.603</td>
<td>0.681</td>
<td>1.000</td>
</tr>
<tr>
<td>65 - 74</td>
<td>0.032</td>
<td>0.418</td>
<td>0.455</td>
<td>1.000</td>
</tr>
<tr>
<td>75 and Over</td>
<td>0.025</td>
<td>0.242</td>
<td>0.255</td>
<td>1.000</td>
</tr>
</tbody>
</table>

---

6Source: Ibid.
<table>
<thead>
<tr>
<th>Age</th>
<th>Single</th>
<th>Married</th>
<th>Divorced</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 - 17</td>
<td>0.978</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>18 - 19</td>
<td>0.775</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>20 - 24</td>
<td>0.444</td>
<td>0.991</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0.152</td>
<td>0.962</td>
<td>0.999</td>
<td>1.000</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0.080</td>
<td>0.997</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0.098</td>
<td>0.976</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>40 - 44</td>
<td>0.011</td>
<td>0.933</td>
<td>0.955</td>
<td>1.000</td>
</tr>
<tr>
<td>45 - 54</td>
<td>0.033</td>
<td>0.758</td>
<td>0.842</td>
<td>1.000</td>
</tr>
<tr>
<td>55 - 64</td>
<td>0.031</td>
<td>0.656</td>
<td>0.688</td>
<td>1.000</td>
</tr>
<tr>
<td>65 - 74</td>
<td>0.042</td>
<td>0.638</td>
<td>0.638</td>
<td>1.000</td>
</tr>
<tr>
<td>75 and Over</td>
<td>0.000</td>
<td>0.000</td>
<td>0.091</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Source: Ibid.
TABLE 5

SEX - SPECIFIC PROBABILITY OF BEING IN SCHOOL

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 19</td>
<td>0.556</td>
<td>0.377</td>
</tr>
<tr>
<td>20 - 21</td>
<td>0.276</td>
<td>0.118</td>
</tr>
</tbody>
</table>

and wives (see Table 6) is compared against a randomly generated number. The man's age is restricted between sixteen and one hundred. Then subroutine RACE is checked for the possibility of an inter-racial marriage (see Table 7). The age and race of her husband have now been determined. The appropriate array position representing this man must be found by searching through all adult males until one is located. If either there are too many men in this age group who are already married or divorced (see Tables 8A and 8B), or all the men in the group are assigned, the next older age group is searched for an older man. Once found, the husband and wife are assigned each other's number and the appropriate marital status (see Figure 1).

At this point, all adult females who are not dependent upon their parents have been assigned as well as all males who are married or divorced. The remaining males are assumed to be single or widowed. Given the age and race of the unassigned males, subroutine SINDIV is invoked and a random number generated. This number is compared against the probability that a man is either widowed or single (see Table 9). This information is transferred to the main program, where if he is widowed, the data is stored. If however, he is single, it must be determined if he is independent of his parents. As before with single females, the routine determines whether the man is in school (subroutine SCHOOL) or disabled (subroutine DISABL) and the appropriate information is indicated (see Figure 2).

Once all adults have been assigned, parents must be linked to their children. By taking all men who are not single, subroutine CHILD is called to find the age and sex of all dependent children. Given the age and race of the man, one random number is generated for each of $M$ years, where

$$M = \text{minimum} \begin{cases} \text{age of man} - 16 \\ 59 - 16 \end{cases}.$$ 

The first number is checked against the
TABLE 6

CUMULATIVE MARRIAGE PROBABILITY DISTRIBUTION
BY AGE DIFFERENCE BETWEEN BRIDE AND GROOM

<table>
<thead>
<tr>
<th>Age Difference (In Years)</th>
<th>Bride Younger</th>
<th>Same Age</th>
<th>Bride Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>.002</td>
<td>.878</td>
<td>.948</td>
</tr>
<tr>
<td>15 - 19</td>
<td>.006</td>
<td></td>
<td>.973</td>
</tr>
<tr>
<td>10 - 14</td>
<td>.023</td>
<td></td>
<td>.985</td>
</tr>
<tr>
<td>5 - 9</td>
<td>.146</td>
<td></td>
<td>.991</td>
</tr>
<tr>
<td>4</td>
<td>.228</td>
<td></td>
<td>.999</td>
</tr>
<tr>
<td>3</td>
<td>.354</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.524</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.717</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same Age</td>
<td>.878</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bride Older</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.948</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.973</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>.985</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>.991</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - 9</td>
<td>.999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 7

INTER-RACIAL MARRIAGE PROBABILITY MATRIX

<table>
<thead>
<tr>
<th>Race of one partner (given)</th>
<th>Race of the other partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>.9943</td>
</tr>
<tr>
<td>Non-white</td>
<td>.0057</td>
</tr>
<tr>
<td>White</td>
<td>.0411</td>
</tr>
<tr>
<td>Non-white</td>
<td>.9589</td>
</tr>
</tbody>
</table>

TABLE 8A

AGE - RACE SPECIFIC PROBABILITY
OF A MAN BEING MARRIED

<table>
<thead>
<tr>
<th>Age</th>
<th>White</th>
<th>Black</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 - 17</td>
<td>0.005</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>18 - 19</td>
<td>0.085</td>
<td>0.040</td>
<td>0.040</td>
</tr>
<tr>
<td>20 - 24</td>
<td>0.43</td>
<td>0.338</td>
<td>0.338</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0.790</td>
<td>0.692</td>
<td>0.692</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0.856</td>
<td>0.741</td>
<td>0.741</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0.871</td>
<td>0.842</td>
<td>0.842</td>
</tr>
<tr>
<td>40 - 44</td>
<td>0.890</td>
<td>0.753</td>
<td>0.753</td>
</tr>
<tr>
<td>45 - 54</td>
<td>0.902</td>
<td>0.848</td>
<td>0.848</td>
</tr>
<tr>
<td>55 - 64</td>
<td>0.888</td>
<td>0.783</td>
<td>0.783</td>
</tr>
<tr>
<td>65 - 74</td>
<td>0.822</td>
<td>0.720</td>
<td>0.720</td>
</tr>
<tr>
<td>75 and Over</td>
<td>0.705</td>
<td>0.580</td>
<td>0.580</td>
</tr>
</tbody>
</table>

TABLE 8B

AGE - RACE SPECIFIC PROBABILITY
OF A MAN BEING DIVORCED

<table>
<thead>
<tr>
<th>Age</th>
<th>White</th>
<th>Black</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 - 19</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>20 - 24</td>
<td>0.012</td>
<td>0.011</td>
<td>0.011</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0.028</td>
<td>0.024</td>
<td>0.024</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0.030</td>
<td>0.034</td>
<td>0.034</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0.037</td>
<td>0.043</td>
<td>0.043</td>
</tr>
<tr>
<td>40 - 44</td>
<td>0.041</td>
<td>0.087</td>
<td>0.087</td>
</tr>
<tr>
<td>45 - 54</td>
<td>0.034</td>
<td>0.041</td>
<td>0.041</td>
</tr>
<tr>
<td>55 - 64</td>
<td>0.035</td>
<td>0.053</td>
<td>0.053</td>
</tr>
<tr>
<td>65 - 74</td>
<td>0.020</td>
<td>0.024</td>
<td>0.024</td>
</tr>
<tr>
<td>75 and Over</td>
<td>0.011</td>
<td>0.021</td>
<td>0.021</td>
</tr>
</tbody>
</table>

TABLE 9

AGE – RACE SPECIFIC PROBABILITY OF A MALE BEING SINGLE GIVEN THAT HE IS EITHER SINGLE OR WIDOWED

<table>
<thead>
<tr>
<th>Age</th>
<th>White</th>
<th>Black</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 - 24</td>
<td>0.999</td>
<td>0.999</td>
<td>0.999</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0.997</td>
<td>0.999</td>
<td>0.999</td>
</tr>
<tr>
<td>30 - 35</td>
<td>0.983</td>
<td>0.984</td>
<td>0.984</td>
</tr>
<tr>
<td>36 - 40</td>
<td>0.975</td>
<td>0.913</td>
<td>0.913</td>
</tr>
<tr>
<td>41 - 45</td>
<td>0.926</td>
<td>0.857</td>
<td>0.857</td>
</tr>
<tr>
<td>46 - 54</td>
<td>0.826</td>
<td>0.620</td>
<td>0.620</td>
</tr>
<tr>
<td>55 - 64</td>
<td>0.610</td>
<td>0.479</td>
<td>0.479</td>
</tr>
<tr>
<td>65 - 74</td>
<td>0.363</td>
<td>0.164</td>
<td>0.164</td>
</tr>
<tr>
<td>75 and Over</td>
<td>0.175</td>
<td>0.090</td>
<td>0.090</td>
</tr>
</tbody>
</table>

FIGURE 1

DETERMINATION OF MARITAL STATUS OF WOMEN
SELECT
NEXT
PERSON

DETERMINATION OF MARITAL STATUS OF WOMEN
(continued)
CALL SUBROUTINE SINDIV TO DETERMINE IF HE IS SINGLE OR WIDOWED

IS HE SINGLE?

SELECT NEXT PERSON

ASSIGN PROPER CODING

FIGURE 2

DETERMINATION OF MARITAL STATUS FOR ALL UNASSIGNED MALES
probability that the man became a father at age sixteen, the second against the probability that he became a father at seventeen and so on until either the age of the man is reached or until age fifty-nine, the assumed upper bound for fathering a child (see Table 10).

Whenever the random number is less than the corresponding probability, a child is associated with this father. The age of the child is equal to the difference between the age of the man and the age he was when the child was born. The sex of the child is determined by comparing another random number with the probability that the child is a male, otherwise it is a female. A further check is made to see if the child has survived since birth. Given the current age of the child, N, and his sex and race, subroutine CHLIVE is called. N random numbers are generated and compared with the yearly death rates for ages one through N (see Table 11). If the child has not died, his statistics (age, race and sex) are returned to the main program along with those of his siblings.

Starting with the oldest child, an eligible array location is found and this child is assigned to his parents. His father's number is put into the child's identification unless the parents are divorced, in which case the mother's number is used. The marital status of the parents and the number of his younger siblings is also kept with this child. The next younger sibling is then located and his array position is stored with his next older sibling. This second child stores the number of older and younger siblings, his parent's array position and their marital status. This procedure is continued until the entire family is linked together.

Once all men have been assigned to their children, as have the women who are married to these men, the same procedure is followed for widows (see Figure 3).
### TABLE 10

**AGE - RACE SPECIFIC PROBABILITY OF BECOMING A FATHER**

<table>
<thead>
<tr>
<th>Age</th>
<th>White</th>
<th>Black</th>
<th>All Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 - 19</td>
<td>0.0075</td>
<td>0.0145</td>
<td>0.0135</td>
</tr>
<tr>
<td>20 - 24</td>
<td>0.0511</td>
<td>0.0585</td>
<td>0.0565</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0.0652</td>
<td>0.0510</td>
<td>0.0510</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0.0417</td>
<td>0.0345</td>
<td>0.0360</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0.0212</td>
<td>0.0215</td>
<td>0.0220</td>
</tr>
<tr>
<td>40 - 44</td>
<td>0.0089</td>
<td>0.0115</td>
<td>0.0115</td>
</tr>
<tr>
<td>45 - 49</td>
<td>0.0031</td>
<td>0.0055</td>
<td>0.0055</td>
</tr>
<tr>
<td>50 - 54</td>
<td>0.0010</td>
<td>0.0030</td>
<td>0.0075</td>
</tr>
<tr>
<td>55 - 59</td>
<td>0.0003</td>
<td>0.0020</td>
<td>0.0025</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Age</th>
<th>White Male</th>
<th>White Female</th>
<th>Black Male</th>
<th>Black Female</th>
<th>All Others Male</th>
<th>All Others Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1</td>
<td>19.06</td>
<td>14.55</td>
<td>32.33</td>
<td>26.19</td>
<td>32.33</td>
<td>26.19</td>
</tr>
<tr>
<td>1</td>
<td>1.15</td>
<td>0.96</td>
<td>1.85</td>
<td>1.62</td>
<td>1.85</td>
<td>1.62</td>
</tr>
<tr>
<td>2</td>
<td>0.78</td>
<td>0.66</td>
<td>1.31</td>
<td>1.06</td>
<td>1.31</td>
<td>1.06</td>
</tr>
<tr>
<td>3</td>
<td>0.69</td>
<td>0.52</td>
<td>0.97</td>
<td>0.78</td>
<td>0.97</td>
<td>0.78</td>
</tr>
<tr>
<td>4</td>
<td>0.58</td>
<td>0.46</td>
<td>0.79</td>
<td>0.60</td>
<td>0.79</td>
<td>0.60</td>
</tr>
<tr>
<td>5</td>
<td>0.72</td>
<td>0.40</td>
<td>1.28</td>
<td>0.55</td>
<td>1.28</td>
<td>0.55</td>
</tr>
<tr>
<td>6</td>
<td>0.55</td>
<td>0.30</td>
<td>0.81</td>
<td>0.46</td>
<td>0.81</td>
<td>0.46</td>
</tr>
<tr>
<td>7</td>
<td>0.41</td>
<td>0.32</td>
<td>0.49</td>
<td>0.39</td>
<td>0.49</td>
<td>0.39</td>
</tr>
<tr>
<td>8</td>
<td>0.31</td>
<td>0.28</td>
<td>0.31</td>
<td>0.34</td>
<td>0.31</td>
<td>0.34</td>
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<tr>
<td>9</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
<td>0.31</td>
<td>0.25</td>
<td>0.31</td>
</tr>
<tr>
<td>10</td>
<td>0.24</td>
<td>0.23</td>
<td>0.30</td>
<td>0.30</td>
<td>0.30</td>
<td>0.30</td>
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LOOP THROUGH ALL MALES

IS HE SINGLE?

YES

CALL SUBROUTINE CHILD TO FIND AGE AND SEX OF CHILDREN

FIND ARRAY POSITION FOR LIVING CHILDREN

ASSIGN PROPER CODING TO FAMILY

SELECT NEXT PERSON

NO

CALL SUBROUTINE CHILD TO FIND AGE AND SEX OF CHILDREN

FIND ARRAY POSITION FOR LIVING CHILDREN

ASSIGN PROPER CODING TO FAMILY

SELECT NEXT PERSON

IS SHE WIDOWED?

NO

YES

CALL SUBROUTINE CHILD TO FIND AGE AND SEX OF CHILDREN

FIND ARRAY POSITION FOR LIVING CHILDREN

ASSIGN PROPER CODING TO FAMILY

SELECT NEXT PERSON

FIGURE 3
ASSIGN CHILDREN TO PARENTS
Determining Status Under Social Security

It is necessary to determine the monthly salaries received by those working, their status under social security and the amount of monthly benefits currently being collected by all eligible individuals.

It is first determined if the person is employed by comparing a randomly generated number to the probability of being employed, 0.5776 for men and 0.3410 for women [10]. If the person is not employed, the appropriate code is recorded for this individual and for all his or her dependents.

If employed, subroutine SALARY is called to determine the monthly salary earned, given the sex of the individual. This subroutine generates a random number and compares it to the probability distribution of belonging in a wage bracket (see Table 12). Once this bracket is determined, the monthly salary is recorded (see Figure 4).

Next it is determined if an employed person is disabled and/or retired and if he is covered under social security. A random number is generated and checked against the probability of being disabled. The process is repeated for the cumulative probability of being retired (see Table 13) if the person is sixty-two or over and again for the probability of working in a profession covered under social security. The appropriate designation is put in the storage location of the individual and his dependents.

With the status of each person established, the amount of benefits collected by the population is calculated. Using as input data the monthly salary of the individual, reference is made to subroutine PIAMFB.

Under the Social Security Laws, the PIA and MFB are calculated from an average monthly wage (AMW) determined from a worker's past salary history. In initializing this population, it is not possible to determine accurately this past data.
# TABLE 12

**SEX - SPECIFIC CUMULATIVE DISTRIBUTION**

**FOR MONTHLY WAGES** 16,17

<table>
<thead>
<tr>
<th>Monthly Wage</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>0.0898</td>
<td>0.1849</td>
</tr>
<tr>
<td>100</td>
<td>0.1508</td>
<td>0.2965</td>
</tr>
<tr>
<td>150</td>
<td>0.2053</td>
<td>0.3873</td>
</tr>
<tr>
<td>200</td>
<td>0.2511</td>
<td>0.4599</td>
</tr>
<tr>
<td>250</td>
<td>0.2917</td>
<td>0.5273</td>
</tr>
<tr>
<td>300</td>
<td>0.3289</td>
<td>0.5987</td>
</tr>
<tr>
<td>350</td>
<td>0.3666</td>
<td>0.6724</td>
</tr>
<tr>
<td>400</td>
<td>0.4027</td>
<td>0.7407</td>
</tr>
<tr>
<td>450</td>
<td>0.4418</td>
<td>0.7988</td>
</tr>
<tr>
<td>500</td>
<td>0.4830</td>
<td>0.8461</td>
</tr>
<tr>
<td>550</td>
<td>0.5267</td>
<td>0.8842</td>
</tr>
<tr>
<td>600</td>
<td>0.5701</td>
<td>0.9136</td>
</tr>
<tr>
<td>650</td>
<td>0.6150</td>
<td>0.9367</td>
</tr>
<tr>
<td>750</td>
<td>0.6815</td>
<td>0.9565</td>
</tr>
<tr>
<td>1000</td>
<td>0.9999</td>
<td>0.9999</td>
</tr>
</tbody>
</table>

---

16 **Note:** The statistics used to define this cumulative distribution function use as the highest annual interval "above 7800". Since the model does not allow a wage base to exceed 14,100 ($1175 per month), the median value chosen for this interval is $1000. This would need to be broken down into smaller segments if one were to evaluate larger wage bases. The correction factor described in Chapter II, p. 42, reduces any error caused by underestimating the wages.

### TABLE 13

**SEX - SPECIFIC CUMULATIVE PROBABILITY DISTRIBUTION OF AGE AT RETIREMENT**

<table>
<thead>
<tr>
<th>Age</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td>.460</td>
<td>.670</td>
</tr>
<tr>
<td>63</td>
<td>.600</td>
<td>.750</td>
</tr>
<tr>
<td>64</td>
<td>.730</td>
<td>.820</td>
</tr>
<tr>
<td>65</td>
<td>.960</td>
<td>.950</td>
</tr>
<tr>
<td>66</td>
<td>.970</td>
<td>.960</td>
</tr>
<tr>
<td>67</td>
<td>.980</td>
<td>.970</td>
</tr>
<tr>
<td>68</td>
<td>.990</td>
<td>.980</td>
</tr>
<tr>
<td>69</td>
<td>.995</td>
<td>.990</td>
</tr>
<tr>
<td>70</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

---

ASSIGN SALARY AND STATUS TO EVERYONE
The resulting benefits paid by using the salary as the AMW is not precise. If the initialized population's benefits are "corrected" to reflect an accurate starting point, successive months of data will represent the correct percentage change and predictions can be made.

After one simulation is made, the benefit payment ratio is corrected by a factor of 1.200 to reflect the level which existed in 1970. Each successive iteration uses this same factor when calculating benefits. This factor was calculated by dividing the actual ratio by the simulated ratio.

All workers are not eligible for benefits unless they are covered under social security. Coverage is also determined from the working history of individuals. In order to determine which individuals are covered without access to their past data, data is obtained from the Social Security Administration and the probability of being covered given that a person is employed is calculated as $0.8945 \left[10\right]$. This is used to determine which workers are covered and again, data for 1970 is validated.

The PIA and MFB are calculated in subroutine PIAMFB. The full benefit is awarded to the worker and this amount is subtracted from the MFB. The remaining MFB is distributed to the appropriate dependents according to the benefit schedules (see Figures 5, 6, 7).

If a person is widowed, there is no record of the deceased spouse's salary or coverage under social security. The salary and eligibility of the deceased spouse is randomly determined. If he was covered under social security, his surviving dependents are assigned the proper benefits.

One final calculation made in this initialization program is to determine how many individuals are in each age, sex and race group for use by the second simulator.

A copy of this simulator and a sample output are found in the appendix.
START

WORKER

DECEASED?

YES

LUMP SUM

DEATH BENEFIT

PAID

NO

NOT ELIGIBLE

FOR SURVIVORS'

BENEFITS

WIFE

65 OR

OVER?

YES

1

NO

WIFE

62 OR

OVER?

YES

2

NO

ELIGIBLE

FOR MOTHER

BENEFITS?

YES

3

NO

CHECK RECEIVED

FOR LUMP SUM

DEATH BENEFIT

FIGURE 5
SURVIVORS' BENEFITS
WIFE GETS PIA

1

ANY
ELIGIBLE
CHILDREN?

YES

NO

ELIGIBLE
FOR MOTHER
BENEFITS

2

NO

WIFE GETS
REDUCED
BENEFITS

YES

MOTHER
GETS
75% PIA

CHILDREN
GET
75% PIA

TOTAL
BENEFITS
EXCEED MFB?

NO

SECONDARY
BENEFITS
REDUCED SO TOTAL
DOES NOT
EXCEED MFB

YES

WIFE RECEIVES
CHECK

WIFE RECEIVES
CHECK

ALL
RECEIVE FULL
CHECK

ALL
RECEIVE FULL
CHECK

SURVIVORS BENEFITS
(continued)
FIGURE 6

DISABILITY BENEFITS

START

WORKER DISABLED?

WORKER GETS PIA

WIFE 65 OR OVER?

WIFE 62 OR OVER?

ELIGIBLE FOR MOTHER BENEFITS?

NOT ELIGIBLE FOR DISABILITY

WORKER RECEIVES CHECK

1

2

3
WIFE GETS 50% PIA

ANY ELIGIBLE CHILDREN?

YES

MOTHER GETS 50% PIA

WIFE GETS REDUCED BENEFITS

NO

ELIGIBLE FOR MOTHER BENEFITS?

YES

MOTHER GETS 50% PIA

WORKER AND WIFE RECEIVE CHECK

CHILDREN GET 50% PIA

SECONDARY BENEFITS REDUCED SO TOTAL DOES NOT EXCEED MFB

TOTAL BENEFIT EXCEEDS MFB?

YES

NO

ALL RECEIVE FULL CHECK

ALL RECEIVE CHECK

ALL RECEIVE FULL CHECK

DISABILITY BENEFITS (continued)
FIGURE 7
RETIREMENT BENEFITS
ELIGIBLE FOR MOTHER BENEFITS?

NO

WIFE GETS REDUCED BENEFITS

ELIGIBLE CHILDREN?

NO

WORKER AND WIFE RECEIVE CHECK

YES

CHILDREN GET 50% PIA

TOTAL BENEFITS EXCEED MFB?

YES

SECONDARY BENEFITS REDUCED SO TOTAL DOES NOT EXCEED MFB

NO

ALL RECEIVE FULL CHECK

MOTHER GETS 50% PIA

WIFE GETS 50% PIA

RETIREMENT BENEFITS
(continued)
CHAPTER III

UPDATE OF THE POPULATION

Introduction

After having initialized the sample of the population, a simulator is developed to update this population as it moves through time. The events which are simulated include death, birth, marriage, divorce, disability onset, recovery from disability and retirement. The interval of time spanned by one iteration is one month.

Assumptions made in this simulator include constant marriage, divorce, and retirement rates. A constant disability rate is assumed through 1975 and the probability of an unmarried female being responsible for children is not considered.

Monthly statistics \( P_m \) are obtained from the annual statistics used in the initialization simulator \( P_a \) using the equation:

\[
P_m = 1 - (1 - P_a)^{1/12}.
\]

Justification for this equation follows.

Let \( P_a \) be the probability of an event occurring in one year. Then \( (1 - P_a) \) is the probability the event does not occur.

\[
(1 - P_a) = (1 - P_m)^{12}
\]

which implies,

\[
P_m = 1 - (1 - P_a)^{1/12}.
\]

Simulator Logic

Each person's status is updated monthly. The simulation begins by generating a random number and comparing it with the probability of dying. When a person dies (i.e. the random number is less than the death rate) his dependents storage reflects the death.
A married or divorced adult's spouse becomes widowed and the deceased parent's number is replaced in his children's storage by that of his spouse. A widowed adult's children become orphans.

In the event of a death of the oldest child in a family, the next younger sibling becomes the oldest eligible child and this number is stored with the parents. All children in the family reflect the death of a sibling by reducing the number of older or younger siblings by one, whichever is appropriate. If the child had at least one older and one younger sibling, the surviving children are linked.

If the death causes eligibility for benefits under social security, the amount is calculated by subroutine PIAMFB and stored with each dependent (see Figure 8). Also a lump sum benefit is figured and added to the monthly benefits disbursed. The array position previously used by the now deceased person is made available for use by a newborn child.

The path through the simulator of all surviving persons will be described. A flowchart of each appears following the appropriate section.

Married Females

If a married woman survives, it is determined if she and her husband divorce. A random number is checked against the probability for divorce, 0.035 [18]. If the divorce occurs, the marital status of both spouses is changed. If they have any dependent children, the father's number is replaced by that of the mother's and an indication made that the parents are divorced.
Figure 8
Death Event
DEATH EVENT
(continued)
DEATH EVENT
(continued)
If a woman does not divorce and is less than forty-nine years old, subroutine BIRTH is called to see if she gives birth to a child. In this subroutine, a random number is checked against the age and race specific probabilities that a woman becomes a mother. The probability is the product of the birth rate for that year (see Table 14) and the age-specific probability a woman becomes a mother (see Table 15). If a child is born, the sex is determined by comparing a random number to the probability the child is a male (0.5219) [18] and the sex and race of the infant is returned to the main program. Otherwise, no birth is indicated.

Upon the birth of a child, he is either linked to his next oldest sibling or if he is the first-born, he is linked to his parents. One younger sibling is added to any siblings already dependent upon these parents.

If, however, the woman is at least age sixty-two, not presently retired and covered under social security, it seen whether or not she retires. A randomly generated number is compared with the probability that a woman her age retires. If the retirement occurs, her status under social security is altered in her storage as well as in all her dependents storage.

The next event simulated is either becoming disabled (.00642) or, if already disabled, recovering from the disability (0.0321). If the random number is less than either probability, the event occurs and the proper changes are made in storage (see Figure 9).

