in part on the level at which the two variables employed in the crosstabulation are measured The *tau b* and *tau c* measures require at least ordinal-level measurement They use the information about the ordering of categories of variables by considering every possible pair of cases in the table Each pair is checked to see if its relative ordering on the first variable is the same (concordant) as its relative ordering on the second variable, or if the ordering is reversed (discordant)

The number of concordant pairs (P) and the number of discordant pairs (Q) is then computed If P is larger than Q—that is, if there is a preponderance of pairs ordered in the same direction on both variables—then the final statistic will be positive If Q is larger than P, there will be a negative association (sometimes referred to as correlation) between the variables If there are only two categories of either variable, the sign of the association is arbitrary *Tau b* is most appropriate for use with square tables, where the number of rows and columns are equal *Tau c* is appropriate for use with rectangular tables, where the number of rows differs from the number of columns

Social Security Abroad

Impact of Recession on Swiss Pension Program*

Numerous discussions in the United States have highlighted the increased financial demands placed on the social security program by the worldwide recession that began in 1974 and the continuing inflation of the 1970's In light of these concerns, attention has shifted to ways in which foreign countries have dealt with similar economic conditions [1] This study focuses on the measures taken to cope with the effects of recession and inflation on the Swiss national pension program.

BACKGROUND

The 1974 recession and continuing high rates of inflation have placed considerable strain on social security financing in industrialized countries Sharp rises in unemployment have reduced revenues from payroll contributions and, at the same time, created a need for greater expenditures in the areas of unemployment benefits, job training, and, in several countries, early pensions claimed because employment opportunities were limited Inflation has also added to social security program costs as benefits have been adjusted upwards to keep pace with rising prices The combined effects of inflation and recession have aggravated existing long-term financial problems already facing the programs in industrialized countries where demographic changes have meant a steadily declining number of contributors in relation to beneficiaries

In the period 1975–77, the Swiss government took legislative action to restructure the financing of the social security system and to meet the income-maintenance needs of the growing number of unemployed First, in January 1975, temporary "emergency measures" were enacted that reduced the government's contribution to the social security program and substantially raised payroll taxes to offset that cutback Amendments drafted in 1976 to change the social security law have been passed by the legislature and await voter approval in a referendum.[2]

* Prepared by Frank B McArdle, Comparative Studies Staff, Social Security Administration, Office of Research and Statistics

[1] See Lois S Copeland, "Impact of Recession on Financing of French Programs," *Social Security Bulletin*, July 1976, pages 44–48, and "Effect of Recession on Financing of German Pension Program," *Social Security Bulletin*, February 1977, pages 29–33

[2] On February 26, 1978, 66 percent of the Swiss voters approved the new social security amendments and rejected by a vote of 80 percent a proposal to lower retirement age to 60 for men, 58 for women All the proposed changes discussed in this article have thus become law

The proposed legislation (1) schedules gradual increases in the national government's contribution during 1978–82, (2) makes the emergency payroll tax increase permanent and further raises contribution rates for self-employed and nonemployed persons, (3) restricts entitlement to supplemental benefits for a spouse, and (4) introduces a mechanism to automatically adjust the pensions as wages and prices fluctuate Finally, in 1977, another step was taken when compulsory unemployment insurance took effect

The Swiss government anticipated that these measures would produce a social security system that was financially sound for the next 20 years To achieve this goal the government sought additional sources of revenue to finance its share of the program As part of its solution, the government proposed the use of a value-added tax to increase Federal revenues and thereby help meet its obligation [3] Swiss voters, however, rejected the proposal in June 1977 As a result, even if the amendments receive voter approval, the financial outlook of the system remains uncertain The government will lack this anticipated additional revenue to finance scheduled increases in its contribution over the next 4 years

PROGRAM PROFILE

Switzerland is a Federal state composed of 22 sovereign Cantons that are altogether autonomous except in matters where their rights have been specifically ceded to the central authority—the Confederation The relationship between the Cantons and the Confederation is regulated by the Federal Constitution All amendments to the Constitution must be approved by the citizens in a compulsory referendum

The social security pension program in Switzerland provides old-age, survivor, and disability protection, health insurance, employment injury compensation, unemployment insurance, and family allowances

The old-age and survivor program was established in 1948 and it is compulsory for residents It is financed primarily through a payroll tax and government contribution