Married Male

A divorce or birth is determined for married couples when the wife's status is updated, because if a separate check was made for these events with both spouses, the likelihood of a success would double.
TABLE 14

RACE - SPECIFIC FERTILITY RATE

<table>
<thead>
<tr>
<th>Year</th>
<th>White</th>
<th>Black and Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>2385</td>
<td>3002</td>
</tr>
<tr>
<td>1971</td>
<td>2165</td>
<td>2785</td>
</tr>
<tr>
<td>1972</td>
<td>1923</td>
<td>2473</td>
</tr>
<tr>
<td>1973</td>
<td>1827</td>
<td>2349</td>
</tr>
<tr>
<td>1974</td>
<td>1848</td>
<td>2377</td>
</tr>
<tr>
<td>1975</td>
<td>1868</td>
<td>2402</td>
</tr>
</tbody>
</table>

### TABLE 15

**AGE-RACE SPECIFIC PROBABILITY OF BECOMING A MOTHER**

<table>
<thead>
<tr>
<th>Age</th>
<th>White</th>
<th>Black</th>
<th>All Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>0.00080</td>
<td>0.00780</td>
<td>0.00145</td>
</tr>
<tr>
<td>15</td>
<td>0.00299</td>
<td>0.01653</td>
<td>0.00407</td>
</tr>
<tr>
<td>16</td>
<td>0.00961</td>
<td>0.03137</td>
<td>0.00959</td>
</tr>
<tr>
<td>17</td>
<td>0.02035</td>
<td>0.04612</td>
<td>0.01940</td>
</tr>
<tr>
<td>18</td>
<td>0.03471</td>
<td>0.05990</td>
<td>0.02934</td>
</tr>
<tr>
<td>19</td>
<td>0.05088</td>
<td>0.06783</td>
<td>0.04488</td>
</tr>
<tr>
<td>20</td>
<td>0.06081</td>
<td>0.06877</td>
<td>0.05552</td>
</tr>
<tr>
<td>21</td>
<td>0.06711</td>
<td>0.06729</td>
<td>0.06128</td>
</tr>
<tr>
<td>22</td>
<td>0.07113</td>
<td>0.06300</td>
<td>0.05951</td>
</tr>
<tr>
<td>23</td>
<td>0.07426</td>
<td>0.05983</td>
<td>0.06645</td>
</tr>
<tr>
<td>24</td>
<td>0.07273</td>
<td>0.05456</td>
<td>0.06065</td>
</tr>
<tr>
<td>25</td>
<td>0.06988</td>
<td>0.05031</td>
<td>0.06731</td>
</tr>
<tr>
<td>26</td>
<td>0.06457</td>
<td>0.04741</td>
<td>0.06202</td>
</tr>
<tr>
<td>27</td>
<td>0.05857</td>
<td>0.04382</td>
<td>0.06166</td>
</tr>
<tr>
<td>28</td>
<td>0.05215</td>
<td>0.04121</td>
<td>0.05638</td>
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<td>29</td>
<td>0.04560</td>
<td>0.03662</td>
<td>0.05131</td>
</tr>
<tr>
<td>30</td>
<td>0.03981</td>
<td>0.03357</td>
<td>0.04814</td>
</tr>
<tr>
<td>31</td>
<td>0.03406</td>
<td>0.02898</td>
<td>0.04214</td>
</tr>
<tr>
<td>32</td>
<td>0.03014</td>
<td>0.02790</td>
<td>0.03737</td>
</tr>
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<td>33</td>
<td>0.02585</td>
<td>0.02435</td>
<td>0.03091</td>
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<td>34</td>
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<td>0.02267</td>
<td>0.02700</td>
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<td>35</td>
<td>0.01975</td>
<td>0.01959</td>
<td>0.02083</td>
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<td>0.01654</td>
<td>0.01697</td>
<td>0.01848</td>
</tr>
<tr>
<td>37</td>
<td>0.01409</td>
<td>0.01459</td>
<td>0.01530</td>
</tr>
<tr>
<td>38</td>
<td>0.0 66</td>
<td>0.01325</td>
<td>0.01283</td>
</tr>
<tr>
<td>39</td>
<td>0.00919</td>
<td>0.01066</td>
<td>0.01042</td>
</tr>
<tr>
<td>40</td>
<td>0.00694</td>
<td>0.00834</td>
<td>0.00815</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>White</th>
<th>Black</th>
<th>All Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>0.00490</td>
<td>0.00573</td>
<td>0.00634</td>
</tr>
<tr>
<td>42</td>
<td>0.00348</td>
<td>0.00455</td>
<td>0.00416</td>
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<td>43</td>
<td>0.00222</td>
<td>0.00302</td>
<td>0.00329</td>
</tr>
<tr>
<td>44</td>
<td>0.00124</td>
<td>0.00166</td>
<td>0.00181</td>
</tr>
<tr>
<td>45</td>
<td>0.00064</td>
<td>0.00085</td>
<td>0.00119</td>
</tr>
<tr>
<td>46</td>
<td>0.00028</td>
<td>0.00041</td>
<td>0.00039</td>
</tr>
<tr>
<td>47</td>
<td>0.00012</td>
<td>0.00021</td>
<td>0.00025</td>
</tr>
<tr>
<td>48</td>
<td>0.00005</td>
<td>0.00014</td>
<td>0.00009</td>
</tr>
<tr>
<td>49</td>
<td>0.00002</td>
<td>0.00003</td>
<td>0.00010</td>
</tr>
</tbody>
</table>
DOES SHE DIVORCE HER HUSBAND? NO

IS SHE YOUNGER THAN 50? NO

YES

CHANGE MARITAL STATUS OF COUPLE

CALL SUBROUTINE BIRTH TO SEE IF SHE HAS CHILD

IS A CHILD BORN? NO

YES

DO THEY HAVE ANY CHILDREN?

NO

STORE MOTHER'S NUMBER AND INDICATE DIVORCE

ASSIGN CHILD TO FAMILY

FIGURE 9
MONTHLY UPDATE OF A MARRIED WOMAN
IS SHE OLDER THAN 61?

IS SHE ALREADY RETIRED?

IS SHE COVERED?

DOES SHE RETIRE?

CHANGE STATUS OF ALL THOSE AFFECTED

MONTHLY UPDATE OF A MARRIED WOMAN
(continued)
DOES SHE BECOME DISABLED?

IS SHE COVERED?

IS SHE DISABLED?

DOES SHE RECOVER?

SELECT NEXT PERSON

CHANGE STATUS AND SELECT NEXT PERSON
Thus, the only events checked for a married man covered under social security are retirement (if he is at least sixty-two years old) and disability onset or recovery. Any change in his status is noted through the alteration of his dependents and his storage locations (see Figure 10).

**Single Independent Person**

Any surviving single, independent person has as possible monthly events marriage, retirement and disability onset or recovery.

To determine if he gets married, a random number is compared with the age, race and sex specific probability getting married (see Table 16). If the number is less than the corresponding probability, the individual marries and a spouse must be located. Subroutine SPOUSE is called to determine the age of the new spouse from the cumulative distribution of age difference between a husband and wife (see Table 6). The race of the spouse is also determined from subroutine RACE which checks for the possibility of an interracial marriage (see Table 7).

Knowing the age, sex and race of the spouse, an appropriate array position is located. A single, divorced or widowed person is eligible to be linked with this individual. If one cannot be found of the correct age, those one year older are searched until one is located and the new couple is linked.

It is possible for the spouse found to be responsible for children. If he is a divorced male, the children are assigned to the ex-wife and her status is changed to indicate her spouse has remarried. The children are still eligible to collect benefits from their father. A limiting assumption made here is if a child is currently not receiving benefits from his father, he cannot receive them in the future because the linkage
TABLE 16

AGE - SEX SPECIFIC PROBABILITIES OF MARRIAGE
BY CURRENT MARITAL STATUS OF INDIVIDUAL

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 - 24</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>25 - 44</td>
<td>0.2156</td>
<td>0.0721</td>
</tr>
<tr>
<td>45 - 64</td>
<td>0.0703</td>
<td>0.0162</td>
</tr>
<tr>
<td>65 and Over</td>
<td>0.0159</td>
<td>0.0021</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 - 24</td>
<td>0.5470</td>
<td>0.5154</td>
</tr>
<tr>
<td>25 - 44</td>
<td>0.3434</td>
<td>0.1874</td>
</tr>
<tr>
<td>45 - 64</td>
<td>0.1072</td>
<td>0.0424</td>
</tr>
<tr>
<td>65 and Over</td>
<td>0.0260</td>
<td>0.0076</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 - 17</td>
<td>0.0030</td>
<td>0.0241</td>
</tr>
<tr>
<td>18 - 19</td>
<td>0.0713</td>
<td>0.1534</td>
</tr>
<tr>
<td>20 - 24</td>
<td>0.1843</td>
<td>0.2305</td>
</tr>
<tr>
<td>25 - 44</td>
<td>0.1254</td>
<td>0.0958</td>
</tr>
<tr>
<td>45 - 64</td>
<td>0.0144</td>
<td>0.0099</td>
</tr>
<tr>
<td>65 and Over</td>
<td>0.0038</td>
<td>0.0011</td>
</tr>
</tbody>
</table>

FIGURE 10
MONTHLY UPDATE OF A MARRIED MAN
1

IS HE COVERED?

YES

2

IS HE DISABLED?

YES

DOES HE RECOVER?

NO

SELECT NEXT PERSON

DOES HE BECOME DISABLED?

NO

CHANGE STATUS OF WORKER AND DEPENDENTS

YES
is severed. If, however, he is currently collecting, the status of his father is changed to indicate this child is receiving benefits from a remarried parent. Since the parents were already divorced the mother's number is stored with the children and no change is needed.

If the spouse responsible for the children is not a divorced male, the child is assigned to the new couple. If the child is collecting benefits from his other parent, it is indicated in the child's storage. The ex-spouse is considered as single and is no longer linked to the children.

The next event simulated is retirement given that the person is eligible through age and work status. A similar procedure is followed as was described when the married woman was considered for retirement. Any needed changes in the individual's or dependent's storage is made.

Finally, it is randomly determined if a person becomes disabled or recovers from his current disability. If an event occurs, changes associated with all affected individuals are made (see Figure 11).

**Single Dependent Children**

The only events which can occur to a surviving child are marriage independence from their parents, and disability onset or recovery. If the child is under fifteen years of age, it is checked to see if he has a disability. If so, the recovery event is simulated. If he was not disabled, disability onset is checked. If either event occurs, his identification is altered.

Any child who is over fifteen can marry if the random number generated is less than the sex, age and race-specific marriage probability (see Table 16). A spouse is found using subroutines SPOUSE and RACE in
START

DOES HE MARRY?

CALL SUBROUTINES SPOUSE AND RACE TO DETERMINE AGE AND RACE OF SPOUSE

CAN AN ARRAY POSITION BE FOUND?

INCREMENT AGE BY ONE

IS SPOUSE RESPONSIBLE FOR CHILDREN?

ASSIGN CHILDREN DIVORCED TO NEW COUPLE AND DELETE FROM OLD

ARE THEY COLLECTING FROM PARENT?

ASSIGN CHILDREN TO MOTHER AND DELETE FROM FATHER

INDICATE THIS STATUS

FIGURE 11
MONTHLY UPDATE OF A SINGLE INDEPENDENT PERSON
IS HE COVERED?

IS HE AT LEAST 62?

IS HE RETIRED?

DOES HE RETIRE?

SELECT NEXT PERSON

CHANGE STATUS OF WORKER AND DEPENDENTS

MONTHLY UPDATE OF A SINGLE INDEPENDENT PERSON (continued)
MONTHLY UPDATE OF A SINGLE INDEPENDENT PERSON (continued)
the same way as described when an independent person married and the new couple is linked together. The marrying child is removed from his parents and siblings storage and linkages among the remaining family are updated.

The newly married individual needs to be assigned a salary and a status under social security. His employed status is found and if he is working, a salary is assigned by subroutine SALARY. In this subroutine, the appropriate wage bracket and corresponding monthly salary is found through the use of the cumulative distribution for wages (see Table 12) and stored. It is checked whether he is currently disabled and/or covered under social security and his status is stored with the couple.

If a child does not marry and is eighteen or older, it is seen whether he becomes independent of his parents. Subroutine SCHOOL determines if the child is in school and therefore dependent. If he is not in school and not previously disabled, he becomes independent.

If he is dependent due to a disability and recovers, he also becomes independent. The newly independent person is assigned a salary and status under social security and his family linkage is altered, excluding him.

No changes are necessary if the child remains dependent upon his parents (see Figure 12).

Divorced or Widowed People

The events which can happen to a previously married person include remarriage, retirement, and disability onset or recovery.

Subroutine REMAR is called to see if a remarriage occurs. Given the previous marital status, the probability of a remarriage (see Table 16) is checked against a random number. If the person remarries, subroutines
FIGURE 12
MONTHLY UPDATE OF CHILDREN
FIND AGE AND RACE OF SPOUSE THROUGH SUBROUTINES RACE AND SPOUSE

CAN AN ARRAY POSITION BE FOUND? NO

INCREMENT AGE BY ONE

YES

ASSIGN COUPLE AND DELETE THE MARRYING CHILD FROM FAMILY

ASSIGN A SALARY AND STATUS TO WORKER

DOES HE BECOME DISABLED? YES

ASSIGN STATUS TO WORKER AND DEPENDENTS

NO

SELECT NEXT PERSON

MONTHLY UPDATE OF CHILDREN
(continued)
SPOUSE and RACE are checked to find the race and age of the new spouse. By searching through the population, an eligible mate is located. The new couple is linked and it is seen if either is responsible for children. If one spouse has children, the same procedure of assigning the children is followed as was explained when an independent person married a person with children.

If both people are responsible for children and one is not a divorced male, the children are rearranged in order of age and the new family is linked. If any of the children were collecting benefits, this is noted in their storage location.

If the man responsible for children is divorced, his children are assigned to his ex-wife and he is assigned those children of his new spouse.

For any covered individual, the possibility of retirement and disability onset or recovery are checked. If any of these events occur, appropriate changes are made among all the people affected (see Figure 13).

Accumulation of Statistics

At the end of each month, benefits are recalculated for everyone who is eligible. Appropriate benefits are assigned to the worker and his dependents. All survivor benefits remain unchanged unless the person becomes eligible for a second benefit in which case the maximum benefit is assigned. The flowcharts of benefits follow Chapter II.

Monthly payments of all workers and their employers are figured in subroutine PAYMNT using the yearly wage base and tax rates (see Table 17) and the sum is found. Also the sum of all monthly benefits are calculated.

At the end of twelve months of simulation, each individual's age is incremented by one.
FIGURE 13
MONTHLY UPDATE OF PREVIOUSLY MARRIED PERSON
IS ONE A DIVORCED MALE?

REARRANGE CHILDREN BY AGE

ASSIGN HIS CHILD TO MOTHER AND HIS NEW SPOUSE'S CHILDREN TO HIM

RECEIVING BENEFITS FROM OTHER PARENT?

ASSIGN NEW FAMILY

INDICATE THIS IN CHILDREN'S STORAGE

MONTHLY UPDATE OF PREVIOUSLY MARRIED PERSON
(continued)
DOES HE BECOME DISABLED?

CHANGE STATUS OF WORKER AND DEPENDENTS

IS HE DISABLED?

DOES HE RECOVER?

SELECT NEXT PERSON

MONTHLY UPDATE OF PREVIOUSLY MARRIED PERSON (continued)
TABLE 17

WAGE BASE AND TAX RATES

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* Subject to Automatic Increase

CHAPTER IV

CASE STUDIES AND ANALYSES

Introduction

This chapter presents a description of four test cases run with this simulation model and the results obtained from each.

The simulation model which updates the population requires extensive computation time, in the order of one hour of CPU time per year of simulated time on an IBM 370/158. In order to obtain the best possible results and still keep the yearly simulation time reasonable, a population of one thousand individuals was chosen.

Using the known tax rate and wage base from 1970-1975 (see Table 17) as well as known birth rates (see Table 14), the model simulates the initial population (1970) until 1975 (see Table 18). Checking the results against historic data in 1970, the payment benefit ratio of 0.87 is validated.

Beginning in 1976, four cases are simulated through 1984 and the monthly payments and benefit differences are calculated.

Description of Test Cases

The declining birth rate has been one cause of the recent concern over the future of Social Security. With life expectancy increasing, the ratio of the number of people in the work force paying taxes to the number of beneficiaries is declining.

The first case uses a constant fertility rate of 2.0 for whites and 2.4 for non-whites from 1976-1984.
TABLE 18

SIMULATED RESULTS

1970 - 1975

(In Millions of Dollars)

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<thead>
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<th>Year</th>
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The second case studied uses a constant fertility rate of 1.7 for whites and 2.1 for non-whites after 1975.

The last two cases studied are intended to reveal the effect of legislation which lowers the requirements for being considered disabled.

The third case uses a 10% annual increase in the disability rate beginning with the 1975 rate of 0.00642, and the final case uses a 20% annual increase.

One assumption made in all simulations is a constant level of benefits, not taking into account the automatic increases due to an increase in CPI. This will cause the simulated trust fund to decline at a slower rate.

Results and Analysis

The results through 1975 are shown in Table 18. These results are compared with historical data (see Table 19) and the percent error is calculated. The simulated results are not precise but when considering the ratio of total population to sample population of 209065.7, this error is reasonable.

Beginning in 1976, the monthly differences between system income and expense for the first two cases are calculated. These differences along with the estimated administrative expenses and the interest earned on assets are combined to find the net Old Age Survivors and Disability trust fund each year.

The interest earned on assets is a combination of treasury notes earning between 5½ and 8% and treasury bonds earning between 2½ and 7%. Using the historic statistics, the average interest rate on the current money in the trust fund is found to be 5½% [22]. The administrative expenses are known through 1974 and then estimated to increase $50 million per year.
TABLE 19

TRUST FUND IN MILLIONS OF DOLLARS

A COMPARISON OF SIMULATED AND HISTORIC RESULTS

<table>
<thead>
<tr>
<th>Year</th>
<th>Simulated</th>
<th>Actual</th>
<th>% Error</th>
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When the birth rate is 2.0, the results (see Table 20) show that by 1984, the system will have a net trust fund of $35353 billion, less than 30% the amount which existed in 1979.

The results with a birth rate of 1.7 estimate a net trust fund of $40506 billion, 20% less than the trust fund in 1979 (see Table 21).

In comparing these two cases, it is seen that when the birth rate is higher, a lower trust fund results. In analyzing their results, it is noted that the children born between 1976 and 1984 are only eligible to collect benefits and do not contribute to the system. Thus, a higher birth rate causes a greater number of possible beneficiaries than does the lower rate. The fact that the benefits are larger with a higher birth rate is expected in early years, but as these children begin to enter the work force, it is anticipated that the simulation using the smaller birth rate will begin to decline faster, as there will be fewer workers to pay taxes.

In presenting the results for the two test cases involving increased disability rates, the annual benefits are calculated. The cost due to increases in the disability rate is shown by comparing the annual difference in benefit payments. The results for the 10% annual increase (see Table 22) show smaller annual benefits than for those which use a 20% increase. The total difference over the years 1976-1984, shows the cost over nine years of an additional 10% per year increase in disability rates to be $26.028 billion. Such results indicate the added burden placed on the system by legislation which enables more people to be eligible for disability benefits.
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**SIMULATED RESULTS**

**CASES 3 AND 4**

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**10% Increase**

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CHAPTER V

CONCLUSIONS

The purpose of this study has been to develop a model which can be used to predict the future intakes and outlays of the Social Security System. The model developed can be used to evaluate future changes in the Social Security laws as well as the effect on the system of changes in the make-up of the population.

The cases studied illustrate both points. Cases 1 and 2 show the effect on the system of changes in birth rates. The simulation has shown that where in past years the trust fund has been able to realize a net annual increase, in future years the fund will dwindle quickly, even with anticipated tax increases. The simulators' second use, that of evaluating changes in the Social Security laws, is illustrated through cases 3 and 4. Here it is shown how an increase in disability rates affect the overall economics of the system.

These results indicate that the Social Security System soon will no longer be self-sufficient. A rapid decrease in the trust fund is a strong indication that measures must be taken soon to avoid this situation.

Recommendations for Further Study

As pointed out earlier, to simulate one year of time requires an hour of computer time. This time constraint becomes a large factor when undertaking extensive studies. It is recommended that work be done to reduce the computation time needed for the simulator which updates
the population.

The model used in this simulation does not allow for the escalator clause to be built into the benefit structure. The rate of inflation and the corresponding Consumer Price Index will be an important factor in the future of the system. Such predictions can only be speculative but by varying the annual increases in the CPI, a good estimate of its effect could be found.

There are numerous examples of current problems such as future energy and food supply and demand in which a forecast of future populations is needed. These simulators develop a model which provides more accurate data for the make-up of a future population than does a model which uses growth rates defined for an entire population.

In an aggregate model, if the majority of people are young, the crude death rate would be lower and the crude birth rate higher than those of a normally distributed population and would cause an error in the growth rate. Also, it has been seen in studies, that age-specific rates are more stable or at least more predictable than those rates defined for an entire group of people [7].

Therefore, this model can easily be adapted for use in many other areas of study.


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INTEGER POP(1025,3) TES00060
REAL MINMFB,MFB TES00070
REAL NMFP,NDFP TES00080
DIMENSION ICHILD(7),
                     DRWML(101),DRWFML(101),DRBML(101),DTES00090
1RBFML(101),DROML(101),DROFML(101),WMALE(101),BMALE(101),OMALE(101)TES00100
2,WFEM(101),BFEM(101),DFEM(101),PRWMR(101),PROMMR(101),PRBMMR(101)TES00110
3,PRWMD(101),PRBMD(101),PROMD(101),BRWH(50),BRBL(50),BROT(50),PRWM(TES00120
460),PRBM(60),PROM(60),PSCLBM(5),PSCLWM(5),PSCLBF(5),PSCLWF(5),PSCLTES00130
50M(5),PSCLOF(5),OFSMDW(90,3),WFSMDW(90,3),BFSMDW(90,3),WMSD(88),BMTES00140
6SD(88),OMSD(88),DIFAHW(15),IAG(15),PRPAR(60),PRS(88),PRSC(5),DR1TES00150
701),IBEGN(6),IENDN(6),ISRCS(7),PREXPL(2),SAL(15,2),NUM(101,6),PRR TES00160
8ET(9,2),IIMAGE(15) TES00170
                      COMMON/AREA1/OFSMDW,WFSMDW,BFSMDW
                      COMMON/AREA2/WMSD,BMSD,OMSD
                      COMMON/AREA3/BRWH,BRBL,BROT,PRWM,PRBM,PRCM
                      COMMON/AREA4/DIFAHW,IAG
                      COMMON/AREA5/PSCLBM,PSCLBF,PSCLWM,PSCLWF,PSCLOM,PSCLOF
                      COMMON/AREA6/DRWML,DRWFML,DRBML,DRBFML,DROML,DROFML
                      COMMON/AREA8/IIMAGE,SAL
                      IX=54321
                      PRCOV=72100./80600.
                      PRDIS=415897./203211926.
                      1 FORMAT(10(F7.0))
                      2 FORMAT(10(F5.2))
                      3 FORMAT(10(F6.5))
                      4 FORMAT(9(F5.3))
                      5 FORMAT(20(F4.3))
                      IFSR=0
                      IFD1V=0
                      READ(8,5676) (PRRET(I,1),I=1,9) TES00190
                      READ(8,5676) (PRRET(I,2),I=1,9) TES00190
                      READ(8,5677) (PREXPL(I),I=1,2) TES00190
READ(8,5678) (SAL(I,1),I=1,15)    TES00380
READ(8,5678) (SAL(I,2),I=1,15)    TES00390
READ(8,5679) (IMAGE(I),I=1,15)    TES00400
5679 FORMAT(15(I4))               TES00410
5676 FORMAT(9(F4.2))              TES00420
5677 FORMAT(2(F5.4))              TES00430
5678 FORMAT(15(F4.4))             TES00440
READ(8,1000) (IAG(J),J=1,15)     TES00450
1000 FORMAT(15(I3))             TES00460
READ(8,1) (WMALE(J),J=1,101)    TES00470
READ(8,1) (BMALE(J),J=1,101)    TES00480
READ(8,1) (OMALE(J),J=1,101)    TES00490
READ(8,1) (WFEM (J),J=1,101)    TES00500
READ(8,1) (BFEM (J),J=1,101)    TES00510
READ(8,1) (OFEM (J),J=1,101)    TES00520
READ(8,2) (DRWML(J),J=1,101)    TES00530
READ(8,2) (DRWFML(J),J=1,101)    TES00540
READ(8,2) (DRBML(J),J=1,101)    TES00550
READ(8,2) (DRBFML(J),J=1,101)    TES00560
READ(8,2) (DROML(J),J=1,101)    TES00570
READ(8,2) (DROFML(J),J=1,101)    TES00580
READ(8,3) (BRWH (J),J=14,49)    TES00590
READ(8,3) (BRBL (J),J=14,49)    TES00600
READ(8,3) (BROT (J),J=14,49)    TES00610
READ(8,3) (PRWM(J),J=15,59)     TES00620
READ(8,3) (PRBM(J),J=15,59)     TES00630
READ(8,3) (PROM(J),J=15,59)     TES00640
READ (8,6) (PRWMMR(J),J=14,100) TES00650
READ (8,6) (PROMMR(J),J=14,100) TES00660
READ (8,6) (PRBMMR(J),J=14,100) TES00670
READ (8,6) (PRWMD(J),J=14,100)  TES00680
READ (8,6) (PRBMD(J),J=14,100)  TES00690
READ(8, 6) (PROMD(J), J=14, 100) TES00700
READ(8, 3) (PSCLBM(J), J=1, 5) TES00710
READ(8, 3) (PSCLBF(J), J=1, 5) TES00720
READ(8, 3) (PSCLWM(J), J=1, 5) TES00730
READ(8, 3) (PSCLWF(J), J=1, 5) TES00740
READ(8, 3) (PSCLOM(J), J=1, 5) TES00750
READ(8, 3) (PSCLOF(J), J=1, 5) TES00760
READ(8, 6) (WMSD(I), I=1, 88) TES00770
READ(8, 6) (BMSD(I), I=1, 88) TES00780
READ(8, 6) (OMSD(I), I=1, 88) TES00790
READ(8, 6) (DIFAHW(J), J=1, 15) TES00800
DO 5 I=1, 88, 3 TES00810
5 READ(8, 4) WFSMDW(I, 1), WFSMDW(I, 2), WFSMDW(I, 3), WFSMDW(I+1, 1), WFSMDW(I+1, 2), WFSMDW(I+1, 3), WFSMDW(I+2, 1), WFSMDW(I+2, 2), WFSMDW(I+2, 3) TES00820
DO 99 I=1, 88, 3 TES00840
99 READ(8, 4) BFSMDW(I, 1), BFSMDW(I, 2), BFSMDW(I, 3), BFSMDW(I+1, 1), BFSMDW(I+1, 2), BFSMDW(I+1, 3), BFSMDW(I+2, 1), BFSMDW(I+2, 2), BFSMDW(I+2, 3) TES00850
DO 96 I=1, 88, 3 TES00870
96 READ(8, 4) OFSMDW(I, 1), OFSMDW(I, 2), OFSMDW(I, 3), OFSMDW(I+1, 1), OFSMDW(I+1, 2), OFSMDW(I+1, 3), OFSMDW(I+2, 1), OFSMDW(I+2, 2), OFSMDW(I+2, 3) TES00880
DO 101 J=1, 13 TES00900
PRWMMR(J)=0. TES00910
PRGMRR(J)=0. TES00920
PRBMMR(J)=0. TES00930
PRWMD(J)=0. TES00940
PRBMD(J)=0. TES00950
101 PROMD(J)=0. TES00960
REP=200. TES00970
DO 160 J=1, 7 TES00980
160 ICHILD(J)=0. TES00990
DO 7 J=1, 101 TES1000
OMALE(J)=OMALE(J)-BMALE(J) TES01010
7  OFEM(J)=OFEM(J)-BFEM(J)
   TPOP=0.
C FIND TOTAL POPULATION
   DO 10 J=1,101
10  TPOP=TPOP+WMALE(J)+BMALE(J)+OMALE(J)+WFEM(J)+BFEM(J)+OFEM(J)
C FIND AGE, SEX AND RACE DISTRIBUTION
   DO 11 J=1,101
      WMALE(J)=WMALE(J)*REP/TPOP
      BMALE(J)=BMALE(J)*REP/TPOP
      OMALE(J)=OMALE(J)*REP/TPOP
      WFEM(J)=WFEM(J)*REP/TPOP
      BFEM(J)=BFEM(J)*REP/TPOP
      OFEM(J)=OFEM(J)*REP/TPOP
11  CONTINUE
C TRUNCATE AND SEE IF DIFFERENCE IS GREATER THAN 0.5, IF SO, ADD ONE
   DO 12 J=1,101
      IWMALE=WMALE(J)
      IBMALE=BMALE(J)
      IOMALE=OMALE(J)
      IWFEM=WFEM(J)
      IBFEM=BFEM(J)
      IOFEM=OFEM(J)
      DIFWM=WMALE(J)-IWMALE
      WMALE(J)=IWMALE
      IF (DIFWM.GT.0.5) WMALE(J)=IWMALE+1
      DIFOM=OMALE(J)-IOMALE
      OMALE(J)=IOMALE
      IF (DIFOM.GT.0.5) OMALE(J)=IOMALE+1
      DIFBM=BMALE(J)-IBMALE
      BMALE(J)=IBMALE
      IF (DIFBM.GT.0.5) BMALE(J)=IBMALE+1
      DIFWF=WFEM(J)-IWFEM
      WFEM(J)=IWFEM
WFEM(J)=IWFEM
IF (DIFWF .GT. 0.5) WFEM(J)=IWFEM+1
DIFBF=BIFEM(J)-IBFEM
BFEM(J)=IBFEM
IF (DIFBF .GT. 0.5) BFEM(J)=IBFEM+1
DIOF=OIFEM(J)-IOFEM
OFEM(J)=IOFEM
IF (DIOF .GT. 0.5) OFEM(J)=IOFEM+1
12 CONTINUE
IDWMAL=1
C INITIALIZE WHITE MALES AGE, SEX AND RACE
NN=1
N=0
DO 13 J=1,101
N=WMALE(J)+N
WMALE(J)=N
IF (N .EQ. 0) GO TO 13
C N CONTAINS NUMBER OF WHITE MALES
K=J-1
IF (NN .GT. N) GO TO 13
DO 14 L=NN,N
14 POP(L,1)=1000+K
NN=N+1
13 CONTINUE
IDBMAL=NN
C INITIALIZE BLACK MALES AGE, SEX AND RACE
DO 15 J=1,101
N=BMAL(J)+N
BMAL(J)=N
K=J-1
IF (NN .GT. N) GO TO 15
DO 16 L=NN,N

TES01340
TES01350
TES01360
TES01370
TES01380
TES01390
TES01400
TES01410
TES01420
TES01430
TES01440
TES01450
TES01460
TES01470
TES01480
TES01490
TES01500
TES01510
TES01520
TES01530
TES01540
TES01550
TES01560
TES01570
TES01580
TES01590
TES01600
TES01610
TES01620
TES01630
TES01640
TES01650
16 \( \text{POP}(L,1) = 3000 + K \)
\( \text{NN} = N + 1 \)
15 \text{CONTINUE}
\text{IDOMAL} = \text{NN}

\text{C INITIALIZE FOR OTHER MALES AGE, SEX AND RACE}
\begin{align*}
\text{DO 17 } & J = 1, 101 \\
& N = \text{OMALE}(J) + N \\
& \text{OMALE}(J) = N \\
& K = J - 1 \\
& \text{IF} (\text{NN} \geq N) \text{ GO TO 17} \\
\text{DO 18 } & L = \text{NN}, N \\
18 & \text{POP}(L,1) = 5000 + K \\
& \text{NN} = N + 1 \\
17 & \text{CONTINUE} \\
& \text{IDW} = \text{NN}
\end{align*}

\text{C NUMBER OF MALES NOW EQUALS N}
\( N\text{MALE} = N \)

\text{C INITIALIZE FOR WHITE FEMALES AGE, SEX AND RACE}
\begin{align*}
\text{DO 19 } & J = 1, 101 \\
& N = \text{WFEM}(J) + N \\
& \text{WFEM}(J) = N \\
& K = J - 1 \\
& \text{IF} (\text{NN} \geq N) \text{ GO TO 19} \\
\text{DO 20 } & L = \text{NN}, N \\
20 & \text{POP}(L,1) = 2000 + K \\
& \text{NN} = N + 1 \\
19 & \text{CONTINUE} \\
& \text{IDBFEM} = \text{NN}
\end{align*}

\text{C INITIALIZE FOR BLACK FEMALES AGE, SEX AND RACE}
\begin{align*}
\text{DO 21 } & J = 1, 101 \\
& N = \text{BFEM}(J) + N \\
& \text{BFEM}(J) = N
\end{align*}
K=J-1
IF (NN .GT. N) GO TO 21
DO 22 L=NN,N
22 POP(L,1)=4000+K
NN=NN+1
21 CONTINUE
IPOFEM=NN
DO 23 J=1,101
C INITIALIZE FOR OTHER FEMALES AGE, SEX AND RACE
N=OFEM(J)+N
OFEM(J)=N
K=J-1
IF (NN .GT. N) GO TO 23
DO 24 L=NN,N
24 POP(L,1)=6000+K
NN=NN+1
23 CONTINUE
C NOW HAVE INITIALIZED ALL PEOPLE WITH AGE, SEX AND RACE
C TOTAL NUMBER OF PEOPLE IN THE MODEL IS NN-1
C TOTAL FEMALES IN MODEL EQUALS NN-NMALE
NN=NN-1
NFEMT=NN-NMALE
C SET POP(L,2) AND POP(L,3) TO ZERO
IBEGN(1)=WMALE(16)+1
IBEGN(2)=WFEM(15)+1
IBEGN(3)=RMALE(16)+1
IBEGN(4)=BFEM(15)+1
IBEGN(5)=CMALE(16)+1
IBEGN(6)=OFEM(15)+1
IENDN(1)=!DBMAL-1
IENDN(2)=!DBFEM-1
IENDN(3)=!DOMAL-1
IENDN(4)=IDOFEM-1
IENDN(5)=NMALE
IENDN(6)=NN
DO 100 I=1,NN
POP(I,2)=0
100 POP(I,3)=0
POP(NN+1,1)=0
POP(NN+1,2)=0
POP(NN+1,3)=0
C NOW DETERMINE MARITAL STATUS OF ALL WOMEN
NMALE1=NMALE+1
DO 25 L=NMALE1,NN
C FIND ISR- SEX AND RACE
C FIND IA -AGE
CALL ISOLTE(POP(L,1),4,4,ISR)
CALL ISOLTE(POP(L,1),3,1,IA)
IF(L .NE. 84) GO TO 3337
C IF YOUNGER THAN FIFTEEN, DO NOT ASSIGN MARITAL STATUS
3337 IF (IA .LT. 15) GO TO 25
C FIND MARITAL STATUS- IMS
CALL MARI(A,ISR,IMS,IX)
IF (IMS .EQ. 4) GO TO 41
POP(L,1)=IMS*10000+POP(L,1)
C IF MARRIED FIND SPOUSE'S NUMBER
C IMS=1 IMPLIES MARRIED
IF (IMS .EQ. 3) GO TO 40
CALL SPOUSE(IA,ISR,IB,ISRW,IX)
IF (IMS .EQ. 2) GO TO 30
IF (ISRW .EQ. 1) GO TO 201
IF (ISRW .EQ. 3) GO TO 202
INCR=1
SIB=IB
252  NFEM=OMALE(IB)+1
    NNI=OMALE(IB+1)
    IF (NFEM .LE. NNI) GO TO 203
    IB=IB+INCR
    IF (IB .LT. 15) GO TO 253
    IF (IB .NE. 101) GO TO 252
    IB=SIB-1
    INCR=-1
    GO TO 252

253  POP(L,1)=POP(L,1)+30000
    POP(L,2)=1*10**5
    GO TO 25

201  INCR=1
    SIB=IB

251  NFEM=WMALE(IB)+1
    IB1=IB+1
    NNI=WMALE(IB1)
    IF (NFEM .LE. NNI) GO TO 223
    IB=IB+INCR
    IF (IB .LT. 15) GO TO 250
    IF (IB .NE. 101) GO TO 251
    IB=SIB-1
    INCR=-1
    GO TO 251

250  POP(L,1)=POP(L,1)+30000
    POP(L,2)=1*10**5
    GO TO 25

202  INCR=1
    SIB=IB

254  NFEM=BMALE(IB)+1
    NNI=BMALE(IB+1)
    IF (NFEM .LE. NNI) GO TO 323
IB=IB+INCR
IF (IB .LT. 15) GO TO 255
IF (IB .NE. 101) GO TO 254
IB=SIB-1
INCR=-1
GO TO 254

255 POP(L,1)=POP(L,1)+30000
POP(L,2)=1*10**5
GO TO 25

223 ITEST=0
INCR=1
NOMAR=0

225 DO 226 J=NFEM,NNI
CALL ISOLTE (POP(J,2),6,6,ID)
IF ((ID .EQ. 1) .OR. (ID .GT. 2)) GO TO 226
IF (ID .EQ. 0) GO TO 228
NOMAR=NOMAR+1
GO TO 601

228 IF (IFSR .EQ. 0) IFSR=J
NMFP=(WMALE(IB+1)-WMALE(IB))*PRWMMR(IB)
IF (NOMAR .LT. NMFP) GO TO 29
IB=IB+INCR
ITEST=ITEST+1
IF (ITEST .GT. 1) GO TO 85
GO TO 214

226 CONTINUE

240 IF (IFSR .NE. 0) GO TO 85
IF (IB .EQ. 100) INCR=-1
IB=IB+INCR

214 NFEM=WMALE(IB)+1
NNI=WMALE(IB+1)
IF(NFEM .GT. NNI) GO TO 240
GO TO 225
601 NFEM=J+1
IF (NFEM .GT. NNI) GO TO 240
GO TO 225
323 ITEST=0
INCR=1
NOMAR=0
325 DO 326 J=NFEM,NNI
CALL ISOLTE (POP(J,2),6,6,ID)
IF ((ID .EQ. 1) .OR. (ID .GT. 2)) GO TO 326
IF (ID .EQ. 0) GO TO 328
NOMAR=NOMAR+1
GO TO 602
328 IF (IFSR .EQ. 0) IFSR=J
NMFP=(BMALE(IB+1)-BMALE(IB))*PRBMMR(IB)
IF (NOMAR .LT. NMFP) GO TO 29
IB=IB+INCR
ITEST=ITEST+1
IF (ITEST .GT. 1) GO TO 85
GO TO 216
326 CONTINUE
340 IF (IFSR .NE. 0) GO TO 85
IF (IB .EQ. 100) INCR=-1
IB=IB+INCR
216 NFEM=BMALE(IB)+1
NNI=BMALE(IB+1)
IF(NFEM .GT. NNI) GOTO 340
GO TO 325
602 NFEM=J+1
IF (NFEM .GT. NNI) GO TO 340
GO TO 325
203 ITEST=0
INCR=1
NOMAR=0

122  DO 26 J=NFE,M,NNI
    CALL ISOLTE (POP(J,2),6,6,ID)
    IF ((ID .EQ. 1) .OR. (ID .GT. 2)) GO TO 26
    IF (ID .EQ. 0) GO TO 28
    NCMAR=NOMAR+1
    GO TO 603

28  IF (IFSR .EQ. 0) IFSR=J
    NMFP=(OMALE(IB+1)-OMALE(IB))*PROMMR(IB)
    IF (NOMAR .LT. NMFP) GO TO 29
    IB=IB+INCR
    ITEST=ITEST+1
    IF (IEST .GT. 1) GO TO 85
    GO TO 217

26  CONTINUE

104  IF (IFSR .NE. 0) GO TO 85
    IF (IB .EQ. 100) INCR=-1
    IB=IB+INCR

217  NFE=M=OMALE(IB)+1
    NNI=OMALE(IB)+1
    IF(NFE .GT. NNI) GO TO 104
    GO TO 122

603  NFE=J+1
    IF (NFE .GT. NNI) GO TO 104
    GO TO 122

85  J=IFSR

29  POP(J,2)=200000+L
    POP(L,2)=200000+J
    POP(J,1)=10000+POP(J,1)
    IFSR=0
    GO TO 25
C FIND SPOUSE FOR DIVORCED WIFE
C IB CONTAINS AGE OF DIVORCED HUSBAND
C ISRW CONTAINS SEX AND RACE OF DIVORCED HUSBAND
30   IF (ISRW .EQ. 1) GO TO 206
     IF (ISRW .EQ. 3) GO TO 207
209  INCR=1
     SIB=IB
256  NFEM=OMALE(IB)+1
     NNI=OMALE(IB+1)
     IF (NFEM .LE. NNI) GO TO 203
     IB=IB+INCR
     IF (IB .LT. 15) GO TO 257
     IF (IB .NE. 101) GO TO 256
     IB=SIB-1
     INCR=-1
     GO TO 256
257  POP(L,1)=POP(L,1)+20000
     POP(L,2)=1*10**5
     GO TO 25
206  INCR=1
     SIB=IB
258  NFEM=WMALE(IB)+1
     IB1=IB+1
     NNI=WMALE(IB1)
     IF (NFEM .LE. NNI) GO TO 403
     IB=IB+INCR
     IF (IB .LT. 15) GO TO 259
     IF (IB .NE. 101) GO TO 258
     IB=SIB-1
     INCR=-1
     GO TO 258
259  POP(L,1)=POP(L,1)+20000
POP(L, 2) = 1 * 10**5
GO TO 25

207  INCR = 1
SIB = IB

260  NFEM = BMALE(IB) + 1
NNI = BMALE(IB + 1)
IF (NFEM .LE. NNI) GO TO 508
IB = IB + INCR
IF (IB .LT. 15) GO TO 261
IF (IB .NE. 101) GO TO 260
IB = SIB - 1
INCR = -1
GO TO 260

261  POP(L, 1) = POP(L, 1) + 20000
POP(L, 2) = 1 * 10**5
GO TO 25

408  ITEST = 0
NODIV = 0

409  DO 432 J = NFEM, NNI
CALL ISOLTE (POP(J, 2), 6, 6, ID)
IF (ID .EQ. 0) GO TO 433
IF (ID .LT. 8) GO TO 432
NODIV = NODIV + 1
GO TO 604

433  IF (IFDIV .EQ. 0) IFDIV = J
NDFP = (WMALE(IB + 1) - WMALE(IB)) * PRWMD(IB)
IF (NODIV .LT. NDFP) GO TO 34
IB = IB + INCR
ITEST = ITEST + 1
IF (ITEST .GT. 1) GO TO 86
GO TO 218
432 CONTINUE
498 IF (IFDIV .NE. 0) GO TO 86
   IF (IB .EQ. 100) INCR=-1
   IB=IB+INCR
218 NFEM=WMALE(IB)+1
   NNI=WMALE(IB+1)
   IF(NFEM .GT. NNI) GO TO 498
   GO TO 409
604 NFEM=J+1
   IF (NFEM .GT. NNI) GO TO 498
   GO TO 409
508 ITEST=0
   NDIV=0
   INCR=1
509 DO 532 J=NFEM,NNI
   CALL ISOLTE (POP(J,2),6,6,ID)
   IF (ID .EQ. 0) GO TO 533
   IF (ID .LT. 8) GO TO 532
   NODIV=NODIV+1
   GO TO 605
533 IF (IFDIV .EQ. 0) IFDIV=J
   NDFP=(BMALE(IB+1)-BMALE(IB))*PRBMD(IB)
   IF (NODIV .LT. NDFP) GO TO 34
   IB=IB+INCR
   ITEST=ITEST+1
   IF (ITEST .GT. 1) GO TO 86
   GO TO 219
532 CONTINUE
598 IF (IFDIV .NE. 0) GO TO 86
   IF (IB .EQ. 100) INCR=-1
   IB=IB+INCR
219 NFEM=BMALE(IB)+1
NNI=BMALE (IB+1)
IF(NFEM .GT. NNI) GO TO 598
GO TO 509
605 NFEM=J+1
IF (NFEM .GT. NNI) GO TO 598
GO TO 509
208 ITEST=0
NODIV=0
INCR=1
109 DO 32 J=NFEM,NNI
CALL ISOLTE (POP(J,2),6,6,ID)
IF (ID .EQ. 0) GO TO 33
IF (ID .LT. 8) GO TO 32
NODIV=NODIV+1
GO TO 606
33 IF (IFDIV .EQ. 0) IFDIV=J
NDFP=(OMALE(IB+1)-OMALE(IB))*PROMD(IB)
IF (NODIV .LT. NDFP) GO TO 34
IB=IB+INCR
ITEST=ITEST+1
IF (ITEST .GT. 1) GO TO 86
GO TO 600
32 CONTINUE
198 IF (IFDIV .NE. 0) GO TO 86
IF (IB .EQ. 100) INCR=-1
IB=IB+INCR
600 NFEM=OMALE(IB+1)
NNI=OMALE(IB+1)
IF(NFEM .GT. NNI) GO TO 198
GO TO 109
606 NFEM=J+1
IF (NFEM .GT. NNI) GO TO 198
GO TO 109
36 J=IFDIV
34 POP(J,2)=800000+L
POP(L,2)=800000+J
POP(J,1)=20000+POP(J,1)
IFDIV=0
GO TO 25
C ASSIGN WIDOW CODES
40 POP(L,2) =299999
GO TO 25
C ASSIGN CODE FOR SINGLE FEMALE IF INDEPENDENT
41 IF (IA .LT. 18) GO TO 25
43 IF (IA .GE. 22) GO TO 42
C SEE IF IN SCHOOL IF BETWEEN 18 AND 22
CALL SCHOOL(IA,ISR,INOUT,IX)
IF (INOUT .EQ. 0) GO TO 25
C DISABLED AND DEPENDENT
42 CALL DISABL(IA,ISR, IDIS,IX)
IF (IDIS .EQ. 0) GO TO 43
C NOW HAVE ASSIGNED MARITAL STATUS TO ALL INDEPENDENT FEMALES AND ALL
C DIVORCED OR MARRIED MEN. NOW MUST ASSIGN SINGLE OR WIDOWED STATUS TO
C THOSE MEN WHO DO NOT HAVE A CHARACTER IN WORD ONE, POSITION 5
25 CONTINUE
DO 95 J=1,5,2
NFEM=1BEGN(J)
NNJ=1ENDN(J)
IF(NFEM .GT. NNJ) GO TO 95
DO 44 I=NFEM,NNJ
CALL ISOLTE(POP(I,1),5,5,JD)
IF (JD.NE.0) GO TO 44
C NOW HAVE MAN WHO IS NOT MARRIED OR DIVORCED
CALL ISOLTE(POP(I,1),3,1,IAGE)
C IAGE CONTAINS AGE OF MAN
CALL ISOLTE (POP(I,1),4,4,ISR)
C ISR CONTAINS RACE OF MAN
CALL SINDIV(IAGE, ISR,IMS,IX)
C IMS CONTAINS 4(SINGLE) OR 3(WIDOWED)
IF (IMS .EQ. 4) GO TO 45
C WIDOWS- ASSIGN CODE
POP(I,2)=299999
POP(I,1)=30000+POP(I,1)
GO TO 44
C CHECK SINGLE - IF INDEPENDENT PUT IN COLE
45   IF (IAGE .LT. 18) GO TO 44
IF (IAGE .GE. 22) GO TO 46
CALL SCHOOL (IAGE,ISR,INOUT,IX)
IF (INOUT .EQ. 0) GO TO 44
C CALL DISABL(IAGE,ISR,IDIS,IX)
IF (IDIS .EQ. 0) GO TO 47
C DIABLED AND DEPENDENT
POP(I,2)=700000+POP(I,2)
GO TO 44
47   POP(I,2)=100000
POP(I,1)=POP(I,1)+40000
44   CONTINUE
95   CONTINUE
C NOW HAVE ASSIGNED A STATUS TO EVERYONE EXCEPT CHILDREN WHO ARE IN SCHOOL
C OR DEPENDENT BY AGE OR DISABILITY
C TAKE CURRENT AGE OF FATHER AND SEE IF HE HAS ANY CHILDREN
DO 696 J=1,6
IBEG=IBEGN(J)
IEND=IENDN(J)
IF(IBEG .GT. IEND) GO TO 696
DO 50 I=IBEG,IEND
INUM=POP(I,1)
CALL ISOLTE(INUM,5,5,ID)
C ELIMINATE SINGLE MEN
IF (ID .EQ. 0) GO TO 50
IF (ID .EQ. 4) GO TO 50
C FIND AGE, SEX AND RACE OF MAN
CALL ISOLTE(INUM,3,1,IA)
CALL ISOLTE(INUM,4,4,ISR)
JNUM=POP(I,2)
C NOW FIND SPOUSES NUMBER- ISP
CALL ISOLTE(JNUM,5,1,ISP)
C SEE IF WE ARE LOOKING AT WIDOWS OR MEN
ICHNG=0
IF (((ISR .EQ. 1) .OR. (ISR .EQ. 3)) GO TO 52
IF (ISR .EQ. 5) GO TO 52
C WE ARE LOOKING AT A WOMAN- SEE IF WIDOW
IF (ID .NE. 3) GO TO 50
52 CALL CHILD(IA,ISR,NUMBER,ICLFD,ISRC,IX)
IF (NUMBER .EQ. 0) GO TO 50
53 K=1
NPRC=1
150 IDISAB=0
IF (ICLFD(K) .LT. 18) GO TO 58
IF (ICLFD(K) .GT. 22) GO TO 59
C SEE IF CHILD IS IN SCHOOL
CALL SCHOOL (ICLFD(K),ISRC(K),INOUT,IX)
IF (INOUT .EQ. 0) GO TO 58
C OTHERWISE CHECK DISABLED

59 CALL DISABL(ICHILD(K),ISRC(K),IDIS,IX)
    IF (IDIS .EQ. 1) GO TO 60

C CHILD NOT ELIGIBLE FOR BENEFITS

DISAB=0
    NUMBER=NUMBER-1
    KICHNG=K-ICHNG
    ISTRK=K
    IF ((NUMBER .GT. 0) .AND. (NUMBER .LT. KICHNG)) GO TO 300
    IF (NUMBER .LT. KICHNG) GO TO 50
    K=K+1
    ICHNG=ICHNG+1
    GO TO 150

300 CALL ISOLTE(POP(ICHILD(K-1),2),5,1,IPRNT)
    KICHL=ICHILD(K-1)
    K=ISTRK
    IF (IPRNT .NE. 0) GO TO 307
    K=K-1
    GO TO 300

307 CALL ISOLTE(POP(IPRNT,3),5,1,IOEC)
    POP(KICHL,1)=POP(KICHL,1)-1*10**5

301 IF (IOEC .EQ. KICHL) GO TO 50
    POP(IOEC,1)=POP(IOEC,1)-1*10**5
    CALL ISOLTE(POP(IOEC,3),5,1,IOEC)
    GO TO 301

60 IDISAB=1

58 ISRC=ISRC(K)*1000+ICHILD(K)

C FIND CHILD WHO FITS PROPER DESCRIPTION

IF (ISRC(K) .EQ. 1 ) ISTART=IDWMAL
IF (ISRC(K) .EQ. 2 ) ISTART=IDWFEM
IF (ISRC(K) .EQ. 3 ) ISTART=IDBMAL
IF (ISRC(K) .EQ. 4 ) ISTART=IDBFEM