[3] A value-added tax is levied on business firms for the difference between the cost of raw materials purchased and the sale price of their final products

Most persons in Switzerland are required to pay contributions from the time they begin working or the year after they reach age 20 through retirement at age 65 for men or age 62 for women, whether or not they are actually working Married women who are not employed, or who work in a family business without salary, are exempted from making social security contributions

The social security system was founded on the basic premise that there should be three "pillars" of economic security (1) compulsory social insurance, (2) employee-benefit plans, and (3) private savings and insurance Since the program was not intended to be the sole source of income, it was set up with a relatively low benefit that replaced only a small portion of a worker's final earnings

In practice, however, social security benefits became the main source of income for a large part of the retired population In 1964 more than 20 percent of the beneficiaries were also receiving a means-tested payment because their pensions were inadequate As a result, in January 1966 a national minimum income standard was established and a new system of supplementary payments was added to the regular earnings-related pension to bring the incomes of pensioners up to the national minimum

So many pensioners rely on social security benefits as their sole source of income that the Swiss decided to modify their original philosophy of keeping such benefits relatively low [4] Social security amendments passed in 1972 inaugurated a program of steadily increasing pensions at a rate faster than wages and prices Pension increases scheduled for 1973 and 1975 were designed to raise old-age and survivor pensions to a level that would guarantee a minimum standard of living A constitutional amendment passed in 1972 also reinforced the second "pillar" concept of the Swiss program This amendment made it mandatory for employers to provide a private pension system covering all wage and salary workers with earnings above the maximum for social security benefit purposes [5] The bill implementing compulsory private pensions is still pending, however

[4] Elizabeth K Kirkpatrick, "Switzerland Changes Social Insurance Philosophy," *Social Security Bulletin*, April 1972, pages 24–26

[5] Max Horlick, "Switzerland Compulsory Private Pensions," *Social Security Bulletin*, October 1973, page 46

When the recession began in 1974, the contribution rates were as follows Wage earners and their employers each paid 3 9 percent of payroll for old-age and survivor coverage and 0 4 percent for disability coverage Self-employed persons contributed 3 9–6 8 percent on earnings from 2,000 to 20,000 francs per year[6] for the old-age and survivor program, and an added 0 46–0 80 percent for disability insurance Self-employed persons earning less than 2,000 francs paid the minimum fixed contribution of 78 francs per year Non-employed persons were assessed amounts based on their income and assets, ranging from a minimum of 78 francs to a maximum of 7,800 francs annually

The public subsidy to the social security program is a designated percentage of expenditures In 1974, total government contributions amounted to 20 percent of expenditures for the old-age and survivor pension program and 50 percent for the disability program The national government contributed 75 percent of the total government contribution, the Cantons contributed the other 25 percent Annual surpluses accumulate in a central equalization fund and are tapped to help finance the social security program The fund's real purpose is to prepare for an unfavorable demographic pattern later in the century

The Swiss social security program has a minimum and a maximum pension that were 400 francs and 800 francs per month, respectively, in 1974 A retired worker with a spouse aged 45 or older was entitled to a dependent's supplement equal to 35 percent of the insured individual's pension, and a worker with a spouse aged 60 or older was entitled to a couple's pension equal to 150 percent of the insured person's benefit Pension review occurred every 3 years or whenever the consumer price index rose 8 percentage points Increases were initiated by a government commission and legislated by Parliament

PROBLEMS OF FINANCING

The recession adversely affected contributions from both payroll and general revenues—the sources of revenue for the social security program Business failures, the drop in employment, and a decline in the number of foreign workers, all made themselves felt in terms of a reduced rate of increase in payroll contributions

Serious and unaccustomed changes occurred in the Swiss labor market at the recession's onset in 1974 Since the early 1960's, virtually no unemployment had existed On the contrary, the labor supply was limited and large numbers of foreign workers came into the country to meet the demand In 1975 the situation suddenly changed Total employment fell rapidly, and by 1976 it had decreased more than 9 percent from the 1974 figure Concurrently, unemployment was thirty times greater, increasing from a minuscule 0 03 percent in 1974 to 0 90 percent in the following year

The Swiss unemployment rate masked a real problem, although it was still modest compared with that of most countries It did not reflect the large number of foreign workers who left the country and thus ceased making contributions to the social security system In fact, the Swiss labor force had declined by 191,000 foreign workers in 1975 and 1976 Declining employment opportunities and the government's policy of tightening immigration controls were the main reasons