124
IF (ISRC(K) .EQ. 5 ) ISTART=IDOMAL
IF (ISRC(K) .EQ. 6 ) ISTART=IDOFEM
ISTOP=IENDN(ISRC(K))
DO 62 L=ISTART,ISTOP
KNUM=POP(L,1)
LNUM=POP(L,2)
CALL ISOLTE (KNUM,4,1,IE)
IF (IE .LT. IARSC) GO TO 62
IF (IE .GT. IARSC) GO TO 76
CALL ISOLTE(LNUM,6,1,IDPAR)
IF (IDPAR .NE. 0 ) GO TO 76
CALL ISOLTE(KNUM,5,5,IST)
IF (IST .NE. 0 ) GO TO 76
IF (IDISAB .EQ. 0 ) GO TO 63
C FIND PERSON WITH DISABILITY
CALL ISOLTE (LNUM,6,6,IDS)
IF (IDS .NE. 7 ) GO TO 76
C NOW HAVE CHILD'S NUMBER IN L
C FATHER'S NUMBER IN I - OR WIDOW
C MOTHER'S NUMBER IN ISP
C SEE IF HAS YOUNGER SIBLINGS
63 NOYS=NUMBER-K+ICHNG
POP(L,1)=NOYS*100000+POP(L,1)
C SEE IF HAS OLDER SIBLINGS
NOOS=K-1-ICHNG
POP(L,1)=NOOS*100000+POP(L,1)
C C SEE WHAT STATUS PARENTS ARE
IF (ID .EQ. 1 ) GO TO 64
IF (ID .EQ. 2 ) GO TO 65
C SEE IF WIDOW OR WIDOWER
IF (((ISR .EQ. 2 ) .OR. (ISR .EQ. 4 )) GO TO 66
IF (ISR .EQ. 6 ) GO TO 66
C WIDOWER- PUT IN CODE
   POP(L,2)=400000+I
   GO TO 67
66   POP(L,2)=600000+I
C STORE NUMBER OF CHILD
67   ICHILD(K)=L
   IOLDST=K-ICHNG
   IF (IOLDST .GT. 1) GO TO 68
C ASSIGN OLDEST ELIGIBLE CHILD NUMBER TO PARENT
68   POP(ICHILD(K-1),3)=L
   GO TO 69
C ASSIGN NEXT YOUNGER SIBLING NUMBER
69   K=K+1
   KICHNG=K-ICHNG
   IF (KICHNG .GT. NUMBER) GO TO 50
   GO TO 58
C NOW ASSIGN CHILDREN WITH BOTH PARENTS MARRIED
64   POP(L,2)=300000+I
   ICHILD(K)=L
   IOLDST=K-ICHNG
   IF (IOLDST .GT. 1) GO TO 70
C ASSIGN OLDEST ELIGIBLE CHILD TO BOTH PARENTS
   POP(I,3)=L
   POP(ISP,3)=L
   GO TO 71
C ASSIGN NEXT YOUNGER SIBLING
70   POP(ICHILD(K-1),3)=L
71   K=K+1
   KICHNG=K-ICHNG
   IF (KICHNG .GT. NUMBER) GO TO 50
   GO TO 58
C IF PARENTS ARE DIVORCED - ASSIGN CHILDREN MOTHERS NUMBER

65     POP(L,2)=500000+ISP
       ICHILD(K)=L
       KI=K-ICHNG
       IF (KI .GT. 1) GO TO 73
       POP(I,3)=L
       POP(ISP,3)=L
       GO TO 74

73     POP(ICHILD(K-1),3)=L
       K=K+1
       KIC=K-ICHNG
       IF (KIC .GT. NUMBER) GO TO 50
       GO TO 58

C IF CANNOT FIND CHILD AGE ICHILD(K) TRY 1 YEAR YOUNGER

76     GO TO (77,87),NPRO

77     INCR=-1
       SIC=ICHILD(K)

87     ICHILD(K)=ICHILD(K)+INCR
       NPRO=2
       IF (ICHILD(K) .EQ. -1) GO TO 222
       IF (ICHILD(K) .GT. 22) GO TO 623
       IF (ICHILD(K) .GE. 0) GO TO 150

222     ICHILD(K)=SIC
       INCR=1
       NPRO=2
       GO TO 87

623     ICHNG=ICHNG+1
       NUMBER=NUMBER-1
       IF (NUMBER .EQ. 0) GO TO 50
       K=K+1
       GO TO 150

62     CONTINUE
50 CONTINUE
696 CONTINUE
C NOW WE HAVE ASSIGNED EVERYONE
88 CONTINUE
C HAVE ORPHANS FROM ABOVE-ASSIGN THEM TO PARENT(S)
DO 998 I=1,NN
   CALL ISOLTE(POP(I,1),5,5,IMS)
   IF(IMS .NE. 0) GO TO 998
   CALL ISOLTE(POP(I,2),5,1,IPAR)
   IF(IPAR .NE. 0) GO TO 998
   CALL ISOLTE(POP(I,1),4,4,ISR)
   IF((ISR .EQ. 1) .OR. (ISR .EQ. 2)) IRACE=1
   IF((ISR .EQ. 3) .OR. (ISR .EQ. 4)) IRACE=2
   IF((ISR .EQ. 5) .OR. (ISR .EQ. 6)) IRACE=3
DO 999 J=1,NN
   CALL ISOLTE(POP(J,1),5,5,IMS)
   IF((IMS .EQ. 0) .OR. (IMS .EQ. 4)) GO TO 999
C HAVE ELIGIBLE PARENT
   CALL ISOLTE(POP(J,1),4,4,ISRP)
   IF((ISRP .EQ. 1) .OR. (ISRP .EQ. 2)) IRACEP=1
   IF((ISRP .EQ. 3) .OR. (ISRP .EQ. 4)) IRACEP=2
   IF((ISRP .EQ. 5) .OR. (ISRP .EQ. 6)) IRACEP=2
   IF(IRACE .NE. IRACEP) GO TO 999
   CALL ISOLTE(POP(J,1),3,1,IAIGPAR)
   CALL ISOLTE(POP(I,1),3,1,IAIGE)
   IF((IAIGPAR-IAIGE) .LE. 15) GO TO 999
   CALL ISOLTE(POP(J,3),5,1,ICH)
   IF(ICH .EQ. 0) GO TO 3491
   CALL ISOLTE(POP(ICH,1),6,6,NYS)
   IF(NYS .NE. 0) GO TO 999
C HAVE A PARENT WITH ONLY ONE CHILD
   CALL ISOLTE(POP(J,1),4,4,ISRP)
CALL ISOLTE(POP(J,2),5,1,ISP)
CALL ISOLTE(POP(ICH,1),3,1,IAGCH)
CALL ISOLTE(POP(J,1),5,5,IMSPAR)

C SEE WHAT MARITAL STATUS IS OF PARENT
IF(IMSPAR .EQ. 1) GO TO 3483
IF(IMSPAR .EQ. 3) GO TO 3481

C HAVE DIVORCED COUPLE-FIND MOTHER
IMOTH=J
IF((ISRP .EQ. 1) .OR. (ISRP .EQ. 3) .OR. (ISRP .EQ. 5)) IMOTH=ISP
POP(I,2)=5*10**5+IMOTH
IF(IAGE .GT. IAGCH) GO TO 3482

C IAGCH IS STILL OLDEST
3484 POP(ICH,1)=POP(ICH,1)+1*10**5
POP(ICH,3)=POP(ICH,3)+1
POP(I,1)=POP(I,1)+1*10**6
GO TO 998

C I IS OLDER THAN ICH
3482 POP(J,3)=POP(J,3)-ICH+1
IF((ISP .EQ. 99999) .OR. (ISP .EQ. 0)) GO TO 3485
POP(ISP,3)=POP(ISP,3)-ICH+1
3485 POP(ICH,1)=POP(ICH,1)+1*10**6
POP(I,1)=POP(I,1)+1*10**5
POP(I,3)=POP(I,3)+ICH
GO TO 998

C HAVE WIDOW OR WIDOWER
3481 IN=4
IF((ISRP .EQ. 2) .OR. (ISRP .EQ. 4) .OR. (ISRP .EQ. 6)) IN=6
POP(I,2)=IN*10**5+J
IF(IAGE .GT. IAGCH) GO TO 3482
GO TO 3484

C HAVE MARRIED COUPLE
3483 IFATH=J
Iff (ISRP .EQ. 2) .OR. (ISRP .EQ. 4) .OR. (ISRP .EQ. 6) IFATH=ISP
POP(I,2)=3*10**5+1FATH
IF(IAGE .GT. IAGCH) GO TO 3482
GO TO 3484
C ASSIGN CHILD TO PARENT
3491 POP(J,3)=POP(J,3)+1
CALL ISOLTE(Pop(J,2),5,1,ISP)
CALL ISOLTE(Pop(J,1),5,5,IMSP)
IF(IMSP .EQ. 1) GO TO 1028
IF(IMSP .EQ. 2) GO TO 1029
C HAVE WIDOW OR WIDOWER
IN=4
IF((ISRP .EQ. 2) .OR. (ISRP .EQ. 4) .OR. (ISRP .EQ. 6)) IN=6
POP(I,2)=IN*10**5+J
GO TO 998
C HAVE DIVORCEE-STORE CHILD IN OTHER PARENT AND MOTHER IN CHILD'S
1029 POP(ISP,3)=POP(ISP,3)+1
IMOTHR=J
IF((ISRP .EQ. 1) .OR. (ISRP .EQ. 3) .OR. (ISRP .EQ. 5)) IMOTHR=ISP
POP(I,2)=5*10**5+IMOTHR
GO TO 998
C HAVE MARRIED COUPLE
1028 POP(ISP,3)=POP(ISP,3)+1
IFATHR=J
IF((IMSP .EQ. 2) .OR. (IMSP .EQ. 4) .OR. (IMSP .EQ. 6)) IFATHR=ISPTES08300
POP(I,2)=3*10**5+IFATHR
GO TO 998
999 CONTINUE
998 CONTINUE
DO 810 J=1,6
ISTRT=IBEGN(J)
ISTP=IENDN(J)
IF(ISTRT .GT. ISTP) GO TO 810
DO 801 I=ISTRT,ISTP
ISEX=2
N=7
IF ((J .EQ. 1) .OR. (J .EQ. 3) .OR. (J .EQ. 5)) GO TO 3123
GO TO 3124
3123 ISEX=1
N=8
3124 CALL ISOLTE(POP(I,1),3,1,IAGE)
IF(IAGE .EQ. 0) GO TO 801
CALL ISOLTE(POP(I,1),4,4,ISR)
CALL ISOLTE(POP(I,1),5,5,IMS)
IF (IMS .EQ. 0) GO TO 801
CALL RANDU(IX,IX,YFL)
IF (YFL .LT. PREMPL(ISEX)) GO TO 802
C NOT EMPLOYED
IN=9
IDID=0
808 POP(I,1)=IN*10**N+POP(I,1)
IF (IMS .EQ. 4) GO TO 801
CALL ISOLTE(POP(I,2),5,1,ISP)
CALL ISOLTE(POP(I,3),5,1,ICH)
IF (ISP .EQ. 99999) GO TO 803
POP(ISP,1)=IN*10**N+POP(ISP,1)
803 IF (ICH .EQ. 0) GO TO 897
POP(ICH,1)=IN*10**N+POP(ICH,1)
804 CALL ISOLTE(POP(ICH,3),5,1,ICH)
IF(ICH .EQ. 0) GO TO 897
POP(ICH,1)=IN*10**N+POP(ICH,1)
GO TO 804
897 IF(IMS .NE. 3) GO TO 801
IF(IDID .EQ. 1) GO TO 801
N=8
IF((ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) N=7
POP(I,1)=5*10**N+POP(I,1)
CALL ISOLTE(POP(I,3),5,1,ICH)
IF(ICH .EQ. 0) GO TO 801
POP(ICH,1)=POP(ICH,1)+5*10**N
898 CALL ISOLTE(POP(ICH,3),5,1,ICH)
IF(ICH .EQ. 0) GO TO 801
POP(ICH,1)=POP(ICH,1)+5*10**N
GO TO 898
C SALARY OF EMPLOYED
802 CALL SALARY(ISR,IA MT,ISEX,IX)
    POP(I,3)=IAM T*10**5+POP(I,3)
    IF (IMS .EQ. 3) GO TO 805
C HAVE SINGLE, MARRIED OR DIVORCED PERSON
806 N=7
    IF ((J .EQ. 1) .OR. (J .EQ. 3) .OR. (J .EQ. 5)) N=8
    CALL RANDU(IX,IX,YFL)
    IDIS=0
    IF (YFL .LT. PR DIS) IDIS=1
    IRET=0
    IF (IAGE .LT. 62) GO TO 807
    CALL RANDU(IX,IX,YFL)
    IA=IAGE-61
    IF (IA .GT. 9) IA=9
    IF (YFL .LT. PR RET(IA,ISEX)) IRET=1
807 IF ((IDIS .EQ. 0) .AND. (IRET .EQ. 0)) IN=1
    IF ((IDIS .EQ. 1) .AND. (IRET .EQ. 1)) IN=2
    IF ((IDIS .EQ. 1) .AND. (IRET .EQ. 0)) IN=3
    IF ((IDIS .EQ. 0) .AND. (IRET .EQ. 1)) IN=4
    CALL RANDU(IX,IX,YFL)
    IF (YFL .GT. PRC OV) IN=8
GO TO 808
C HAVE WIDOW OR WIDOWER
805 N=8
   IF (((ISR .EQ. 1) OR (ISR .EQ. 3) OR (ISR .EQ. 5)) N=7
      ID=1
      POP(1,1)=5*10**N+POP(1,1)
      CALL ISOLTE(POP(I,3),5,1,ICH)
      IF (ICH .EQ. 0) GO TO 806
      POP(ICH,1)=5*10**N+POP(ICH,1)
   CALL ISOLTE(POP(ICH,1),6,6,NOYS)
   IF (NOYS .EQ. 0) GO TO 806
   CALL ISOLTE(POP(ICH,3),5,1,ICH)
   POP(ICH,1)=POP(ICH,1)+5*10**N
   GO TO 812
812 CALL ISOLTE(POP(ICH,1),5,1,ICH)
C NOW MUST ASSIGN BENEFITS FOR EVERYONE ELIGIBLE
TOLMP=0
DO 3478 I=1,NN
   C SEE IF MAN OR WOMAN IS IN I
   CALL ISOLTE(POP(1,1),5,5,IMS)
   IF (IMS .EQ. 0) GO TO 3478
   CALL ISOLTE(POP(I,1),4,4,ISR)
   IN=8
   IF (((ISR .EQ. 1) OR (ISR .EQ. 3) OR (ISR .EQ. 5)) IN=9
      CALL ISOLTE(POP(I,1),IN,IN,IMOW)
      CALL ISOLTE(POP(I,1),8,8,IWOM)
      CALL ISOLTE(POP(I,1),9,9,IMAN)
      IF (((IMAN .EQ. 5) OR (IWOM .EQ. 5)) GO TO 5674
      IF (((IMOW .EQ. 2) OR (IMOW .EQ. 3) OR (IMOW .EQ. 4)) GO TO 3333
      GO TO 3478
   3333 CALL ISOLTE(POP(I,3),9,6,ISAL)
CALL PIAMFB(ISAL, PIA, MFB)
C ASSIGN BENEFIT TO WORKER
IBEN=PIA
IF((IMOW.EQ.2).OR.(IMOW.EQ.3)) IBEN=PIA-PIA*((65-IAGE)*12*(5./9.))*.TES09370
101)
CALL ISOLTE(POP(I,2),9,7, IBENO)
IBENEW=IBEN
IF(IBEN .LT. IBENO) IBENEW=IBEN
IF(MFB-IBENEW) 3120, 3120,3121
3120 IBENEW=MFB
POI(I,2)=POI(I,2)-IBENO*10**6+IBENEW*10**6
GO TO 3478
3121 MFB=MFB-IBENEW
POI(I,2)=POI(I,2)-IBENO*10**6+IBENEW*10**6
C SEE IF SPOUSE GETS BENEFITS
CALL ISOLTE(POP(I,2),5,1, ISP)
IF((ISP .EQ. 0).OR. (ISP .EQ. 99999)) GO TO 3122
CALL ISOLTE(POP(ISP,1),3,1, IAGE)
CALL ISOLTE(POP(ISP,1),4,4, ISR)
IF(IAGE .GE. 65) GO TO 3129
CALL ISOLTE(POP(ISP,3),5,1, ICHL)
IF((ICHL .EQ. 0).AND.(IAGE .GT. 62)) GO TO 3129
IF((ICHL .EQ. 0)) GO TO 3478
IF((ISR .EQ. 0).OR. (ISR .EQ. 3).OR. (ISR .EQ. 5)) GO TO 3478
3129 IBEN=.5*PIA
IF(IAGE .GE. 65) GO TO 3374
IBEN=.5*PIA-(65-62)*(25/46)*.01*PIA*12.
3374 CALL ISOLTE(POP(ISP,2),9,7, IBENO)
ISPN E=W=IBENO
IF(IBEN .LT. IBENO) IBENEW=IBEN
IF(MFB-IBENEW) 3256,3256,3257
3256 IBENEW=MFB
POP(ISP,2)=POP(ISP,2)-IBENO*10**6+IBENEW*10**6
GO TO 3478

3257 MFB=MFB-IBENEW
POP(ISP,2)=POP(ISP,2)-IBENO*10**6+IBENEW*10**6
C CHECK CHILD AND SPOUSE BENEFIT
3122 CALL ISOLTE(POP(1,3),5,1,ICHL)
IF(ICHL .EQ. 0) GO TO 3478
3127 CALL ISOLTE(POP(ICHL,2),9,7,IBENO)
IBEN=.5*PIA
ISPNEW=IBENO
IF(IBEN .GT. IBENO) IBENEW=IBEN
IF(MFB-IBENEW)3125,3125,3126
3125 IBENEW=MFB
POP(ICHL,2)=POP(ICHL,2)-IBENO*10**6+IBENEW*10**6
GO TO 3478
3126 MFB=MFB-IBENEW
POP(ICHL,2)=POP(ICHL,2)-IBENO*10**6+IBENEW*10**6
CALL ISOLTE(POP(ICHL,3),5,1,ICHL)
IF(ICHL .EQ. 0) GO TO 3478
GO TO 3127
5674 CALL ISOLTE(POP(1,1),4,4,ISRS)
C FIND SEX AND SALARY OF DECEASED SPOUSE
ISEX=1
IF ( (ISRS .EQ. 1) .OR. (ISRS .EQ. 3) .OR. (ISRS .EQ. 5)) ISEX =2
IF (ISEX .EQ. 2) ISR=ISRS+1
IF(ISEX .EQ. 1) ISR=ISRS-1
CALL RANDU(ix,ix,YFL)
IF(YFL .GT. PREMPL(ISEX)) GO TO 3478
CALL RANDU(ix,ix,YFL)
IF(YFL .GT. PRCOV) GO TO 3478
CALL SALARY (ISR,IAMW,ISEX,IX)
ISPOUS=1
CALL PIAMB(IAMW,PIA,MFB)
IF((ISPOUS.EQ.0).OR.(ISPOUS.EQ.99999)) GO TO 2234
C FIND SURVIVORS AND THEIR BENEFITS
C SEE IF SPOUSE IS OVER 65
CALL ISOLTE(POP(ISPOUS,1),3,1,IASP)
IBEN=0
IF(IASP.LT.65) GO TO 2223
IBEN=PIA
C SEE IF HAS ANY CHILDREN
2223 CALL ISOLTE(POP(ISPOUS,3),5,1,ICHL)
IF(ICHL.EQ.0) GO TO 2224
IF(IASP.LE.62) IBEN=.75*PIA
C PUT IN BENEFIT FOR SPOUSE
CALL ISOLTE(POP(ISPOUS,2),9,7,IBENO)
IBENEW=IBENO
IF(IBENO.LT.IBEN) IBENEW=IBEN
POP(ISPOUS,2)=POP(ISPOUS,2)-IBENO*10**6+IBENEW*10**6
MFB=MFB-IBEN
C SEE HOW MANY CHILDREN THERE ARE
2227 IBEN=.75*PIA
IF(MFB-IBEN)2225,2225,2226
2225 IBEN=MFB
CALL ISOLTE(POP(ICHL,2),9,7,IBENO)
IBENEW=IBENO
IF(IBENO.LT.IBEN) IBENEW=IBEN
POP(ICHL,2)=POP(ICHL,2)-IBENO*10**6+IBENEW*10**6
GO TO 2224
2226 MFB=MFB-IBEN
CALL ISOLTE(POP(ICHL,2),9,7,IBENO)
IBENEW=IBENO
IF(IBENO.LT.IBEN) IBENEW=IBEN
POP(ICHL,2)=POP(ICHL,2)-IBENO*10**6+IBENEW*10**6
CALL ISOLTE(POP(ICH1,3),5,1,ICH1)
IF(ICH1 .EQ. 0) GO TO 2224
GO TO 2227
2234 CALL ISOLTE(POP(I,3),5,1,ICH1)
IF(ICH1 .EQ. 0) GO TO 2190
GO TO 2227
2224 LUMPSM=3*PIA
IF(LUMPSM .GT. 225) LUMPSM=225
TOTLMP=TOTLMP+LUMPSM
2190 CONTINUE
3476 CONTINUE
WRITE(9,1111) NN
1111 FORMAT(' ',6(I9))
DO 80 I=1,NN
80 WRITE(9,8) POP(I,1),POP(I,2),POP(I,3),I
8 FORMAT(' ',I10,3X,I10,3X,I10,6X,I9)
NUM(1,1)=WMALE(1)
NUM(1,2)=WFEM(1)-OMALE(101)
NUM(1,3)=BMALE(1)-WMALE(101)
NUM(1,4)=BFEM(1)-WFEM(101)
NUM(1,5)=OMALE(1)-BMALE(101)
NUM(1,6)=OFEM(1)-BFEM(101)
DO 1100 I=2,101
1100 NUM(I,1)=WMALE(I)-WMALE(I-1)
NUM(I,2)=WFEM(I)-WFEM(I-1)
NUM(I,3)=BMALE(I)-BMALE(I-1)
NUM(I,4)=BFEM(I)-BFEM(I-1)
NUM(I,5)=OMALE(I)-OMALE(I-1)
1100 NUM(I,6)=OFEM(I)-OFEM(I-1)
DO 1112 J=1,101
1112 WRITE(9,1111) (NUM(J,I),I=1,6)
STOP
SUBROUTINE CHILD(IA, ISR, NUMBER, ICHLD, ISRC, IX)
C NUMBER IS NUMBER OF CHILDREN
C ICHLD(K) IS AGE OF CHILD(K)
C ISRC(K) IS SEX AND RACE OF CHILD(K)
C TAKES CURRENT AGE, RACE AND SEX OF PARENT. GENERATES A RANDOM NUMBER
C AND SEES WHAT AGE AND SEX CHILD BELONGS TO HIS PARENT. IF THERE IS
C A FIRST CHILD, GENERATE A SECOND R. N. AND ADD IT TO THE FIRST TO SEE
C IF THERE IS A SECOND CHILD- ALSO SEES IF CHILD IS STILL LIVING
COMMON /AREA3/ PRWF, PRBF, PROF, PRWM, PRBM, PROM
DIMENSION PRWF(50), PRBF(50), PROF(50), PRWM(60), PRBM(60), PROM(60), ICTES
IHLD( 7), ISRC( 7), PRPAR(60)
IF ((ISR .EQ. 1) .OR. (ISR .EQ. 2)) IRACE =1
IF ((ISR .EQ. 3) .OR. (ISR .EQ. 4)) IRACE =2
IF ((ISR .EQ. 5) .OR. (ISR .EQ. 6)) IRACE =3
IF (ISR .EQ. 1) GO TO 5
IF (ISR .EQ. 2) GO TO 6
IF (ISR .EQ. 3) GO TO 7
IF (ISR .EQ. 4) GO TO 8
IF (ISR .EQ. 5) GO TO 9
DO 10 I=14,49
10 PRPAR(I)=PROF(I)
IEND=49
GO TO 11
5 DO 12 I=15,59
12 PRPAR(I)=PRWM(I)
IEND=59
GO TO 11
6 DO 13 I=14,49
13 PRPAR(I)=PRWF(I)
IEND=49
GO TO 11
7 DO 14 I=15,59
14 PRPAR(I)=PRBM(I)
   IEND=59
   GO TO 11
8   DO 15 I=14,49
15 PRPAR(I)=PRBF(I)
   IEND=49
   GO TO 11
9   DO 16 I=15,59
16 PRPAR(I)=PROM(I)
   IEND=59
11   DO 2 I=1,7
   ISRC(I)=0
2   ICHILD(I)=0
   N=IA
   IF (IA.GT. IEND) N=IEND
   NUMBER=0
   DO 3 J=16,N
      CALL RANDU(IX,IX,YFL)
      FERTRT=2.1
      PRPAR(J)=PRPAR(J)*FERTRT
      IF (YFL.LT. PRPAR(J)) GO TO 4
   GO TO 3
4   NUMBER=NUMBER+1
   ICHILD(NUMBER)=IA-J
   C SEE WHAT SEX CHILD IS
      CALL RANDU(IX,IX,YFL)
      IF (YFL.GT. 0.5219) ISRC(NUMBER)=IRACE*2
      IF (YFL.LE. 0.5219) ISRC(NUMBER)=IRACE*2-1
   C SEE IF CHILD IS LIVING
      IAGE = ICHILD(NUMBER)
      IF (IAGE.EQ. 0) GO TO 3
      CALL CHLIVE(IAGE,ISRC(NUMBER),IFLAG,IX)
IF (IFLAG .EQ. 0) GO TO 3
C CHILD IS NOT LIVING
ICHILD(NUMBER) = 0
NUMBER = NUMBER - 1
3 CONTINUE
RETURN
END

TES11280
TES11290
TES11300
TES11310
TES11320
TES11330
TES11340
SUBROUTINE ISOLTE(INUM, IL, IR, ID)
C ISOLATES POSITIONS IL TO IR IN INUM WHERE IL IS THE LEFT HAND POSITION
C COUNTING FROM THE RIGHT AND IR IS THE RIGHT HAND POSITION
K=INUM/10**(IR-1)
J=INUM/10**(IL)
J=J*10**(IL-IR+1)
ID=K-J
RETURN
END
SUBROUTINE MAR(IA, ISR, IMS, IX)
COMMON/AREA1/C, B, A
.DIMENSION A(90,3), B(90,3), C(90,3)
C GETS RANDOM NUMBER AND COMPARES IT WITH THE PROBABILITY THAT A PERSON
C AGE IA OF RACE AND SEX ISR IS MARRIED, DIVORCED, WIDOWED OR SINGLE-
C FOR MEN ONLY
CALL RANDU(IX, IX, YFL)
C MOVES ARRAY INDICES BACK
  IAGE=IA-14
  IF (ISR .EQ. 2) GO TO 1
  IF (ISR .EQ. 4) GO TO 2
  DO 4 I=1,3
    IF (YFL .LE. C(IAGE, I)) GO TO 11
  4 CONTINUE
  GO TO 11
  1 DO 6 I=1,3
    IF (YFL .LE. B(IAGE, I)) GO TO 11
  6 CONTINUE
  GO TO 11
  2 DO 7 I=1,3
    IF (YFL .LE. A(IAGE, I)) GO TO 11
  7 CONTINUE
  IMS=I-1
  IF (IMS .EQ. 0) IMS=4
RETURN
END
SUBROUTINE SINDIV(IAGE,ISR,IMS,IX)
COMMON /AREA2/F,G,H
DIMENSION PRS(88),F(88),G(88),H(88)
C TAKES AGE, SEX AND RACE OF WOMAN AND DETERMINES
C IF SHE IS SINGLE OR DIVORCED
CALL RANDU(IX,IX,YFL)
C MOVES ARRAY INDICES BACK
IA=IAGE-13
IF (ISR .EQ. 1) GO TO 1
IF (ISR .EQ. 3) GO TO 2
PRS(IA)=H(IA)
3 IF (YFL .LT. PRS(IA)) IMS=4
IF (YFL .GE. PRS(IA)) IMS=2
GO TO 4
1 PRS(IA)=F(IA)
GO TO 3
2 PRS(IA)=G(IA)
GO TO 3
4 RETURN
END
SUBROUTINE SPOUSE(IA,ISR,IB,ISRW,IX)
C GETS AGE SEX AND RACE OF PERSON TO BE MARRIED TO ENTERING ARGUMENT
C GENERATE A RANDOM NO. AND SEE WHAT AGE DIFFERENCE EXISTS
C BETWEEN HUSBAND AND WIFE
COMMON /AREA4/DIFAHW,IAG
DIMENSION DIFAHW(15),IAG(15)
IB=0
CALL RANDU(IX,IX,YFL)
IF (((ISR .EQ. 1) .OR. (ISR .EQ. 3)) .OR. (ISR .EQ. 5)) GO TO 1
C HAVE WOMAN
DO 2 I=1,14
IF (YFL .LE. DIFAHW(I)) GO TO 8
2 CONTINUE
8 IB=IA+IAG(I)
CALL RACE(ISR,ISRW,IX)
IF (IB .LT. 16) IB=16
IF (IB .GT. 100) IB=100
RETURN
C HAVE MAN
1 DO 4 I=1,14
IF (YFL .LE. DIFAHW(I)) GO TO 7
4 CONTINUE
7 IB=IA-IAG(I)
CALL RACE(ISR,ISRW,IX)
IF (IB .GT. 100) IB=100
IF (IB .LT. 15) IB=15
RETURN
END
SUBROUTINE RACE(ISR, ISRS, IX)
C TAKES SEX AND RACE OF PARTNER AND CALCULATES RACE AND SEX OF SPOUSE
CALL RANDU(IX, IX, YFL)
IF (ISR .EQ. 1) GO TO 1
IF (ISR .EQ. 2) GO TO 3
C NOW HAVE NON-WHITE
IF (((ISR .EQ. 3) .OR. (ISR .EQ. 5)) GO TO 2
C NOW HAVE WOMAN NON-WHITE
    ISRS=ISR-1
    IF (YFL .LT. 0.0411) ISRS=1
    RETURN
C NOW HAVE MALE NON-WHITE
2    ISRS=ISR+1
    IF (YFL .LT. 0.0411) ISRS=2
    RETURN
C NOW HAVE WHITE MALE
1    ISRS=2
    IF (YFL .LT. 0.0057) ISRS=4
    RETURN
C NOW HAVE WHITE FEMALE
3    ISRS=1
    IF (YFL .LT. 0.0057) ISRS=3
    RETURN
END
SUBROUTINE SCHOOL(IA, ISR, INOUT, IX)
COMMON/AREA5/BM, BF, WM, WF, DM, OF
C TAKES CHILDREN BETWEEN 18 AND 22 AND SEE IF THEY ARE IN SCHOOL
C RETURNS INOUT=0 IF IN OF 1 IF OUT
C RESET ARRAY INDICES
IAC=IA-17
CALL RANDU(IX, IX, YFL)
IF (ISR .EQ. 1) PRSCL(IAC)=WM(IAC)
IF (ISR .EQ. 2) PRSCL(IAC)=WF(IAC)
IF (ISR .EQ. 3) PRSCL(IAC)=BM(IAC)
IF (ISR .EQ. 4) PRSCL(IAC)=BF(IAC)
IF (ISR .EQ. 5) PRSCL(IAC)=OM(IAC)
IF (ISR .EQ. 6) PRSCL(IAC)=OF(IAC)
CONTINUE
IF (YFL .LT. PRSCL(IAC)) GO TO 2
INOUT =1
GO TO 3
2 INOUT=0
GO TO 3
3 RETURN
END
SUBROUTINE CHLIVE(IAGE, ISRC, IFLAG, IX)
C TAKES AGE, SEX AND RACE OF CHILD BORN TO PARENTS IAGE YEARS AGO- SEES TES12710
C IF CHILD IS ALIVE TODAY
COMMON/AREA6/, DWM, DWF, DBM, DBF, DOM, DOF
DIMENSION DWF(101), DWM(101), DBM(101), DBF(101), DOM(101), DOF(101), DRTES12740
1(I101)
   IF (ISRC .EQ. 1) GO TO 5
   IF (ISRC .EQ. 2) GO TO 6
   IF (ISRC .EQ. 3) GO TO 7
   IF (ISRC .EQ. 4) GO TO 8
   IF (ISRC .EQ. 5) GO TO 9
   DO 10 I=1, IAGE
10   DR(I)=DOF(I)/(10**3.)
      GO TO 11
   5   DO 12 I=1, IAGE
12   DR(I)=DWF(I)/(10**3.)
      GO TO 11
   6   DO 13 I=1, IAGE
13   DR(I)=DBF(I)/(10**3.)
      GO TO 11
   7   DO 14 I=1, IAGE
14   DR(I)=DBM(I)/(10**3.)
      GO TO 11
   8   DO 15 I=1, IAGE
15   DR(I)=DBF(I)/(10**3.)
      GO TO 11
   9   DO 16 I=1, IAGE
16   DR(I)=DOM(I)/(10**3.)
C SEE IF CHILD HAS DIED
11   DO 2 I=1, IAGE
      CALL RANDU(IX, IX, YFL)
      IF (YFL .LE. DR(I)) GO TO 3
CONTINUE
IFLAG=0
GO TO 4

IFLAG=1
RETURN
END

TES13020
TES13030
TES13040
TES13050
TES13060
TES13070
SUBROUTINE DISABL(IAGE,ISRC,IDIS,IX)
C CHECKS TO SEE IF A CHILD IS DEPENDENT UPON HIS PARENT BECAUSE HE WAS DISABLED BEFORE HE WAS 22. ONLY CHECKS THOSE WHO WERE OVER 18 AND NOT IN SCHOOL OR OVER 22
C GENERATE 22 RANDOM NUMBERS AND SEE IF ANYONE IS LESS THAN 0.00642 DO 1 I=1,22
   IF (IAGE .LT. I) GO TO 2
   CALL RANDU(IY,IX,YFL)
   IF (YFL .LT. 0.00642) GO TO 3
   IDIS=0
   CONTINUE
   GO TO 2
3 IDIS=1
2 RETURN
END
SUBROUTINE RANDU(IX,IY,YFL)
   IY=IX*65539
   IF(IY)50,60,60
50   IY=IY+2147483647+1
60   YFL=IY
   YFL=YFL*.4656613E-9
RETURN
END
SUBROUTINE SALARY(ISR, IAMT, ISEX, IX)
COMMON /AREA8/IWAGE, SAL
DIMENSION IWAGE(15), SAL(15, 2)
CALL RANDU(I X, IX, YFL)
DO 1 I = 1, 15
1 IF (YFL .LT. SAL(I, ISEX)) GO TO 2
   CONTINUE
2 IAMT = IWAGE(I)
RETURN
END
SUBROUTINE PIAMFB(IAMW,PIA,MFB)
REAL MINMFB,MFB
SIAMW=IAMW
IF (IAMW .LT. 50) GO TO 2191
IF(IAMW-110) 2192,2192,2193
2193
IAMW=IAMW-110
PIA=1.1989*110.
GO TO 2194
2192
PIA=1.1989*IAMW
GO TO 2195
2194
IF(IAMW-290) 2196,2196,2197
2197
IAMW=IAMW-290
PIA=PIA+.4361*290.
GO TO 2198
2196
PIA=PIA+.4361*IAMW
GO TO 2198
2198
IF(IAMW-150) 2200,2200,2199
2199
IAMW=IAMW-150
PIA=PIA+.4075*150.
GO TO 2201
2200
PIA=PIA+.4075*IAMW
GO TO 2195
2201
IF(IAMW-100) 2202,2202,2203
2203
IAMW=IAMW-100
PIA=PIA+.479*100
GO TO 2204
2202
PIA=PIA+.479*IAMW
GO TO 2195
2204
IF(IAMW-100) 2205,2205,2206
2206
IAMW=IAMW-100
PIA=PIA+.2664*100
GO TO 2207
2205 PIA=PIA+.2664*IAMW
2206 GO TO 2195
2207 IF(IAMW-250) 2208,2208,2209
2209 IAMW=IAMW-250
2210 PIA=PIA+.222*250.
2211 GO TO 2210
2212 IF(IAMW-100) 2211,2211,2212
2213 IAMW=IAMW-100
2214 PIA=PIA+.2*100
2215 GO TO 2195
2195 IF(PIA  .LT. 93.80) PIA=93.80
2196 IAMW=SIAMW
2197 IF(IAMW  .LT. 628) GO TO 2213
2198 MFB=1.75*PIA
2213 GO TO 2398
2214 IF(IAMW-436) 2215,2215,2216
2215 MFB=1.172*436
2216 IAMW=IAMW-436
2217 GO TO 2217
2218 MFB=1.172*IAMW
2219 GO TO 2222
2217 IF(IAMW-191) 2218,2218,2219
2218 MFB=MFB+.586*191
2219 GO TO 2222
2218 MFB=MFB+.586*IAMW
2222 MINMFB=1.5*PIA
2223 IF(MFB  .LT. MINMFB) MFB=MINMFB
2224 GO TO 2398
2191 PIA=0
MFB=0
2398 RETURN
END
INTEGER POP(1024,3), NOSIB(10), ISTORE(1024), OMS, OMS1
REAL MINMB, MFB
DIMENSION DEATH(101,6),
IDIFAHW(15), IAG(15), SCWM(5), SCWF(5), SCBM(5), SCBF(5),
2SCOF(5), SCOM(5), PRMWD(101,2), PRMDIV(101,2), NUM(101,6), PRMAR(101,2)
3, NOBIR(6), PRWMOT(50), PRBMOT(50), PROMOT(50), IDEATH(200), BRTHRT(3)
4, 50), PRRET(9,2), PREMPL(2), SAL(15,2), IMAGE(15), IBASE(50), RATE(50), PFIN(00120)
5RDIS(15), IACHLD(10), IORDER(10)
COMMON/AREA5/PRMWID, PRMDIV
COMMON/AREA9/IBASE, RATE
COMMON/AREA1/DIFAHW, IAG
COMMON/AREA2/SCBM, SCBF, SCWF, SCWM, SCOM, SCOF
COMMON/AREA3/PRWMOT, PRBMOT, PROMOT, BRTHRT
COMMON/AREA8/IMAGE, SAL
IX=54321
FACTOR=1.2
TOTLMP=0.
PRRECV=1.-(1.-0.0321)**(1./12.)
ITOTP=203211926
MR=1
PRDIV=1.-(1.-0.035)**(1./12.)
PRCOV=72100./80600.
DO 1085 I=1,1024
DO 1085 J=1,3
1085 POP(I,J)=0
READ(8,1080) NN
RATIO=ITOTP/NN
1080 FORMAT(I10)
DO 1202 I=1,NN,2
1202 READ(8,1082) POP(I,1), POP(I,2), POP(I,3), POP(I+1,1), POP(I+1,2), POP(I+1,3)
11+1,3)
1082 FORMAT(I1X,I10,3X,I10,3X,I10,3X,I10,3X,I10,3X,I10)
1081   FORMAT(1X,I9,19,I9,I9,I9,19tI9) FIN00360
     DO 1200 I=1,101
1200   READ (8,1081) NUM(I,1),NUM(I,2),NUM(I,3),NUM(I,4),NUM(I,5),NUM(I,6) FIN00400
     1     IF(NN .NE.1024) GO TO 222
     READ(8,228) M,IX FIN00410
228   FORMAT(1X,I4,1X,I9) FIN00420
     READ(8,227) (ISTORE(I),I=1,M) FIN00430
227   FORMAT(1X,I4) FIN00440
222   READ(9,5656) (RATE(I),I=1,15) FIN00450
     READ(9,5657) (IBASE(I),I=1,15) FIN00460
     READ(9,5658) (BRTHRT(1,I),I=1,15) FIN00470
     BRTHRT(1,13)=2.0 FIN00480
     READ(9,5658) (BRTHRT(2,I),I=1,15) FIN00490
     BRTHRT(2,13)=2.4 FIN00500
     READ(9,5658) (BRTHRT(3,I),I=1,15) FIN00510
     BRTHRT(3,13)=2.4 FIN00520
     READ(9,5659) (PRDIS(I),I=1,15) FIN00530
     PRDIS(9)=.01018 FIN00540
     PRDIS(10)=.01221 FIN00550
     PRDIS(11)=.014652 FIN00560
     PRDIS(12)=.0175824 FIN00570
     DO 997 I=1,15 FIN00580
997   PRDIS(I)=1.- (1.-PRDIS(I))**(1./12.) FIN00590
     FIN00600
897   PRDIS(I)=1.- (1.-PRDIS(I))**(1./12.) FIN00610
     FIN00620
5656   FORMAT(15(F4.4)) FIN00630
5657   FORMAT(15(F5.5)) FIN00640
5658   FORMAT(15(F5.3)) FIN00650
5659   FORMAT(15(F5.5)) FIN00660
     READ(9,5676) (PRRET(I,1),I=1,9) FIN00670
     FIN00680
     FIN00690
READ(9,5676) (PRRET(I,2),I=1,9)
READ(9,5677) (PREMPL(I),I=1,2)
READ(9,5678) (SAL(I,1),I=1,15)
READ(9,5678) (SAL(I,2),I=1,15)
READ(9,5679) (IIMAGE(I),I=1,15)

5679 FORMAT(15(I4))
5677 FORMAT(2(F5.4))
5678 FORMAT(15(F4.4))
5676 FORMAT(9(F4.2))
READ ( 9,5000) (DEATH(I,1),I=1,101)
READ ( 9,5000) (DEATH(I,2),I=1,101)
READ ( 9,5000) (DEATH(I,3),I=1,101)
READ ( 9,5000) (DEATH(I,4),I=1,101)
READ(9,5000) (DEATH(I,5),I=1,101)
READ(9,5000) (DEATH(I,6),I=1,101)

5000 FORMAT(10(F5.2))
DO 727 I=1,101
DO 727 J=1,6
DEATH(I,J)=DEATH(I,J)/1000.

727 DEATH (I,J)=1.* (1. - DEATH(I,J))**(1./12.)
READ(9,5001) (PRWMOT(J),J=14,49)
READ(9,5001) (PRBMOT(J),J=14,49)
READ(9,5001) (PROMOT(J),J=14,49)
DO 1086 I=14,49

1086 PROMOT(I)=1.* (1. - PROMOT(I))**(1./12.)
PRWMOT(I)=1.* (1. - PRWMOT(I))**(1./12.)
PRBMOT(I)=1.* (1. - PRBMOT(I))**(1./12.)