Another factor minimizing the unemployment rate was the rise in the number of workers put on reduced workweeks In 1975, the number of partially unemployed rose to 136,700, or 4 9 percent of the total labor force Reduced workweeks meant lower aggregate earnings for employees

Payroll contributions thus suffered because of the decline in total employment and hours worked The total number of employed persons in Switzerland declined 5 4 percent between the end of 1974 and the end of 1975, and another 4 percent between the end of 1975 and the end of 1976 The drop in total employment measures the negative impact of recession on payroll contributions in Switzerland more accurately than the unemployment rate, which does not reflect the large number of foreign workers who emigrated nor the increase in workers on reduced workweeks

Deficit in 1975

The inflation rate in Switzerland was 11 9 percent in 1973 and 12 3 percent in 1974—among the

[6] As of January 1, 1977, 1 Swiss franc equaled 40 8 U S cents

highest in Europe. The national government, as a result, experienced growing budget deficits. A 1974 fiscal program designed to contain the growth of government expenditures and to raise sales and income taxes was rejected by Swiss voters. Thus, on the eve of a 25-percent increase in pensions scheduled for 1975, the government found itself without additional sources of revenue. As a result, in early 1975 the national government cut back its contribution for 1975–77 from 15 percent to 9 percent of expenditures.

The size of the central equalization fund is especially important because Switzerland, like most industrialized countries, has experienced a declining ratio of contributors to pensioners: 3.9 contributors for every pensioner in 1975, down from 4.4 in 1960. A further decline to 3.0 contributors is projected for the year 2000 and possibly as few as 1.8 contributors per beneficiary in the era beyond 2020. The government believes that the fund will have to be used to offset the unfavorable demographic ratio in the future.

In 1975, when the fund dropped in absolute size for the first time in order to compensate for the social security annual deficit, special measures became necessary. In that year, for the first time since it was established in 1948, the Swiss old-age and survivor pension program had a deficit in its annual operations. This decline resulted from the changes indicated in the accompanying table. Payroll contributions failed to grow as quickly as they had in the past and the government contribution declined. Therefore, total receipts for 1975 increased only 4 percent while expenditures rose 19 percent.

The Swiss policy of steadily increasing pensions had placed a financial strain on the central equalization fund. The minimum annual pension for a single person, for example, increased to more than four times its original size during 1964–77: from 1,500 francs to 6,300 francs. Higher benefits and the rising number of beneficiaries between the end of 1963 and the end of 1975 caused total receipts to the old-age and survivor program to increase by 5.7 times, while total expenditures rose by 8.3 times what they had been. Expenditures have risen faster than the revenue going into the central equalization fund. The fund, which had sufficient resources to cover 53 months of pension expenditures in 1966, was only able to finance 18 months of expenditures by the end of 1974.

The decline in the rate of increase of payroll contributions would have been even greater if the Swiss government had not enacted an 8-percent increase (from 7.8 percent to 8.4 percent) in payroll taxes for old-age and survivor insurance effective July 1, 1975. The decline in government contributions reflects the previously mentioned government-ordered cutback in January 1975. Total receipts nevertheless managed to grow slightly from 1974 to 1975 but not nearly so much as the increase in expenditures, which reflects the 25-percent benefit increase effective January 1, 1975. As a result, the old-age and survivor pension program in 1975 registered a deficit of 168.8 million francs.

CHANGES IN SOCIAL SECURITY

As noted earlier, to compensate for the reduction in the Swiss government subsidy (from 15 percent to 9 percent of total social security expenditures), payroll taxes were increased (effective July 1, 1975) from 7.8 percent to 8.4 percent for the old-age and survivor insurance program and from 0.8 percent to 1.0 percent for disability insurance. In addition, the scale of contributions for the self-employed was raised from 3.9–6.8 percent to 4.2–7.3 percent for the old-age and survivor insurance program and from 0.46–0.80 percent to 0.575–1.000 percent for disability insurance. The minimum contribution for self-employed persons was increased from 78 francs to 84 francs annually, and the range of contributions for nonemployed persons was also raised—from 78–7,800 francs to 84–8,400 francs per year.