5001 FORMAT(10(F6.5))
5003 FORMAT(15(F4.3))
5004 FORMAT(15(I3))
5005 FORMAT(5(F3.3))
5006 FORMAT(10(F5.4))
READ(9,5003) (DIFAHW(J),J=1,15)
READ(9,5004) (IAG(J),J=1,15)
READ(9,5005) (SCWM(J),J=1,5)
READ(9,5005) (SCWF(J),J=1,5)
READ(9,5005) (SCBM(J),J=1,5)
READ(9,5005) (SCBF(J),J=1,5)
READ(9,5005) (SCOF(J),J=1,5)
READ(9,5005) (SCOM(J),J=1,5)
DO 303 I=1,5
   SCWM(I)=1.-((1.-SCWM(I))**(1./12.))
   SCWF(I)=1.-((1.-SCWF(I))**(1./12.))
   SCBM(I)=1.-((1.-SCBM(I))**(1./12.))
   SCBF(I)=1.-((1.-SCBF(I))**(1./12.))
   SCOM(I)=1.-((1.-SCOM(I))**(1./12.))
   SCOF(I)=1.-((1.-SCOF(I))**(1./12.))
303              CONTINUE
DO 1203 I=1,2
READ(9,5006) (PRMID(J,I),J=15,101)
READ(9,5006) (PRMDIV(J,I),J=15,101)
1203              READ(9,5006) (PRMAR(J,I),J=15,101)
DO 1087 I=15,101
   DO 1087 J=1,2
      PRMID(I,J)=1.-(1.-PRMID(I,J))**(1./12.)
      PRMDIV(I,J)=1.-(1.-PRMDIV(I,J))**(1./12.)
1087              PRMAR(I,J)=1.-(1.-PRMAR(I,J))**(1./12.)
   IF(NN .EQ. 1024) GO TO 777
   NN1=NN+1
   DO 300 I=NN1,1024
      J=I-NN
300              ISTORE(J)=I
   M=J
777              DO 977 ISRC=1,6
NOBIR(ISRC)=0
DO 9494 IYEAR=15,15
DO 9393 IMONTH=1,12
DO 1 I=1,1024
IF(POP(I,1).EQ.0) GO TO 1
CALL ISOLTE(POP(I,1),5,5,IMS)
CALL ISOLTE(POP(I,1),3,1,IAGE)
CALL ISOLTE(POP(I,1),4,4,ISR)
IA=IAGE+1
C NUM CONTAINS THE CURRENT NUMBER IN EACH AGE GROUP AND SEX AND RACE
CALL RANDU(IX,IX,YFL)
IF(YFL.GE.DEATH(IA,ISR)) GO TO 204
NUM(IA,ISR)=NUM(IA,ISR)-1
GO TO 200
204 IF(IMS.EQ.4) GO TO 30
IF((IMS.EQ.2) .OR. (IMS.EQ.3) .OR. (IMS.EQ.5)) GO TO 40
IF(IMS.EQ.0) GO TO 50
IF((ISR.EQ.2) .OR. (ISR.EQ.4) .OR. (ISR.EQ.6)) GO TO 20
IF(IAGE.GE.62) GO TO 60
GO TO 70
200 ISTORE(M)=I
IDEATH(MR)=I
MR=MR+1
M=M+1
C HAVE A DEATH
IF(IMS.EQ.4) GO TO 2190
IF(IMS.EQ.2) GO TO 7
IF((IMS.EQ.3) .OR. (IMS.EQ.5)) GO TO 8
IF(IMS.EQ.0) GO TO 9
C HAVE MARRIED PERSON -FIND SPOUSE-MAKE WIDOW(ER)
CALL ISOLTE(POP(I,2),5,1,ISP)
POP(ISP,1)=POP(ISP,1)+2*10**4
POP(ISP, 2) = POP(ISP, 2) - I + 99999
C FIND CHILD IF ANY
CALL ISOLTE(POP(1, 3), 5, 1, ICH)
IF(ICH .EQ. 0) GO TO 2190
C SEE WHICH PARENT DIED
IJ = 4
IF((ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) IJ = 6
C PUT PROPER CODING IN FOR CHILD
10 CALL ISOLTE(POP(ICH, 2), 9, 7, IREM)
POP(ICH, 2) = IREM*10**6 + IJ*10**5 + ISP
C SEE IF HE HAS ANY YOUNGER SIBLINGS
CALL ISOLTE(POP(ICH, 3), 5, 1, ICH)
IF(ICH .EQ. 0) GO TO 5674
GO TO 10
C NOW HAVE WIDOW(ER) WHO DIED- MAKE CHILDREN ORPHANS
8 CALL ISOLTE(POP(1, 3), 5, 1, ICH)
IF(ICH .EQ. 0) GO TO 5674
11 CALL ISOLTE(POP(ICH, 2), 9, 7, IREM)
POP(ICH, 2) = IREM*10**6 + 9*10**5
CALL ISOLTE(POP(ICH, 1), 7, 6, ISIB)
POP(ICH, 1) = POP(ICH, 1) - ISIB*10**5
CALL ISOLTE(POP(ICH, 3), 5, 1, ICH1)
IF(ICH1 .EQ. 0) GO TO 5674
POP(ICH, 3) = POP(ICH, 3) - ICH1
ICH = ICH1
GO TO 11
C NOW HAVE CHILD WHO DIED- SEE IF HAS ANY OLDER SIBLINGS
9 CALL ISOLTE(POP(1, 1), 7, 7, NOOS)
IF(NOOS .EQ. 0) GO TO 12
C HAS OLDER SIBLING
NOOS = 1
C FIND OLDEST SIBLING THROUGH PARENT
CALL ISOLTE(POP(1,2),5,1,IPAR)
IF(IPAR .EQ. 0) GO TO 2190
CALL ISOLTE(POP(IPAR,3),5,1,ICH)
C CHANGE HIS NUMBER OF YOUNGER SIBLINGS
13 POP(ICH,1)=POP(ICH,1)-1*10**5
IF(NOS .EQ. NOOS) GO TO 14
CALL ISOLTE(POP(ICH,3),5,1,ICH)
NOS=NOS+1
GO TO 13
C HAVE NEXT OLDER CHILD IN ICH
14 CALL ISOLTE(POP(I,3),5,1,NYS)
C STORE NYS IN PROPER CHILD ICH
POP(ICH,3)=POP(ICH,3)-1+NYS
IF(NYS .EQ. 0) GO TO 2190
C NOW IN YOUNGER SIBLINGS MUST JUST CHANGE NOOS
15 POP(NYS,1)=POP(NYS,1)-1*10**6
CALL ISOLTE(POP(NYS,3),5,1,NYS)
IF(NYS .EQ. 0) GO TO 2190
GO TO 15
C HAVE CHILD WHO IS OLDEST- SEE IS HAS YOUNGER SIBLINGS
12 CALL ISOLTE(POP(I,3),5,1,NYS)
C CHANGE PARENTS OLDEST ELIGIBLE CHILD TO NYS
CALL ISOLTE(POP(1,2),5,1,IPAR)
IF(IPAR .EQ. 0) GO TO 2190
POP(IPAR,3)=POP(IPAR,3)-I+NYS
C FIND OTHER PARENT
CALL ISOLTE(POP(IPAR,2),5,1,ISP)
IF((ISP .EQ. 99999) .OR. (ISP .EQ. 0)) GO TO 16
POP(ISP,3)=POP(ISP,3)-I+NYS
16 IF(NYS .NE. 0) GO TO 15
C CHANGE YOUNGER SIBLINGS APPROPRIATELY
GO TO 2190
C HAVE DIVORCED PERSON IN I
7    CALL ISOLTE(POP(1,2),5,1,ISP)
     LJ=8
     CALL ISOLTE(POP(ISP,2),9,9,IMAN)
     IF(IMAN .NE. 0) GO TO 201
     CALL ISOLTE(POP(ISP,2),8,8,IMAN)
     LJ=7
201   POP(ISP,2)=POP(ISP,2)-1+99999-8*10**5+2*10**5
     POP(ISP,1)=POP(ISP,1)+1*10**4
     J=4
     K=I
     IF((ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) K=ISP
     CALL ISOLTE(POP(ISP,3),5,1,ICH)
17    IF((ICH .EQ. 0) GO TO 5674
     POP(ICH,2)=POP(ICH,2)-5*10**5-K*10**5+ISP
     CALL ISOLTE(POP(ICH,3),5,1,ICH)
     GO TO 17
5674  CALL ISOLTE(POP(1,1),4,4,ISRS)
C FIND SEX AND SALARY OF DECEASED SPOUSE
     ISEX=1
     IL=9
     IF((ISRS .EQ. 1) .OR. (ISRS .EQ. 3) .OR. (ISRS .EQ. 5)) ISEX =2
     IF((ISEX .EQ. 2) ) ISR=ISRS+1
     IF((ISEX .EQ. 1) ) ISR=ISRS-1
     IF((ISEX .EQ. 2) ) IL=8
     CALL ISOLTE(POP(1,1),IL,IL,IMOW)
     IF((IMOW .EQ. 3) .OR. (IMOW .EQ. 9)) GO TO 2190
     CALL ISOLTE(POP(1,3),9,6,IAMW)
     ISPUS=1
     CALL PIAMFB(IAMW,PIA,MFB,FACTOR)
     IF((ISPUS .EQ. 0) .OR. (ISPUS .EQ. 99999)) GO TO 2234
FIN02300
FIN02310
FIN02320
FIN02330
FIN02340
FIN02350
FIN02360
FIN02370
FIN02380
FIN02390
FIN02400
FIN02410
FIN02420
FIN02430
FIN02440
FIN02450
FIN02460
FIN02470
FIN02480
FIN02490
FIN02500
FIN02510
FIN02520
FIN02530
FIN02540
FIN02550
FIN02560
FIN02570
FIN02580
FIN02590
FIN02600
FIN02610
C FIND SURVIVORS AND THEIR BENEFITS
C SEE IF SPOUSE IS OVER 65
    CALL ISOLTE(POP(ISPOUS,1),3,1,IASP)
    IBEN=0
    IF(IASP .LT. 65) GO TO 2223
    IBEN=PIA
C SEE IF HE HAS ANY CHILDREN
2223    CALL ISOLTE(POP(ISPOUS,3),5,1,ICH)
    IF(ICH .EQ. 0) GO TO 2224
    IF(IASP .LE. 62) IBEN=.75*PIA
C PUT IN BENEFIT FOR SPOUSE
    CALL ISOLTE(POP(ISPOUS,2),9,7,IBENO)
    IBENER=IBENO
    IF(IBENO .LT. IBEN) IBENER=IBEN
    POP(ISPOUS,2)=POP(ISPOUS,2)-IBENO*10**6+IBENER*10**6
    MFB=MFB-IBEN
C SEE HOW MANY CHILDREN THERE ARE
2227    IBEN=.75*PIA
    IF(MFB-IBEN)2225,2225,2226
2225    IBEN=MFB
    CALL ISOLTE(POP(ICH,2),9,7,IBENO)
    IBENER=IBENO
    IF(IBENO .LT. IBEN) IBENER=IBEN
    POP(ICH,2)=POP(ICH,2)-IBENO*10**6+IBENER*10**6
    GO TO 2224
2226    MFB=MFB-IBEN
    CALL ISOLTE(POP(ICH,2),9,7,IBENO)
    IBENER=IBENO
    IF(IBENO .LT. IBEN) IBENER=IBEN
    POP(ICH,2)=POP(ICH,2)-IBENO*10**6+IBENER*10**6
    CALL ISOLTE(POP(ICH,3),5,1,ICH)
    IF(ICH .EQ. 0) GO TO 2224
GO TO 2227
2234 CALL ISOLTE(Pop(I,3),5,1,ICH)
IF(ICH .EQ. 0) GO TO 2190
GO TO 2227
2224 LUMPSM=3*PIA
IF(LUMPSM .GT. 255) LUMPSM=255
TOTLMP=TOTLMP+LUMPSM
2190 CONTINUE
POP(I,1)=0
POP(I,2)=0
POP(I,3)=0
GO TO 1
C CHECK TO SEE IF MARRIED WOMAN DIVORCES, OVER 62 AND RETIRES OF HAS C CHILD
20 CALL RANDU(Ix,IX,YFL)
IF(YFL .GT. PRDIV) GO TO 21
C HAVE DIVORCE
CALL ISOLTE(Pop(I,2),5,1,ISP)
POP(I,2)=POP(I,2)+6*10**5
POP(ISP,2)=POP(ISP,2)+6*10**5
POP(I,1)=POP(I,1)+1*10**4
POP(ISP,1)=POP(ISP,1)+1*10**4
C SEE IF THEY HAD ANY CHILDREN
CALL ISOLTE(Pop(I,3),5,1,ICH)
23 IF((ICH .EQ. 0) .AND. (IAGE .GE. 62)) GO TO 60
IF(ICH .EQ. 0) GO TO 70
IM=I
IF=ISP
22 POP(ICH,2)=POP(ICH,2)+2*10**5-IF+IM
CALL ISOLTE(Pop(ICH,3),5,1,ICH)
IF((ICH .EQ. 0) .AND. (IAGE .GE. 62)) GO TO 60
IF(ICH .EQ. 0) GO TO 70
GO TO 22
C HAVE MARRIED COUPLE- DO THEY HAVE CHILD
21 IF(IAGE .GE. 50) GO TO 70
    CALL BIRTH(IAGE,ISR,IBRTH,ISRC,IYEAR,IX)
    CALL ISOLTE(POP(I,2),5,1,ISP)
    IF(IBRTH .EQ. 0) GO TO 70
    M=M-1
C HAVE BIRTH -FIND VACANT NUMBER
C SUM NUMBER OF BIRTHS
    NOBIR(ISRC)=NOBIR(ISRC)+1
C FIND CURRENT FAMILY MAKE-UP
    CALL ISOLTE(POP(I,3),5,1,ICH)
    NOOS=0
    IF(ICH .EQ. 0) GO TO 25
    CALL ISOLTE(POP(ICH,1),6,6,NOYS)
    NOOS=NOYS+1
    POP(ICH,1)=POP(ICH,1)+1*10**5
    CALL ISOLTE(POP(ICH,3),5,1,ICH1)
    IF(ICH1 .NE. 0) GO TO 27
    POP(ICH,3)=POP(ICH,3)+ISTORE(M)
    GO TO 28
26 ICH=ICH1
    GO TO 26
C PARENTS DID NOT PREVIOUSLY HAVE CHILD-STORE OLDEST CHILD IN PARENTS
25 POP(I,3)=POP(I,3)+ISTORE(M)
    POP(ISP,3)=POP(ISP,3)+ISTORE(M)
28 INEW=ISTORE(M)
    POP(INEW,2)=3*10**5+ISP
C SEE IF NEW CHILD HAS BENEFITS AND STATUS
    CALL ISOLTE(POP(ISP,1),9,9,IMAN)
    CALL ISOLTE(POP(I,1),8,8,IWOM)
C PUT IN PARENTS STATUS
POP(INEW,1)=IMAN*10**8+IWOM*10**7+NOOS*10**6+ISRC*10**3
POP(INEW,3)=0
GO TO 70
C CHECK SINGLE PERSON
30 CALL RANDU(IX,IX,YFL)
   IS=1
   IF((ISR .EQ. 2) .OR. (ISR .EQ. 4) .OR. (ISR .EQ. 6)) IS=2
   IF(YFL .GE. PRMAR(IA,IS)) GO TO 1456
   CALL SPOUSE (IA,ISR,IANS,ISRS,IX)
   GO TO 132
1456 IF(IAGE .GE. 62) GO TO 60
   GO TO 70
C CHECK DIVORCED,WIDOWED OR PERSON WHOSE SPOUSE HAS REMARRIED
C SEE IF THIS PERSON REMARRIES
40 CALL REMAR(IAGE,ISR,IMAR,IMS,IANS,ISRS,IX)
   IF((IMAR .EQ. 0) .AND. (IAGE .GE. 62)) GO TO 60
   IF(IMAR .EQ. 0) GO TO 70
C FIND SPOUSE FOR PERSON WHO IS MARRYING
132 INCR=-1
   SIAGE=IANS
   IMSR=ISRS*10**4+IANS
44 ISPNEW=0
   DO 42 JJ=1,1024
      IF(POP(JJ,1) .EQ. 0) GO TO 42
      CALL ISOLTE(POP(JJ,1),4,1,MSR)
      IF(IMASR .NE. MASR) GO TO 42
      CALL ISOLTE(POP(JJ,1),5,5,IMSS)
      IF(IMSS .EQ. 1) GO TO 42
      ISPNEW =JJ
42 CONTINUE
   IF(ISPNEW .EQ. 0) GO TO 3879
   IFLAG=0
IHOLD=I
IF (IMS .EQ. 0) GO TO 125
3876 IFLAG=1
IHOLD=JJ
IF (IMSS .EQ. 0) GO TO 125
3877 GO TO 48
3879 IMASR=IMASR+INCR
IANS=IANS+INCR
IF ((IANS .EQ. 101) .AND. (IAGE .GE. 62)) GO TO 60
IF (IANS .EQ. 101) GO TO 70
IF (IANS .GT. 15) GO TO 44
IF (INCR .EQ. 1) GO TO 44
INCR=1
IANS=SAGE + INCR
GO TO 44
48 CALL ISOLTE (POP(I,2),6,6,1D)
CALL ISOLTE (POP(ISPNEW,2),6,6,1DNEW)
GO TO 90
50 IF (IAGE .LT. 15) GO TO 70
CALL RANDU (IX,IX,YFL)
IS=1
IF ((ISR .EQ. 2) .OR. (ISR .EQ. 4) .OR. (ISR .EQ. 6)) IS=2
IF (YFL .GT. PRMAR(IA,IS)) GO TO 140
IFLAG=2
IHOLD=I
CALL SPOUSE (IA,ISR,IANS,ISRS,IX)
ISPNEW=0
C HAVE CHILD MARRYING
125 CALL ISOLTE (POP(IHOLD,3),5,1,NYS)
C FIND PARENTS AND OLDER AND YOUNGER SIBLINGS
CALL ISOLTE (POP(IHOLD,2),5,1,IPAR)
INYS=NYS
IF(IPAR .EQ. 0) GO TO 3005
CALL ISOLTE(POP(IPAR,3),5,1,IOC)
CALL ISOLTE(POP(IPAR,2),5,1,ISP)
CALL ISOLTE(POP(IHOLD,1),7,7,NOOS)
IF(IOC .EQ. IHOLD) GO TO 126
C TAKE ONE YOUNGER SIBLING OFF ALL OLDER SIBLINGS
IOLD=0
DO 129 JK=1,NOOS
POP(IOC,1)=POP(IOC,1)-1*10**5
NOSIB(JK)=IOC
CALL ISOLTE(POP(IOC,3),5,1,IOC)
129 CONTINUE
GO TO 128
C CHILD MARRYING IS OLDEST-REPLACE IN PARENTS
126 IOLD=1
POP(IPAR,3)=POP(IPAR,3)-IHOLD+NYS
IF((ISP .EQ. 99999) .OR. (ISP .EQ. 0)) GO TO 128
POP(ISP,3)=POP(ISP,3)-IHOLD+NYS
IF(NYS .EQ. 0) GO TO 130
C SUBTRACT 1 OLDER SIBLING OFF OF EACH YOUNGER SIBLING
128 IF(NYS .EQ. 0) GO TO 131
POP(NYS,1)=POP(NYS,1)-1*10**6
CALL ISOLTE(POP(NYS,3),5,1,NYS)
GO TO 128
C LINK SIBLINGS AROUND CHILD WHO MARRIED
C NEXT OLDER SIBLING=NOSIB(NOOS)
C NEXT YOUNGER SIBLING=NYS
131 IF(IOLD .EQ. 1) GO TO 130
POP(NOSIB(NOOS),3)=POP(NOSIB(NOOS),3)-1+INYS
C TAKE STATUS OF PARENTS OFF AND NEXT YOUNGER SIBLING OFF ONE
C WHO MARRIES
130 POP(IHOLD,3)=POP(IHOLD,3)-INYS
CALL ISOLTE (POP (I, 1), 4, 1, IREM1)
POP (I, 1) = IREM1
POP (I, 2) = 0
C FIND HIS SALARY AND HIS STATUS
ISEX = 1
N = 8
IF (ISR .EQ. 2) OR (ISR .EQ. 4) OR (ISR .EQ. 6) ISEX = 2
IF (ISEX .EQ. 2) N = 7
CALL RANDU (IX, IX, YFL)
IF (YFL .LT. PREMPL (ISEX)) GO TO 802
IN = 9
POP (I, 1) = POP (I, 1) + IN * 10 ** N
GO TO 803
802 CALL SALARY (ISR, IAMT, ISEX, IX)
CALL ISOLTE (POP (I, 3), 5, 1, IZ)
POP (I, 3) = IZ + IAMT * 10 ** 5
N = 7
IF (ISEX .EQ. 1) N = 8
IDIS = 0
CALL RANDU (IX, IX, YFL)
IF (YFL .LT. PRDIS (IYEAR)) IDIS = 1
CALL ISOLTE (POP (I, 2), 6, 6, IND)
IF (IND .EQ. 7) IDIS = 1
IRET = 0
IF (IAGE .LT. 62) GO TO 807
CALL RANDU (IX, IX, YFL)
IA = IAGE - 61
IF (IA .GT. 9) IA = 9
IF (YFL .LT. PRRET (IA, ISEX)) IRET = 1
IF ((IDIS .EQ. 0) AND (IRET .EQ. 0)) IN = 1
IF ((IDIS .EQ. 1) AND (IRET .EQ. 1)) IN = 2
IF ((IDIS .EQ. 1) AND (IRET .EQ. 0)) IN = 3
IF((IDIS .EQ. 0) .AND. (IRET .EQ. 1)) IN=4
CALL RANDU(IX,IX,YFL)
IF(YFL .GT. PRCOV)IN=8
POP(I,1)=POP(I,1)+IN*10**N
803 CONTINUE
IF(IFLAG .EQ. 0) GO TO 3876
IF(IFLAG .EQ. 1) GO TO 3877
IF(ISPNEW .EQ. 0) GO TO 132
IF(ISPNEW .NE. 99999) GO TO 140
POP(IHOLD,1)=POP(IHOLD,1)+4*10**4
POP(IHOLD,2)=1*10**5
GO TO 70
C CHECK TO SEE IF CHILD BECOMES INDEPENDENT
140 IF(IAGE .LE. 18) GO TO 70
CALL ISOLTE(POP(I,2),6,6,IDT)
IF(IDT .EQ. 7) GO TO 70
IF(IAGE .GT. 22) GO TO 972
CALL SCHOOL(IAGE,ISP,INOUT,IX)
IF(INOUT .EQ. 0) GO TO 70
C HAVE CHILD NOT IN SCHOOL
CALL RANDU(IX,IX,YFL)
IF(YFL .LT. PRDIS(IYEAR)) GO TO 1
C NOW HAVE CHILD INDEPENDENT OF PARENTS
C MAKE HIM SINGLE - FIND HIS SALARY AND STATUS
972 ISPNEW=99999
IFLAG=3
IHOLD=1
GO TO 125
C AFTER CALL MARRY OR REMAR AND HAVE FOUND SPOUSE GO TO 90
C HAVE PERSON I MARRIED TO ISPNEW - PERSON I'S MARITAL STATUS
C IS IN IMS AND PERSON ISPNEW IS IN IMSS - SIMILARLY THEIR SEX AND
C RACE CAN BE FOUND IN ISR AND ISRS. ID IS WORD 2 POSITION 6 OF I
C AND IDNEW IS WORD 2 POSITION 6 OF ISPNEW
90 CALL ISOLTE(P0P(1,3),5,1,ICH)
   CALL ISOLTE(P0P(ISPNEW,3),5,1,ICH1)
   IF((ICH .EQ. 0) .AND. (ICH1 .EQ. 0)) GO TO 91
   IF((ICH .NE. 0) .AND. (ICH1 .NE. 0)) GO TO 92
C ONE PARTNER HAS CHILDREN
C IF MAN IS DIVORCED -GIVE THEM TO EX-WIFE
C OTHERWISE ASSIGN CHILDREN TO BOTH NEW PARTNERS AND OLD PARTNERS GET NON
   IF(ICH .EQ. 0) GO TO 93
C IMPLIES PERSON I HAS CHILDREN
   IF (IMS .NE. 2) GO TO 156
   IF (((ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) GO TO 94
C IMPLIES PERSON WITH CHILDREN IS NOT DIVORCED MAN
C FIND OLD SPOUSES AND DELETE CHILDREN FROM HIM OR HER
156 CALL ISOLTE(P0P(ISPNEW,2),5,1,ISPOL)
   CALL ISOLTE(P0P(1,2),5,1,ISPOLD)
   IF((ISPOLD .EQ. 99999) .OR. (ISPOLD .EQ. 0)) GO TO 95
   POP(ISPOLD,2)=POP(ISPOL,2)-I-ID*10**5+1*10**5
   POP(ISPOLD,3)=POP(ISPOL,3)-ICH
   CALL ISOLTE(P0P(ISPOLD,1),5,5,OMS)
   IF((ISPOL .EQ. 99999) .OR. (ISPOL .EQ. 0)) GO TO 108
95 POP(ISPOL,2)=POP(ISPOL,2)-ISPNEW+1*10**5-10**5-IDNEW*10**5
   CALL ISOLTE(P0P(ISPOL,1),5,5,OMS1)
C IF HAVE REMARRIAGE MUST TAKE STATUS OF EX-SPOUSE OFF OF ISPOLD AND
C CHANGE ISPNEW AND I TO HAVE PROPER ID
C PERSON I HAS CHILDREN-ISPOLD IS EX-SPOUSE OF I
108 IF((ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) GO TO 105
C PERSON I IS A WOMAN-ISPNEW IS A MAN
   CALL ISOLTE(P0P(1,1),8,1,IREMW)
   CALL ISOLTE(P0P(1,1),8,8,IWOM)
C CALL ISOLTE(P0P(ISPNEW,1),9,9,IMAN)
   CALL ISOLTE(P0P(ISPNEW,1),7,1,IREM)
C DELETE FROM ISPOLD
    IF ((ISPOLD .EQ. 99999) .OR. (ISPOLD .EQ. 0)) GO TO 103
    POP(ISPOLD,1)=POP(ISPOLD,1)-IWOM*10**4+4*10**4
103   IF((ISPOL .EQ. 99999) .OR. (ISPOL .EQ. 0)) GO TO 109
    POP(ISPOL,1)=POP(ISPOL,1)-IMAN*10**4+4*10**4
109   POP(ISPNEW,1)=IREM+IMSS*10**4+1*10**4+IWOM*10**7+IMAN*10**8
    POP(ISPNEW,2)=POP(ISPNEW,2)-IDNEW*10**5+2*10**5-ISPOL+I
    POP(I,1)=IREMW+IMAN*10**8-IMS*10**4+1*10**4
    POP(I,2)=POP(I,2)-ISPOLD+ISPNEW-ID*10**5+2*10**5
C OLDEST ELIGIBLE CHILD IS IN ICH- ASSIGN NEW SPOUSE
    POP(ISPNEW,3)=POP(ISPNEW,3)+ICH
    IF(IMS .NE. 3) GO TO 96
    CALL ISOLTEPOP(ICH,1),9,9,IDEC
    CALL ISOLTEPOP(ICH,2),9,7,IBEN
    IF(((IDEC .EQ. 2) .OR. (IDEC .EQ. 3) .OR. (IDEC .EQ. 4)) .AND. (IBEN .NE. 0)) IF
    1AN=6
96    CALL ISOLTEPOP(ICH,1),7,1,IREMC
    POP(ICH,1)=IMAN*10**8+IWOM*10**7+IREMC
    POP(ICH,2)=3*10**5+ISPNEW+IBEN*10**6
    CALL ISOLTEPOP(ICH,3),5,1,ICH
    IF((ICH .EQ. 0) .AND. (IAGE .GE. 62)) GO TO 60
    IF(ICH .EQ. 0) GO TO 70
    GO TO 96
C PERSON I IS A MAN-ISPNEW WOMAN
105   CALL ISOLTEPOP(I,1),7,1,IREM
    CALL ISOLTEPOP(I,1),9,9,IMAN
    CALL ISOLTEPOP(ISPNEW,1),8,8,IWOM
    CALL ISOLTEPOP(ISPNEW,1),7,1,IREMW
C DELETE FROM ISPOLD
    IF((ISPOLD .EQ. 99999) .OR. (ISPOLD .EQ. 0)) GO TO 107
    POP(ISPOLD,1)=POP(ISPOLD,1)-IMAN*10**8-OMS*10**4+4*10**4
107   IF((ISPOL .EQ. 99999) .OR. (ISPOL .EQ. 0)) GO TO 110
POP(ISPOL,1)=POP(ISPOL,1)-IWOM*10**7-OMS1*10**4+4*10**4
110 POP(ISPNW,1)=IREIMW*IMSS*10**4+1*10**4+IMAN*10**8+IWOM*10**7
POP(ISPNW,2)=POP(ISPNW,2)-IDNEW*10**5+2*10**5-ISPOL+I
POP(I,1)=IREIM+IWOM*10**7-IMS*10**4+IMAN*10**8+1*10**4
POP(I,2)=POP(I,2)-ISPOLD+ISPNW-ID*10**5+2*10**5
C OLDEST ELIGIBLE CHILD IS IN ICH
POP(ISPNW,3)=POP(ISPNW,3)+ICH
IF(IMS .NE. 3) GO TO 106
   CALL ISOLTE(POP(ICH,1),8,8,IDEC)
   CALL ISOLTE(POP(ICH,2),9,7,IBEN)
   IF(((IDEC.EQ.2).OR.(IDEC.EQ.3).OR.(IDEC.EQ.4)).AND.(IBEN.NE.0))IMA
   FIN 5920
1N=6
106 CALL ISOLTE(POP(ICH,1),7,1,IREMC)
POP(ICH,1)=IMAN*10**8+IWOM*10**7+IREMC
POP(ICH,2)=3*10**5+I+IBEN*10**6
CALL ISOLTE(POP(ICH,3),5,1,ICH)
IF((ICH .EQ. 0) .AND. (IAGE .GE. 62)) GO TO 60
IF(ICH .EQ. 0) GO TO 70
GO TO 106
C PERSON IN ISPNW HAS CHILD ICH1
93 IF(IMSS .NE. 2) GO TO 157
   IF((ISRS .EQ. 1) .OR. (ISRS .EQ. 3) .OR. (ISRS .EQ. 5)) GO TO 97
C DO NOT HAVE DIVORCED MAN WITH ICH1 CHILD
157 CALL ISOLTE(POP(I,2),5,1,ISPOLD)
   CALL ISOLTE(POP(ISPNW,2),5,1,ISPOL)
   IF(((ISPOL .EQ. 99999).OR.(ISPOL .EQ. 0)) GO TO 98
POP(ISPOL ,2)=POP(ISPOL,2)-ISPNW+1*10**5-IDNEW*10**5
POP(ISPOLD,3)=POP(ISPOL,3)-ICH1
   CALL ISOLTE(POSPOL,1),5,5,OMS1)
98 IF((ISPOLD .EQ. 99999).OR.(ISPOLD .EQ. 0)) GO TO 111
POP(ISPOLD,2)=POP(ISPOLD,2)-I+1*10**5-ID*10**5
   CALL ISOLTE(POP(ISPOLD,1),5,5,OMS1)
C HAVE WOMAN IN ISPNEW MAN IN I
CALL ISOLTE(P0P(I,1),7,1,IREM)
CALL ISOLTE(P0P(I,1),9,9,iman)
CALL ISOLTE(P0P(ISPNEW,1),8,8,IWOM)
CALL ISOLTE(P0P(ISPNEW,1),8,1,IREMW)
C DELETE FROM ISPOLD
IF((ISPOLD .EQ. 99999) .OR. (ISPOLD .EQ. 0)) GO TO 112
POP(IPSPOLD,1)=POP(ISPOLD,1)-IMAN*10**8-OMS*10**4+4*10**4
IF((ISPOLD .EQ. 99999) .OR. (ISPOLD .EQ. 0)) GO TO 113
POP(IPSPOL,1)=POP(IPSPOL,1)-IWOM*10**7-OMS1*10**4+4*10**4
POP(IPSPNEW,1)=IREMW-IMSS*10**4+1*10**4+IMAN*10**8
POP(I,2)=POP(I,2)-ISPOLD+ISPNEW-ID*10**5+2*10**5
POP(I,1)=IREM+IWOM*10**7-IMS*10**4+IMAN*10**8+1*10**4
POP(IPSPNEW,2)=POP(IPSPNEW,2)-IDNEW*10**5+2*10**5-ISPOL+I
POP(I,3)=POP(I,3)+ICH1
IF(IMSS .NE. 3) GO TO 114
CALL ISOLTE(P0P(I,CH1,1),9,9,IDEV)
CALL ISOLTE(P0P(I,CH1,2),9,7,IBEN)
IF(((IDEV .EQ. 2) .OR. (IDEV .EQ. 3) .OR. (IDEV .EQ. 4)) .AND. (IBEN .NE. 0)) IMA FINO 300
1N=6
CALL ISOLTE(P0P(I,CH1,1),7,1,IREMC)
POP(I,CH1,1)=IMAN*10**8+IWOM*10**7+IREMC
POP(I,CH1,2)=3*10**5+I+IBEN*10**6
CALL ISOLTE(P0P(I,CH1,3),5,1,ICH1)
IF((ICH1 .EQ. 0) .AND. (IAGE .GE. 62)) GO TO 60
IF((ICH1 .EQ. 0)) GO TO 70
GO TO 114
C HAVE MAN IN ISPNEW AND WOMAN IN I
CALL ISOLTE(P0P(I,1),8,1,IREMW)
CALL ISOLTE(P0P(I,1),8,8,IWOM)
CALL ISOLTE(P0P(ISPNEW,1),9,9,iman)
CALL ISOLTE(POP(ISPNEW,1),7,1,IREM)
IF((ISPOLD.EQ.99999).OR.(ISPOLD.EQ.0)) GO TO 116
POP(ISPOLD,1)=POP(ISPOLD,1)+4*10**4-OMS*10**4-IWOM*10**7
116 IF ((ISPOLD.EQ.99999).OR.(ISPOLD.EQ.0)) GO TO 117
POP(ISPOLD,1)=POP(ISPOLD,1)-IMAN*10**8-OMS1*10**4+4*10**4
POP(ISPNEW,1)=IREW+IWOM*10**7-IMSS*10**4+IMAN*10**8+1*10**4
POP(ISPNEW,2)=POP(ISPNEW,2)-IDNEW*10**5+2*10**5-ISPOLD+I
POP(I,1)=IREW+IMAN*10**8-IMS*10**4+1*10**4
POP(I,2)=POP(I,2)-ISPOLD+ISPNEW-ID*10**5+2*10**5
C OLDEST ELIGIBLE CHILD IS IN ICH1
POP(I,3)=POP(I,3)+ICH1
IF(IMSS.NE.3) GO TO 118
CALL ISOLTE(POP(I,1),8,7,1,IBEN)
CALL ISOLTE(POP(I,1),8,7,IBEN)
IF((((IDEC.EQ.2).OR.(IDEC.EQ.3)).OR.(IDEC.EQ.4)).AND.(IBEN.NE.0))IMAFINO6600
1N=6
IF(IDEC.EQ.2)IWOM=3
118 CALL ISOLTE(POP(I,1),7,1,IREMC)
POP(I,1)=IMAN*10**8+IWOM*10**7+IREMC
POP(ICH1,2)=3*10**5+ISPNEW+IBEN*10**6
CALL ISOLTE(POP(I,1),5,1,ICH1)
IF((ICH1.EQ.0).AND.((AGE.GE.62)) GO TO 60
IF(ICH1.EQ.0) GO TO 70
GO TO 118
C HAVE DIVORCED MAN WITH CHILDREN REMARRYING-HE IS PERSON I
C PERSON HE IS MARRYING HAS NO CHILDREN
C SO GIVE CHILDREN TO EX-WIFE OF I AND HER NUMBER IS ALL READY IN THE
C CHILDREN'S NUMBERS
94 CALL ISOLTE(POP(I,2),5,1,ISPOLD)
POP(ISPOLD,2)=POP(ISPOLD,2)-I+1*10**5-ID*10**5
C CHANGE STATUS IN SYSTEM OF CHILDREN AND EX-WIFE
CALL ISOLTE(POP(ISPOLD,1),9,9,IMAN)
POP(ISPOLD,1)=POP(ISPOLD,1)-IMAN*10**8+3*10**4
C NOW SEE IF WOMAN DIVORCED MAN MARRIES A SPOUSE-IF SO
C CHANGE STATUS EX-SPOUSE-THEN PUT IN PROPER VALUES FOR NEW
C COUPLE
CALL ISOLTE(POP(ISPNEW,2),5,1,ISPOL)
CALL ISOLTE(POP(ISPNEW,1),8,1,IREMW)
CALL ISOLTE(POP(1,1),7,1,IREM)
CALL ISOLTE(POP(ISPNEW,1),8,8,IWOM)
IF((ISPOL.EQ.0).OR.(ISPOL.EQ.99999))GO TO 119
POP(ISPOLD,2)=POP(ISPOLD,2)+1*10**5-ISPNEW-IDNEW*10**5
POP(ISPOLD,1)=POP(ISPOLD,1)-IMSS*10**4-IWOM*10**7+4*10**4
C NOW ASSIGN NEW COUPLE
119 POP(I,1)=IREM+IWOM*10**7+IMAN*10**8-IMS*10**4+1*10**4
POP(I,2)=POP(I,2)-ISPOLD+ISPNEW-ID*10**5+2*10**5
POP(ISPNEW,1)=IREM+IMAN*10**8-IMSS*10**4+1*10**4
POP(ISPNEW,2)=POP(ISPNEW,2)-IDNEW*10**5+2*10**5-ISPOL+I
CALL ISOLTE(POP(I),2),8,7,IBEN)
IF(((IMAN.EQ.2).OR.(IMAN.EQ.3).OR.(IMAN.EQ.4)).AND.(IBEN.GT.0))GOTOF10
10 2501
100 POP(I,1)=POP(I,1)-IMAN*10**8
CALL ISOLTE(POP(I),3),5,1,ICH)
IF((IAGE .EQ. 0).AND.(IAGE .GE. 62))GO TO 60
IF(IAGE .EQ. 0) GO TO 70
60 GO TO 100
2501 POP(I,1)=POP(I,1)-IMAN*10**8+6*10**8
CALL ISOLTE(POP(I),3),5,1,ICH)
IF((IAGE .EQ. 0).AND.(IAGE .GE. 62))GO TO 60
IF(IAGE .EQ. 0) GO TO 70
GO TO 2501
C HAVE DIVORCED MAN WITH CHILDREN REMARRYING-HE IS PERSON ISPNEW
C PERSON HE IS MARRYING HAS NO CHILDREN
C SO GIVE CHILDREN TO EX-WIFE - HER NO IS IN THE CHILDRENS
CALL ISOLTE(POP(ISPNW, 2), 5, 1, ISPOL)
POP(ISPOL, 2) = POP(ISPOL, 2) - ISPNW + 1*10**5 - IDNEW*10**5
C CHANGE STATUS IN SYSTEM OF CHILDREN AND EX-WIFE
CALL ISOLTE(POP(ISPOL, 1), 9, 9, IMAN)
POP(ISPOL, 1) = POP(ISPOL, 1) - IMAN*10**8 + 3*10**4
C MAN IS ISPNW - SEE IF WOMAN ISPNW IS MARRYING HAD A SPOUSE IF SO
C CHANGE STATUS OF EX-SPouse THEN PUT IN PROPER VALUES FOR THE NEW
C COUPLE,
CALL ISOLTE(POP(1, 2), 5, 1, ISPOLD)
CALL ISOLTE(POP(1, 1), 8, 1, IREM)
CALL ISOLTE(POP(ISPN, 1), 7, 1, IREM)
CALL ISOLTE(POP(1, 1), 8, 8, IWDM)
IF(((ISPOLD, EQ, 0) OR (ISPOLD, EQ, 99999)) GO TO 120
POP(ISPOL, 2) = POP(ISPOL, 2) - ID*10**5 - I + 1*10**5
POP(ISPOL, 1) = POP(ISPOL, 1) - IMS*10**4 - IWOM*10**7 + 4*10**4
120 POP(1, 1) = IREM + IMAN*10**8 - IMS*10**4 + 1*10**4
POP(1, 2) = POP(1, 2) - ISPOLD + ISPNW - ID*10**5 + 2*10**5
POP(ISPNW, 1) = IREM + IWOM*10**7 + IMAN*10**8 - IMS*10**4 + 1*10**4
POP(ISPNW, 2) = POP(ISPNW, 2) - IDNEW*10**5 + 2*10**5 - ISPOL + I
CALL ISOLTE(POP(ICH1, 2), 9, 7, IBEN)
IF(((IMAN, EQ, 2) OR (IMAN, EQ, 3) OR (IMAN, EQ, 4)) AND (IBEN, NE, 0)) GOTO 10
10 .2502
101 POP(ICH1, 1) = POP(ICH1, 1) - IMAN*10**8
CALL ISOLTE(POP(ICH1, 3), 5, 1, ICH1)
IF((ICH1, EQ, 0) AND (IAGE, GE, 62)) GOTO 60
IF(ICH1, EQ, 0) GOTO 70
GO TO 101
2502 POP(ICH1, 1) = POP(ICH1, 1) - IMAN*10**8 + 6*10**8
CALL ISOLTE(POP(ICH1, 3), 5, 1, ICH1)
IF((ICH1, EQ, 0) AND (IAGE, GE, 62)) GOTO 60
IF(ICH1, EQ, 0) GOTO 70
GO TO 2502
C NEITHER PARTNER MARRYING HAS CHILD
C JUST STORE SPOUSES NUMBERS
91 CALL ISOLTE(POP(I,1),5,1,ISPOLD)
   CALL ISOLTE(POP(ISPNEW,2),5,1,ISPOL)
   IF((ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) GO TO 102
C HAVE WOMAN IN I
   CALL ISOLTE(POP(I,1),8,8,IWOM)
   CALL ISOLTE(POP(ISPNEW,1),9,9,IMAN)
   CALL ISOLTE(POP(I,1),8,1,IREM)
   CALL ISOLTE(POP(ISPNEW,1),7,1,IREM)
   POP(I,1)=IREM+IMAN*10**8-IMS*10**4+1*10**4
   POP(I,2)=POP(I,2)-ISPOLD+ISPNEW-ID*10**5+2*10**5
   POP(ISPNEW,1)=IREM+IMAN*10**8+IWOM*10**7-IMS*10**4+1*10**4
   POP(ISPNEW,2)=POP(ISPNEW,2)-IDNEW*10**5+2*10**5-ISPOL+I
   IF((ISPOLD .EQ. 0) .OR. (ISPOLD .EQ. 99999)) GO TO 150
   POP(ISPOLD,2)=POP(ISPOLD,2)-ID*10**5+I+1*10**5
   POP(ISPOLD,1)=POP(ISPOLD,1)-IMS*10**4-IWOM*10**4+1*10**4
150 IF((ISPOL .EQ. 0) .OR. (ISPOL .EQ. 99999)) GO TO 151
   POP(ISPOL,1)=POP(ISPOL,1)-IMSS*10**4-IMAN*10**8+4*10**4
   POP(ISPOL,2)=POP(ISPOL,2)-IDNEW*10**5-ISPNEW+1*10**5
151 IF(IAGE .GE. 62) GO TO 60
   GO TO 70
102 CALL ISOLTE(POP(I,1),9,9,IMAN)
   CALL ISOLTE(POP(ISPNEW,1),8,8,IWOM)
   CALL ISOLTE(POP(I,1),7,1,IREM)
   CALL ISOLTE(POP(ISPNEW,1),8,1,IREM)
   POP(I,1)=IREM+IMAN*10**8+IWOM*10**7-IMS*10**4+1*10**4
   POP(I,2)=POP(I,2)-ISPOLD+ISPNEW-ID*10**5+2*10**5
   POP(ISPNEW,1)=IREM+IMAN*10**8-IMS*10**4+1*10**4
   POP(ISPNEW,2)=POP(ISPNEW,2)-IDNEW*10**5+2*10**5-ISPOL+I
   IF((ISPOLD .EQ. 0) .OR. (ISPOLD .EQ. 99999)) GO TO 152
   POP(ISPOLD,1)=POP(ISPOLD,1)-IMS*10**4-IMAN*10**8+4*10**4
POP(ISPOLD, 2) = POP(ISPOLD, 2) - ID*10**5 - I+1*10**5

152 IF((ISPOLD .EQ. 0) .OR. (ISPOLD .EQ. 99999)) GO TO 153
POP(ISPOL, 1) = POP(ISPOL, 1) - IMSS*10**4 - IWOM*10**4 - I*10**4
POP(ISPOL, 2) = POP(ISPOL, 2) - IDNEW*10**5 - ISPNEW*1*10**5

153 IF(IAGE .GE. 62) GO TO 60
GO TO 70

92 CALL ISOLTE(Pop(I, 1), 4, 4, ISEX)
IF((ISEX .EQ. 1) .OR. (ISEX .EQ. 3) .OR. (ISEX .EQ. 5)) GO TO 8000

C HAVE WOMAN IN I- MAN IS ISPNEW - BOTH HAVE CHILDREN
C SEE IF MAN IS DIVORCEE
CALL ISOLTE(Pop(ISPNEW, 1), 5, 5, IMSS)
IF(IMSS .NE. 2) GO TO 9000

C MAN IS DIVORCEE- FIND HIS EX-SPOTUE
CALL ISOLTE(Pop(ISPNEW, 2), 5, 1, ISPOL)
CALL ISOLTE(Pop(ISPNEW, 1), 9, 9, IMANS)
CALL ISOLTE(Pop(ISPOL, 1), 8, 8, IWOMS)

C REMOVE CHILDREN AND SPOUSE FORM ISPNEW
POP(ISPNEW, 1) = Pop(ISPNEW, 1) - IWOMS*10**7 - IMSS*10**4
CALL ISOLTE(Pop(ISPNEW, 2), 6, 1, IREM)
POP(ISPNEW, 2) = IREM - ISPOL
POP(ISPNEW, 3) = Pop(ISPNEW, 3) - ICH1 + ICH

C REMOVE SPOUSE FROM ISPOL
POP(ISPOL, 1) = Pop(ISPOL, 1) - IMANS*10**8 - 3*10**4
CALL ISOLTE(Pop(ISPOL, 1), 6, 1, IREM)
POP(ISPOL, 2) = IREM - ISPNEW

2384 POP(ICh1, 1) = Pop(ICh1, 1) - IMANS*10**8
IF((IMANS .EQ. 2) .OR. (IMANS .EQ. 3) .OR. (IMANS .EQ. 5) .OR. (IMANS .EQ. 4)) GO TO 8000
1 TO 2383
CALL ISOLTE(Pop(ICh1, 2), 6, 1, IREM)
POP(ICh1, 2) = IREM
GO TO 2382

2383 POP(ICh1, 1) = Pop(ICh1, 1) + 6*10**8
2382 CALL ISOLTE(POP(ICH1,3),5,1,ICH1)
    IF(ICH1 .EQ. 0) GO TO 2388
    GO TO 2384
2383 CALL ISOLTE(POP(I,1),9,9,IMAN)
CALL ISOLTE(POP(I,2),5,1,ISPOLD)
CALL ISOLTE(POP(I,1),8,8,IWOM)
CALL ISOLTE (POP(I,1),5,5,IMS)
    IF((ISPOLD .EQ. 99999) .OR. (ISPOLD .EQ. 0)) GO TO 4500
    POP(ISPOLD,1)=POP(ISPOLD,1)-IWOM*10**7-IMS*10**4+4*10**4
    CALL ISOLTE(POP(ISPOLD,2),6,1,IREM)
    POP(ISPOLD,2)=IREM-1*10**5-I
    POP(ISPOLD,3)=POP(ISPOLD,3)-ICH
4500 POP(I,1)=POP(I,1)-IMAN*10**8-IMS*10**4
    CALL ISOLTE(POP(I,2),6,1,IREM)
    POP(I,2)=IREM-ISPOLD
C NOW PUT CHILDREN ICH WITH NEW PARENT
2387 POP(ICH,1)=POP(ICH,1)-IMAN*10**8+IMANS*10**8
    IF((IMAN .EQ. 2) .OR. (IMAN .EQ. 3) .OR. (IMAN .EQ. 4) .OR. (IMAN .EQ. 5)) GO TO 2385
C REMOVE BENEFIT FROM CHILD
    CALL ISOLTE(POP(ICH,2),6,1,IREM)
    POP(ICH,2)=IREM
    GO TO 2386
2385 POP(ICH,1)=POP(ICH,1)-IMANS*10**8+6*10**8
2386 IPAR=I
    CALL ISOLTE(POP(ICH,2),6,6,IDEN)
C ASSIGN NEW PARENTS TO CHILDREN
    POP(ICH,2)=POP(ICH,2)-IDEN*10**5+3*10**5-IPAR+ISPNEW
    CALL ISOLTE(POP(ICH,3),5,1,ICH)
    IF(ICH .EQ. 0) GO TO 2403
    GO TO 2387
C ASSIGN NEW COUPLE I AND ISPNEW
2403  POP(ISPNEW,1)=POP(ISPNEW,1)+1*10**4+IWOM*10**7
POP(ISPNEW,2)=POP(ISPNEW,2)+1
POP(I,1)=POP(I,1)+1*10**4+IMANS*10**8
POP(I,2)=POP(I,2)+ISPNEW
IF(IAGE .LT. 62) GO TO 70
GO TO 60
8000  CALL ISOLTE (POP(I,1),5,5,IMS)
CALL ISOLTE (POP(ISPNEW,1),5,5,IMSS)
IF(IMS .NE. 2) GO TO 9000
CALL ISOLTE (POP(I,2),5,1,ISPOLD)
CALL ISOLTE (POP(ISPOLD,1),8,8,IWOM)
CALL ISOLTE (POP(I,1),9,9,IMAN)
POP(I,1)=POP(I,1)-IWOM*10**7-IMS*10**4
CALL ISOLTE (POP(I,2),6,1,IREM)
POP(I,2)=IREM-ISPOLD
POP(I,3)=POP(I,3)-ICH+ICH1
POP(ISPOLD,1)=POP(ISPOLD,1)-IMAN*10**8+3*10**4
CALL ISOLTE (POP(ISPOLD,2),6,1,IREM)
POP(ISPOLD,2)=IREM-1
C SEE IF CHILDREN STILL COLLECT BENEFITS
2394  POP(ICH,1)=POP(ICH,1)-IMAN*10**8
IF((IMAN .EQ. 2) .OR. (IMAN .EQ. 3) .OR. (IMAN .EQ. 4) .OR. (IMAN .EQ. 5)) GO TO 2391
CALL ISOLTE (POP(ICH,2),6,1,IREM)
POP(ICH,2)=IREM
GO TO 2392
2391  POP(ICH,1)=POP(ICH,1)+6*10**8
2392  CALL ISOLTE (POP(ICH,3),5,1,ICH)
IF(ICH .EQ. 0) GO TO 2398
GO TO 2394
2398  CALL ISOLTE (ISPNEW,1),9,9,IMANS
CALL ISOLTE (POP(ISPNEW,1),8,8,IWOMS)
CALL ISOLTE(POP(ISPNEW,2),5,1,ISPOL)
IF((ISPOL .EQ. 99999) .OR. (ISPOL .EQ. 0)) GO TO 2399
POP(ISPOL,1)=POP(ISPOL,1)-IWOMS*10**7-IMSS*10**4+4*10**4
CALL ISOLTE(POP(ISPOL,2),6,1,IREM)
POP(ISPOL,2)=IREM-ISPNEW
POP(ISPOL,3)=POP(ISPOL,3)-ICH1
2399 POP(ISPNEW,1)=POP(ISPNEW,1)-IMANS*10**8-IMSS*10**4
CALL ISOLTE(POP(ISPNEW,2),6,1,IREM)
POP(ISPNEW,2)=IREM-ISPOL
C NOW PUT IN CHILDREN ICH1 WITH NEW PARENTS
2400 POP(ICH1,1)=POP(ICH1,1)-IMANS*10**8+6*10**8
IF((IMANS .EQ. 2) .OR. (IMANS .EQ. 3) .OR. (IMANS .EQ. 4) .OR. (IMANS .EQ. 5)) GO TO 2401
C REMOVE BENEFIT FROM CHILD
CALL ISOLTE(POP(ICH1,2),6,1,IREM)
POP(ICH1,2)=IREM
GO TO 2402
2401 POP(ICH1,1)=POP(ICH1,1)-IMAN*10**8+6*10**8
2402 IPAR=ISPNEW
CALL ISOLTE(POP(ICH1,2),6,6,IPAR)
C ASSIGN NEW PARENTS TO CHILD
POP(ICH1,2)=POP(ICH1,2)-IDEN*10**5+3*10**5-IPAR+I
CALL ISOLTE(POP(ICH1,3),5,1,ICH1)
IF(ICH1 .EQ. 0) GO TO 2404
GO TO 2400
2404 POP(I,1)=POP(I,1)+1*10**4+IWOMS*10**7
POP(I,2)=POP(I,2)+ISPNEW
POP(ISPNEW,1)=POP(ISPNEW,1)+1*10**4+IMAN*10**8
POP(ISPNEW,2)=POP(ISPNEW,2)+I
IF(AGE .LT. 62) GO TO 70
GO TO 60
C BOTH PARENTS ARE RESPONSIBLE FOR CHILDREN
9000 CALL ISOLTE(POP(I,2),5,1,ISPOLD)
IF((ISPOLD .EQ. 0) .OR. (ISPOLD .EQ. 9999)) GO TO 2411
CALL ISOLTE(POP(I,1),4,4,ISR)
IJ=8
IF(( ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) IJ=9
CALL ISOLTE(POP(ISPOLD,1),I,J,IJ,IMOW)
POP(ISPOLD,1)=POP(ISPOLD,1)-IMOW*10**(I-1)-IMS*10**4+4*10**4
POP(ISPOLD,2)=1*10**5
POP(ISPOLD,3)=POP(ISPOLD,3)-ICH
2411 CALL ISOLTE(POP(ISPNEW,2),5,1,ISPOL)
IF((ISPNEW .EQ. 0) .OR. (ISPNEW .EQ. 9999)) GO TO 2412
CALL ISOLTE(POP(ISPNEW,1),4,4,ISR)
IJ=8
IF((ISRS .EQ. 1) .OR. (ISRS .EQ. 3) .OR. (ISRS .EQ. 5)) IJ=9
CALL ISOLTE(POP(ISPOL,1),I,J,IJ,IMOW)
POP(ISPOL,1)=POP(ISPOL,1)-IMOW*10**(I-1)-IMS*10**4+4*10**4
POP(ISPOL,2)=1*10**5
POP(ISPOL,3)=POP(ISPOL,3)-ICH1
CHANGE NEW COUPLES STATUS-DELETE OLD SPOUSE
2412 CALL ISOLTE(POP(I,1),9,9,IMAN)
CALL ISOLTE(POP(ISPNEW,1),8,8,IWOM1)
CALL ISOLTE(POP(ISPNEW,1),9,9,IMAN1)
CALL ISOLTE(POP(I,1),8,8,IMAN1)
POP(I,2)=2*10**5+ISPNEW
POP(ISPNEW,2)=2*10**5+1
CALL ISOLTE (POP(I,1),4,4,ISR)
IF((ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) GO TO 2413
POP(I,1)=POP(I,1)-IMAN*10**8-IMS*10**4+IMAN1*10**8+1*10**4
POP(ISPNEW,1)=POP(ISPNEW,1)-IWOM1*10**7-IMSS*10**4+IWOM1*10**7+1*10**4
GO TO 2414
2413 POP(I,1)=POP(I,1)-IWOM*10**7-IMS*10**4+IWOM1*10**7+1*10**4
POP(ISPNEW,1)=POP(ISPNEW,1)-IMAN1*10**8-IMSS*10**4+IMAN1*10**8+1*10**8

1**4

C REARRANGE CHILDREN

2414 CALL ISOLTE(POP(ICH,1),6,6,NOYS)
CALL ISOLTE(POP(ICH1,1),6,6,NOYS1)
NOCHIL=NOYS+NOYS1+2
IORDER(1)=ICH
IORDER(2)=ICH1
N=2

2418 CALL ISOLTE(POP(ICH,3),5,1,NYS)
CALL ISOLTE(POP(ICH1,3),5,1,NYS1)

2419 IF(NYS .EQ. 0) .AND. (NYS1 .EQ. 0)) GO TO 2417
IF(NYS .EQ. 0) GO TO 2415
IF(NYS1 .EQ. 0) GO TO 2416
N=N+1
IORDER(N)=NYS
N=N+1
IORDER(N)=NYS1
ICH=NYS
ICH1=NYS1
CALL ISOLTE(POP(NYS1,3),5,1,NYS1)
CALL ISOLTE(POP(NYS,3),5,1,NYS)
GO TO 2419

2415 N=N+1
IORDER(N)=NYS1
CALL ISOLTE(POP(NYS1,3),5,1,NYS1)
GO TO 2419

2416 N=N+1
IORDER(N)=NYS
CALL ISOLTE(POP(NYS,3),5,1,NYS)
GO TO 2419

C SEE IF CHILDREN HAD BENEFITS FROM OTHER SPOUSE-IF SO PUT IN 6
DO 2430 NL=1,NOCHIL
IF((ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) GO TO 2424
C I IS WOMAN ISPNEW IS MAN
   IJ=8
   CALL ISOLTE(POP(IORDER(NL),2),5,1,IOPAR)
   IF((IOPAR .EQ. I) .OR. (IOPAR .EQ. ISPOLD)) IJ=9
C CHILD BELONGED TO ISPOL AND ISPNEW
2429 CALL ISOLTE(POP(IORDER(NL),1),IJ,IJ,IMOW)
   IF((IMOW .EQ. 2) .OR. (IMOW .EQ. 3) .OR. (IMOW .EQ. 4) .OR. (IMOW .EQ. 5)) GO TO 2426
C EX PARENT NOT CAUSE OF BENEFIT
   POP(IORDER(NL),1)=POP(IORDER(NL),1)-IMOW*10**(IJ-1)
   POP(IORDER(NL),2)=0
   GO TO 2430
2426 POP(IORDER(NL),1)=POP(IORDER(NL),1)-IMOW*10**(IJ-1)+6*10**(IJ-1)
   GO TO 2430
C I IS MAN ISPNEW IS WOMAN
2424 IJ=9
   CALL ISOLTE(POP(IORDER(NL),2),5,1,IOPAR)
   IF((IOPAR .EQ. I) .OR. (IOPAR .EQ. ISPOLD)) IJ=8
   GO TO 2429
2430 CONTINUE
2437 DO 2518 NO=1,NOCHIL
2518 CALL ISOLTE(POP(IORDER(NO),1),3,1,IACHLD(NO))
   NO=1
   NEXT=2
2420 IF (IACHLD(NO) .GT. IACHLD(NEXT)) GO TO 2439
   HIORDR=IORDER(NEXT)
   HIACHL=IACHLD(NEXT)
   IORDER(NEXT)=IORDER(NO)
   IACHLD(NEXT)=IACHLD(NO)
   IORDER(NO)=HIORDR
IACHLD(NO)=HIACHL
NEXT=NEXT+1
IF(NEXT .EQ. (NOCHIL+1)) GO TO 2421
GO TO 2420

2439 NEXT=NEXT+1
IF(NEXT .EQ. (NOCHIL+1)) GO TO 2421
GO TO 2420

2421 NO=NO+1
NEXT=NO+1
IF(NEXT .EQ. (NOCHIL+1)) GO TO 2422
GO TO 2420

2422 CALL ISOLTE(POP(1,3),9,6,IREM)
CALL ISOLTE(POP(ISPNEW,3),9,6,IREM1)
P(1,3)=IREM*10**5+IORDER(1)
P(ISPNEW,3)=IREM1*10**5+IORDER(1)
IFATH=I
IF((ISR .EQ. 2) .OR. (ISR .EQ. 4) .OR. (ISR .EQ. 6)) IFATH=ISPNEW
NUMB=NOCHIL-1
IH=NUMB
DO 2423 NL=1,NOCHIL
IF(NUMB .EQ. -1) GO TO 2423
CALL ISOLTE(PORDER(NL),1),7,6,NOS)
PORDER(NL,1)=PORDER(NL,1)-NOS*10**5+NUMB*10**5+
1((IH-NUMB)*10**6
CALL ISOLTE(PORDER(NL),3),5,1,NTYS)
IORDER(NOCHIL+1)=0
PORDER(NL,3)=PORDER(NL,3)-NTYS+IORDER(NL+1)
CALL ISOLTE(PORDER(NL),2),9,7,ILEFT)
PORDER(NL,2)=ILEFT*10**6+3*10**5+IFATH
NUMB=NUMB-1

2423 CONTINUE
C ASSIGN STATUS OF NEW PARENTS IF DOES NOT EQUAL 6
DO 3443 NL=1,NOCHIL
IMOTH=ISPNEW
IFATH=I
IF((ISR .EQ. 2) .OR. (ISR .EQ. 4) .OR. (ISR .EQ. 6)) IFATH=ISPNEW FIN10300
IF((ISR .EQ. 2) .OR. (ISR .EQ. 4) .OR. (ISR .EQ. 6)) IMOTH=I FIN10320
CALL ISOLTE(POP(IORDER(NL),2),9,7,IBEN) FIN10330
CALL ISOLTE(POP(IORDER(NL),1),9,9,IMAN) FIN10340
CALL ISOLTE(POP(IORDER(NL),1),8,8,IWOM) FIN10350
CALL ISOLTE(POPC(IFATH,1),9,9,INMAN) FIN10360
CALL ISOLTE(POPS(IFATH,1),8,8,INWOM) FIN10370
IF(IMAN .EQ. 0) POP(IORDER(NL),1)=POP(IORDER(NL),1)+INMAN*10**8 FIN10380
IF(IWOM .EQ. 0) POP(IORDER(NL),1)=POP(IORDER(NL),1)+INWOM*10**7 FIN10390
3443 CONTINUE FIN10400
60 CONTINUE FIN10410
C RETIREMENT FIN10420
IJ=8 FIN10430
ISEX=1 FIN10440
IF((ISR .EQ. 2) .OR. (ISR .EQ. 4) .OR. (ISR .EQ. 6)) GO TO 61 FIN10450
IJ=9 FIN10460
ISEX=2 FIN10470
61 CALL ISOLTE(POP(I,1),IJ,IJ,IRT) FIN10480
IF(IRT .EQ. 8) GO TO 1 FIN10490
IF(IRT .EQ. 4) GO TO 70 FIN10500
C SEE IF BECOMES RETIRED FIN10510
IA=IAGE-61 FIN10520
IF(IA .GT. 9) IA=9 FIN10530
IF(IA .EQ. 70) GO TO 63 FIN10540
CALL RANDU(Ix,IX,YFL) FIN10550
IF(IA .EQ. 1) GO TO 62 FIN10560
PRRETT=1.-(1-(PRRET(IA,ISEX)-PRRET((IA-1),ISEX)))**(1./12.) FIN10570
IF(YFL .GT. PRRETT) GO TO 70 FIN10580
GO TO 63 FIN10590
FIN10600
FIN10610
62  PRRETT=1.-(1.-PRRETT(IA,ISEX))**(1./12.)
   IF(YFL,GT,PRRETT) GO TO 70
C HAVE RETIREMENT
63  IRTN=4
   IF(IRTN.EQ.3) IRTN=2
   POP(I,1)=POP(I,1)-IRT*10**(IJ-1)+IRTN*10**(IJ-1)
   CALL ISOLTE(PPO(I,2),5,1,ISPS)
   IF((ISPS .EQ. 0) .OR. (ISPS .EQ. 9999)) GO TO 64
   POP(ISPS,1)=POP(ISPS,1)-IRT*10**(IJ-1)+IRTN*10**(IJ-1)
64  CALL ISOLTE(PPO(I,3),5,1,ICH)
   IF(ICH .EQ. 0) GO TO 70
   POP(ICH,1)=POP(ICH,1)-IRT*10**(IJ-1)+IRTN*10**(IJ-1)
   CALL ISOLTE(PPO(ICH,3),5,1,ICH)
   GO TO 65
70  CONTINUE
C DISABILITY
   IJ=8
   IF((ISR.EQ.1) .OR. (ISR.EQ.3) .OR. (ISR.EQ.5)) IJ=9
C HAVE WOMAN- SEE IF SHE IS DISABLED ALL READY
   CALL ISOLTE(PPO(I,1),5,5,IMS)
   IF(IMS .EQ. 0) GO TO 72
C HAVE ADULT
   CALL ISOLTE(PPO(I,1),IJ,IMOW)
   IF(((IMOW .EQ. 8) .OR. (IMOW .EQ. 9)) GO TO 1
   IF(((IMOW .EQ. 2) .OR. (IMOW .EQ. 3)) GOTO 71
C SEE IF BECOMES DISABLED
   CALL RANDU(IX,IX,YFL)
   IF(YFL,GT,PRDIS(IYEAR)) GO TO 1
   IN=3
   IF(IMOW .EQ. 4) IN=2
   POP(I,1)=POP(I,1)-IMOW*10**(IJ-1)+IN*10**(IJ-1)
   GO TO 78
C ALL READY DISABLED SEE IF RECOVER

71 CALL RANDU(I,IX,YFL)
   IF(YFL .LT. PRRECIV) GO TO 1

C RECOVER FROM DISABILITY
   CALL ISOLTE(Pop(I,3),9,6,ISAL)
   IN=1
   IF(ISAL .EQ. 0) IN=9
   IF(IMOW .LT. 2) IN=4
   POP(I,1)=POP(I,1)-IMOW*10**((IJ-1)+IN*10**(IJ-1))

C SEE IF HAD ANY RELATIVES

78 CALL ISOLTE(Pop(I,2),5,1,ISPS)
   IF((ISPS .EQ. 0) .OR. (ISPS .EQ. 99999)) GO TO 73
   POP(ISPS,1)=POP(ISPS,1)-IMOW*10**((IJ-1)+IN*10**(IJ-1))

73 CALL ISOLTE(Pop(I,3),5,1,ICH)

74 IF(ICH .EQ. 0) GO TO 1
   POP(ICH,1)=POP(ICH,1)-IMOW*10**((IJ-1)+IN*10**(IJ-1))
   CALL ISOLTE(Pop(ICH,3),5,1,ICH)
   GO TO 74

C HAVE CHILD IN I

72 CALL ISOLTE(Pop(I,2),6,6,IPART)
   IF(IPART .EQ. 7) GO TO 76
   CALL RANDU(I,IX,YFL)
   IF(YFL .LT. PRDIS(IYEAR)) GO TO 1
   POP(I,2)=POP(I,2)+7*10**5-IPART*10**5
   GO TO 1

76 CALL RANDU(I,IX,YFL)
   IF(YFL .LT. PRRECIV) GO TO 1
   CALL ISOLTE(Pop(I,2),5,1,ISP)
   CALL ISOLTE(Pop(I,2),6,6,IDT)
   IF(ISP .NE. 0) GO TO 77
   IMS=4
   IDTN=1
IF (IAGE .LE. 18) IDTN=9
IF (IDTN .EQ. 9) IMS=0
POP (I,1)=POP (I,1)+IMS*10**4
POP (I,2)=POP (I,2)+IDTN*10**5-IDT*10**5
GO TO 140
77 CALL ISOLTE (POP (ISP,1),5,5,IMS)
CALL ISOLTE (POP (ISP,1),4,4,ISR)
ISEX=1
IF (((ISR .EQ. 2) .OR. (ISR .EQ. 4) .OR. (ISR .EQ. 6)) ISEX=2
IF (IMS .EQ. 1) IDTN=3
IF (((IMS .EQ. 2)) .AND. (ISEX .EQ. 1)) IDTN=5
IF (((IMS .EQ. 2)) .AND. (ISEX .EQ. 1)) IDTN=5
IF (((IMS .EQ. 3)) .AND. (ISEX .EQ. 1)) IDTN=4
IF (((IMS .EQ. 3)) .AND. (ISEX .EQ. 2)) IDTN=6
POP (I,2)=POP (I,2)-IDTN*10**5+IDTN*10**5
GO TO 140
1 CONTINUE
DO 4071 ISRC=1,6
NUM(1,ISRC)=NOBIR(ISRC)+NUM(1,ISRC)
4071 NOBIR(ISRC)=0
C REMOVE BENEFITS UNLESS 5 OR 6 IS IN WORD 1 POS 8 OR 9
DO 4072 KK=1,1024
IF (POP (KK,1).EQ. 0) GO TO 4072
CALL ISOLTE (POP (KK,2),6,1,IREM)
CALL ISOLTE (POP (KK,1),8,8,IWOM)
CALL ISOLTE (POP (KK,1),9,9,IMAN)
IF ((IMAN .EQ. 5) .OR. (IMAN .EQ. 6) .OR. (IWOM .EQ. 5) .OR. (IWOM .EQ. 6)) GO TO 14072
14072 C DELETE BENEFIT
POP (KK,2)=IREM
4072 CONTINUE
C NOW MUST ASSIGN BENEFITS FOR EVERYONE ELIGIBLE
DO 3478 MM=1,1024
IF (POP(MM,1) .EQ. 0) GO TO 3478
C SEE IF MAN OR WOMAN IS IN MM
CALL ISOLTE(POP(MM,1),5,5,IMS)
IF(IMS .EQ. 0) GO TO 3478
CALL ISOLTE(POP(MM,1),4,4,ISR)
IN=8
IF((ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) IN=9
CALL ISOLTE(POP(MM,1),IN,IN,IMOW)
CALL ISOLTE(POP(MM,1),8,8,IMOW)
CALL ISOLTE(POP(MM,1),9,9,IMAN)
IF((IMOW .EQ. 2) .OR. (IMOW .EQ. 3) .OR. (IMOW .EQ. 4)) GO TO 3333
3333 CALL ISOLTE(POP(MM,3),9,6,ISAL)
CALL PIAMFB(ISAL,PIA,MFB,FACTOR)
C ASSIGN BENEFIT TO WORKER
IBEN=PIA
IF((IMOW .EQ. 2) .OR. (IMOW .EQ. 3)) IBEN=PIA*(64-IAGE)*12*(15/9.)*.01+(12-IMONTH)*(5/9.)*.01
CALL ISOLTE(POP(MM,2),9,7,IBENO)
IBEN=IBENO
IF(IBEN .GT. IBENO) IBEN=IBENO
IF(MFB-IBEN) 3120,3120,3121
3120 IBEN=IBENO
POP(MM,2)=POP(MM,2)-IBENO*10**6+IBENEW*10**6
GO TO 3478
3121 MFB=MFB-IBENEW
POP(MM,2)=POP(MM,2)-IBENO*10**6+IBENEW*10**6
C SEE IF SPOUSE GETS BENEFITS
CALL ISOLTE(POP(MM,2),5,1,ISP)
IF((ISP .EQ. 0) .OR. (ISP .EQ. 99999)) GO TO 3122
CALL ISOLTE(POP(ISP,1),3,1,IAGE)
CALL ISOLTE(POP(ISP, 1), 4, 4, ISR)
IF(IAGE .GE. 65) GO TO 3129
CALL ISOLTE(POP(ISP, 3), 5, 1, ICHL)
IF((ICHL .EQ. 0) .AND. (IAGE .GT. 62)) GO TO 3129
IF((ICHL .EQ. 0)) GO TO 3478
IF((ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) GO TO 3478
3129
IBEN=.5*PIA
IF (IAGE .GE. 65) GO TO 3374
IBEN=.5*PIA-(64-IAGE)*12.*(25./36.)*.01*PIA-(12-IMONTH)*(25./36.)
1*.01*PIA
3374
CALL ISOLTE(POP(ISP, 2), 9, 7, IBENO)
ISPNEW=IBENO
IF(IBEN .GT. IBENO) IBENEW=IBEN
IF(MFB-IBENEW) 3256, 3256, 3257
3256
IBENEW=MFB
POP(ISP, 2)=POP(ISP, 2)-IBENO*10**6+IBENEW*10**6
GO TO 3478
3257
MFB=MFB-IBENEW
POP(ISP, 2)=POP(ISP, 2)-IBENO*10**6+IBENEW*10**6
C CHECK CHILD AND SPOUSE BENEFIT
3122
CALL ISOLTE(POP(MM, 3), 5, 1, ICHL)
IF((ICHL .EQ. 0)) GO TO 3478
3127
CALL ISOLTE(POP(ICHL, 2), 9, 7, IBENO)
IBEN=.5*PIA
ISPNEW=IBENO
IF(IBEN .GT. IBENO) IBENEW=IBEN
IF(MFB-IBENEW) 3125, 3125, 3126
3125
IBENEW=MFB
POP(ICHL, 2)=POP(ICHL, 2)-IBENO*10**6+IBENEW*10**6
GO TO 3478
3126
MFB=MFB-IBENEW
POP(ICHL, 2)=POP(ICHL, 2)-IBENO*10**6+IBENEW*10**6

CALL ISOLTE(POP(ICH,3),5,1,ICH)

IF(ICH .EQ. 0) GO TO 3478
GO TO 3127

3478 CONTINUE

C SUM BENEFITS FOR MONTH

IBENT=0
DO 2999 LR=1,1024
CALL ISOLTE(POP(LR,2),9,7,IBEN)

2999 IBENT=IBENT+IBEN
IBENT=IBENT+TOTLMP
TOTLMP=0
PAYT=0

C DETERMINE PAYMENTS
DO 2998 LW=1,1024
CALL ISOLTE(POP(LW,1),4,4,ISR)
IJ=8
IF(ISR .EQ. 1) OR. (ISR .EQ. 3) OR. (ISR .EQ. 5)) IJ=9
CALL ISOLTE(POP(LW,1),IJ,IJ,IMOW)
IF(IMOW .EQ. 8) GO TO 2998
CALL ISOLTE(POP(LW,3),9,6,ISAL)
CALL PAYMNT(ISAL,PAY,IFYEAR)
PAYT=PAYT+PAY

2998 CONTINUE
WRITE(16,4466) PAYT,IBENT
PAYT=PAYT*RATIO
BENT=IBENT*RATIO
WRITE(16,4467) PAYT,BENT

4467 FORMAT(12X,'TOTAL PAYMENTS=',2X,F19.2,2X,'TOTAL BENEFITS=',2X,F19.8)
4466 FORMAT(12X,'PAYMENTS = ',F9.2,2X,'BENEFITS = ',I9)

IF(MR .EQ. 1) GO TO 4581
MR1=MR-1
DO 4125 JM=1,MR1
4125 WRITE(16,4126) IDEATH(JM)
4126 FORMAT(' ',I13)
4581 WRITE (16,4444) MR
4444 FORMAT(' ',MR',',I3)
IF(IMONTH .NE. 6) GO TO 9393
    NN=1024
    WRITE(10,1111) NN
  DO 9492 LL=1,1024,2
    JL=LL+1
  9492 WRITE(10,1004) POP(LL,1),POP(LL,2),POP(LL,3),POP(JL,1),POP(JL,2),PF
       10P(JL,3)
  DO 9491 LL=1,101
  9491 WRITE(10,1111) (NUM(LL,IQ),IQ=1,6)
  WRITE(10,1114) M,IX
  WRITE(10,1113) (ISTORE(I),I=1,M)
  CONTINUE
C MAKE EVERYONE ONE YEAR OLDER
  IF(IMONTH .NE. 13) GO TO 9496
  DO 9977 LM=1,1024
     IF(POP(LM,1).EQ.0) GO TO 9977
  POP(LM,1)=POP(LM,1)+1
  CONTINUE
  DO 9976 LM=2,101
  K=103-LM
  K1=K-1
     DO 9976 J=1,6
  NUM(K,J)=NUM(K1,J)
  CONTINUE
  DO 9975 J=1,6
  NUM(1,J)=0
  WRITE(10,1111) NN
  DO 9988 LL=1,1024,2
JL=LL+1  
WRITE(10,1004) POP(LL,1),POP(LL,2),POP(LL,3),POP(JL,1),POP(JL,2),PF
1OP(JL,3)
9988 CONTINUE  
9966 WRITE(10,1111) (NUM(LL,10),IQ=1,6)  
WRITE(10,1114) M,IX  
WRITE(10,1113) (ISTORE(I),I=1,M)
9496 CONTINUE  
1004 FORMAT( ' ',2(I10,3X,I10,3X,I10))  
1111 FORMAT( ' ',6(I9))  
1114 FORMAT( ' ',I4,1X,I9)  
1113 FORMAT(' ',I4)
9494 CONTINUE  
STOP  
END
SUBROUTINE REMAR(IA,ISR,IMAR,IMS,IANS,ISRW,IX)
COMMON /AREA5/PRMWID,PRMDIV
DIMENSION PRMWID(101,2),PRMDIV(101,2)
IMAR=0
I=1
IF((ISR .EQ. 2) .OR. (ISR .EQ. 4) .OR. (ISR .EQ. 6)) I=2
CALL RANDU(IX,IX,YFL)
IF((IMS .EQ. 2) .OR. (IMS .EQ. 5)) GO TO 1
IF(YFL .LT. PRMWID(IA,I)) IMAR=1
CALL SPOUSE(IA,ISR,IANS,ISRW,IX)
RETURN
1
IF(YFL .LT. PRMDIV(IA,I)) IMAR=1
CALL SPOUSE(IA,ISR,IANS,ISRW,IX)
RETURN
END
SUBROUTINE SPouse(IA, ISR, IB, ISRW, IX)
COMMON /AREA1/DIFAHW, IAG
DIMENSION DIFAHW(15), IAG(15)
IB=0
CALL RANDU(IX, IX, YFL)
IF((ISR .EQ. 1) .OR. (ISR .EQ. 3) .OR. (ISR .EQ. 5)) GO TO 1
C HAVE WOMAN
DO 2 I=1, 15
   IF(YFL .LE. DIFAHW(I)) GO TO 8
2 CONTINUE
8 IB=IA+IAG(I)
CALL RACE(ISR, ISRW, IX)
IF(IB .LT. 16) IB=16
IF(IB .GT. 100) IB=100
RETURN
C HAVE MAN
1 DO 4 I=1, 15
   IF(YFL .LE. DIFAHW(I)) GO TO 7
4 CONTINUE
7 IB=IA-IAG(I)
CALL RACE(ISR, ISRW, IX)
IF(IB .GT. 100) IB=100
IF(IB .LT. 15) IB=15
RETURN
END
SUBROUTINE RACE(ISR, ISRS, IX)
C TAKES SEX AND RACE OF PARTNER AND CALCULATES RACE AND SEX OF SPOUSE
CALL RANDU(IX, IX, YFL)
IF(ISR .EQ. 1) GO TO 1
IF(ISR .EQ. 2) GO TO 3
C NOW HAVE NON-WHITE
IF((ISR .EQ. 3) .OR. (ISR .EQ. 5)) GO TO 2
C NOW HAVE WOMAN NON-WHITE
ISRS=ISR-1
IF(YFL .LT. 0.0411) ISRS=1
RETURN
C NOW HAVE MALE NON-WHITE
2 ISRS=ISR+1
IF(YFL .LT. 0.0411) ISRS=2
RETURN
C NOW HAVE WHITE MALE
1 ISRS=2
IF(YFL .LT. 0.0057) ISRS=4
RETURN
C NOW HAVE WHITE FEMALE
3 ISRS=1
IF(YFL .LT. 0.0057) ISRS=3
RETURN
END
SUBROUTINE SCHOOL(IA, ISR, INOUT, IX)
COMMON /AREA2/BM, BF, WM, WF, OM, OF
C TAKES CHILDREN BETWEEN 18 AND 22 AND SEES IF THEY ARE IN SCHOOL
C RETURNS INOUT=0 IF IN OR 1 IF OUT
C RESET ARRAY INDICES
   IAC=IA-17
   CALL RANDU(IX, IX, YFL)
   IF(ISR .EQ. 1) PRSCH(IAC)=WM(IAC)
   IF(ISR .EQ. 2) PRSCH(IAC)=WF(IAC)
   IF(ISR .EQ. 3) PRSCH(IAC)=BM(IAC)
   IF(ISR .EQ. 4) PRSCH(IAC)=BF(IAC)
   IF(ISR .EQ. 5) PRSCH(IAC)=OM(IAC)
   IF(ISR .EQ. 6) PRSCH(IAC)=OF(IAC)
1 CONTINUE
   INOUT=1
   IF(YFL .LT. PRSCH(IAC)) INOUT=0
RETURN
END
SUBROUTINE ISOLTE(INUM, IL, IR, ID)
K = INUM/10**(IR-1)
J = INUM/10**(IL)
J = J*10**(IL-IR+1)
ID = K - J
RETURN
END
SUBROUTINE BIRTH (IAGE, ISR, IBRTH, ISRC, IYEAR, IX)     FIN13980
COMMON/AREA3/PRWMT, PRBMOT, PROMOT, BRTHRT     FIN13990
DIMENSION PRWMT(50), PRBMOT(50), PROMOT(50), BRTHRT(3, 50)     FIN14000
IF(ISR .EQ. 4) GO TO 4     FIN14010
IF(ISR .EQ. 6) GO TO 6     FIN14020
C HAVE WHITE WOMAN     FIN14030
CALL RANDU(IX, IX, YFL)     FIN14040
IBRTH = 0     FIN14050
IF(YFL .LE. (PRWMT(IAGE)*BRTHRT(1, IYEAR))) IBRTH = 1     FIN14060
IF(IBRTH .EQ. 0) GO TO 1     FIN14070
C SEE WHAT SEX CHILD IS     FIN14080
CALL RANDU(IX, IX, YFL)     FIN14090
ISRC = 1     FIN14100
IF(YFL .GT. 0.5219) ISRC = 2     FIN14110
1 RETURN     FIN14120
C HAVE BLACK WOMAN     FIN14130
4 CALL RANDU(IX, IX, YFL)     FIN14140
IBRTH = 0     FIN14150
IF(YFL .LE. (PRBMOT(IAGE)*BRTHRT(2, IYEAR))) IBRTH = 1     FIN14160
IF(IBRTH .EQ. 0) GO TO 2     FIN14170
C SEE WHAT SEX CHILD IS     FIN14180
CALL RANDU(IX, IX, YFL)     FIN14190
ISRC = 3     FIN14200
IF(YFL .GT. 0.5219) ISRC = 4     FIN14210
2 RETURN     FIN14220
C HAVE OTHER WOMAN     FIN14230
6 CALL RANDU(IX, IX, YFL)     FIN14240
IBRTH = 0     FIN14250
IF(YFL .LE. (PROMOT(IAGE)*BRTHRT(3, IYEAR))) IBRTH = 1     FIN14260
IF(IBRTH .EQ. 0) GO TO 3     FIN14270
C SEE WHAT SEX CHILD IS     FIN14280
CALL RANDU(IX, IX, YFL)     FIN14290
ISRC=5
IF(YFL GT 0.5219) ISRC=6
3
RETURN
END
SUBROUTINE RANDU(IX, IY, YFL)
  IY = IX * 65539
  IF (IY) 50,60,60
  50 IY = IY + 2147483647 + 1
  60 YFL = IY
  YFL = YFL * .4656613E-9
  RETURN
END
SUBROUTINE SALARY(ISR, IAMT, ISEX, IX)
COMMON /AREA8/IWAGE, SAL
DIMENSION IWAGE(15), SAL(15, 2)
CALL RANDU(IWAGE(1), IX, YFL)
DO 1 I=1, 15
   IF(YFL ,LT. SAL(I, ISEX)) GO TO 2
   CONTINUE
1  IAMT=IWAGE(I)
RETURN
END
SUBROUTINE PIAMFB(IAMW,PIA,MFB,FACTOR)
REAL MINMFB,MFB
IAMW=IAMW*FACTOR
SIAMW=IAMW
IF (IAMW .LT. 50) GO TO 2191
IF(IAMW-110) 2192,2192,2193
2193 IAMW=IAMW-110
PIA=1.1989*110.
GO TO 2194
2192 PIA=1.1989*IAMW
GO TO 2195
2194 IF(IAMW-290) 2196,2196,2197
2197 IAMW=IAMW-290
PIA=PIA+.4361*290.
GO TO 2198
2196 PIA=PIA+.4361*IAMW
GO TO 2195
2198 IF(IAMW -150) 2200,2200,2199
2199 IAMW=IAMW-150
PIA=PIA+.4075*150.
GO TO 2201
2200 PIA=PIA+.4075*IAMW
GO TO 2195
2201 IF(IAMW -100) 2202,2202,2203
2203 IAMW=IAMW-100
PIA=PIA+.4790*100
GO TO 2204
2202 PIA=PIA+.4790*IAMW
GO TO 2195
2204 IF(IAMW -100) 2205,2205,2206
2206 IAMW=IAMW-100
PIA=PIA+.2664*100

FIN14550 FIN14560 FIN14570 FIN14580 FIN14590 FIN14600 FIN14610 FIN14620 FIN14630 FIN14640 FIN14650 FIN14660 FIN14670 FIN14680 FIN14690 FIN14700 FIN14710 FIN14720 FIN14730 FIN14740 FIN14750 FIN14760 FIN14770 FIN14780 FIN14790 FIN14800 FIN14810 FIN14820 FIN14830 FIN14840 FIN14850 FIN14860
GO TO 2207
2205 PIA=PIA+.2664*IAMW
GO TO 2195
2207 IF(IAMW-.250) 2208,2208,2209
2209 IAMW=IAMW-.250
PIA=PIA+.222*250.
GO TO 2210
2208 PIA=PIA+.222*IAMW
GO TO 2195
2210 IF(IAMW-.100) 2211,2211,2212
2212 IAMW=IAMW-.100
PIA=PIA+.2*100
GO TO 2195
2211 PIA=PIA+.2*IAMW
2195 IF(PIA .LT. 93.80) PIA=93.80
IAMW=SIAMW
IF(IAMW .LT. 628) GO TO 2213
MFB=1.75*PIA
GO TO 2398
2213 IF(IAMW-.436) 2215,2215,2216
2216 MFB=1.172*436
IAMW=IAMW-.436
GO TO 2217
2215 MFB=1.172*IAMW
GO TO 2222
2217 IF(IAMW-.191) 2218,2218,2219
2219 MFB=MFB+.586*191
GO TO 2222
2218 MFB=MFB+.586*IAMW
2222 MNMF=1.5*PIA
IF(MFB .LT. MNMF) MFB=MNMFB
GO TO 2398
2191  PIA=0
       MFB=0
2398  RETURN
       END
SUBROUTINE PAYMNT(ISAL,PAY,IYEAR)
COMMON/AREA9/IBASE,RATE
DIMENSION IBASE(50),RATE(50)
IF(ISAL.GT.IBASE(IYEAR)) GO TO 1
PAY=2.*RATE(IYEAR)*ISAL
RETURN
1 PAY=2.*RATE(IYEAR)*IBASE(IYEAR)
RETURN
END
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THE ECONOMIC FUTURE OF THE
SOCIAL SECURITY SYSTEM

by

Janet Morrell Hutcheson

(Abstract)

This study addresses the problem of assessing the economic future of the Social Security System using a representative sample of the United States Population. The characteristics of the people defined in this sample include age, sex, race, marital status, monthly salary, status under Social Security and the age and number of any dependents.

The problem formulation deals with probabilistic events which may occur to an individual and will affect his status under Social Security. These events include marriage, divorce, death, birth of a child, retirement and disability onset and recovery.

Each month, it is seen which events occur and the resulting benefits paid by the system is calculated. The difference between the intakes and outlays of the system are calculated and the resulting trust fund found.

Using actual data from the Social Security Administration and the Bureau of the Census, the future of the system is evaluated by four representative case studies. The cases studied determine the effect on the system of changes in the birth rate and disability rate.