Both the government contribution cutback and the payroll-tax increase were enacted under temporary legislation. In 1975, therefore, the Swiss government began drafting a permanent set of amendments to the social security law. The goal of the proposed new legislation is to restore the financial equilibrium of the system by increasing revenue into the system and cutting back on expenditures.

Increased Revenue

A proposal was made to raise the national government's contribution to the old-age and sur-

TABLE 1.—Receipts and expenditures under Swiss old-age and survivor pension program, 1973–75

[Amounts in millions of Swiss Francs]

Item	1973	1974	1975	Percentage change from—	
				1973 to 1974	1974 to 1975
Receipts					
Total[1]	7,138 6	8,064 7	8 443 3	+13	+4
Payroll contributions	5,449 3	6,284 9	6,800 0	+15	+9
Government contributions	1 318 0	1 360 0	1,206 5	+3	−11
National	988 5	1,020 0	780 0	+3	−23
Canton	329 5	340 0	426 5	+3	+25
Expenditures	6 480 3	7,262 7	8,612 1	+12	+19

[1] Includes returns from invested reserves

Source Office Fédéral des Assurances Sociales, "Les comptes d exploitation de l AVS et des APG pour 1975, *RCC* (Switzerland), No 8/9, August-September 1976

vivor program in steps that would bring it from 9 percent in 1977 to 11 percent in 1978 and eventually restore it to 15 percent in 1982 The Cantons' contributions would remain at the current 5 percent

The temporary payroll-tax increase mentioned above would become permanent with the new law In addition, the contribution rate for self-employed persons earning over 25,200 francs annually would rise from 7 3 percent to 7 8 percent The minimum contribution paid by the self-employed and nonemployed would rise from 84 francs to 168 francs per year Pensioners who continue working would have to pay social security contributions, as they did before 1954, on earnings above 1 5 times the minimum old-age pension (currently 525 francs per month) The law also allows the government to pass regulations charging interest for delayed payment of contributions, and it gives the social security system legal recourse against third parties and their insurance companies when their negligence results in the payment of disability or survivor benefits, as in automobile accidents, for example

Reduced Expenditures

Changes that call for reduced expenditures are also called for in the proposed new law. The age at which a wife qualifies for a supplement to the insured person's benefit would be raised from 45 to 55, and the supplement reduced from 35 percent to 30 percent of the worker's old-age pension The age at which the wife would qualify the worker for a couple's pension (150 percent of a single worker's pension) would rise from 60 to 62 The government would have the authority to regulate multiple entitlement among the several branches of social insurance to curtail duplication of benefits and to overhaul the system of partial pensions with the same end in mind

The new legislation is intended to curb future growth of social security expenditures by consciously omitting any provisions for a lower or flexible retirement age The government deliberately rejected popular demands for early or flexible retirement because of cost considerations The government argued that it was inappropriate to lower retirement age while life expectancy was rising and that early retirement would not resolve the problem of unemployment The government estimated that early retirement measures would have required an immediate 3-percent increase in payroll contributions or a 25-percent cut in pensions

Automatic Adjustment of Pensions

The new legislation aims at establishing a mechanism for automatic adjustment of pensions Under the old law, pensions were reviewed every 3 years, or whenever the consumer price index rose 8 percentage points During the review process, the government would ask the Federal Commission on Old-Age, Survivors, and Invalidity Insurance to weigh the need for adjusting pensions against the financial condition of the social security system and, on that basis, propose an appropriate benefit increase The proposal then had to be presented to Parliament for approval, a procedure that was regarded as time-consuming and cumbersome

The proposed new law gives the government some discretion in adjusting pensions Pensions would follow a "pension index" equal to the mean of the Swiss consumer price index and the wage index of the Federal Office for Industry, Handicrafts, and Labor The government would automatically adjust pensions every 2 years but would have the option of making adjustments at shorter intervals if the consumer price index rises more than 8 percent in a single year, or at longer intervals if the rise in the consumer price index is less than 5 percent in the span of 2 years

To avoid the problem of overindexing, the proposed law provides that new pensions awarded in the year before the benefit increase would be raised only by half as much as those pensions in force over the full 2-year adjustment period Otherwise, the beneficiary would derive a double advantage, once for the year he worked and received higher wages and once for the benefit adjustment that reflects the change in wages during the work year before retiring

COMPULSORY UNEMPLOYMENT INSURANCE

The recession underscored the fact that the existing system of unemployment insurance was inadequate When the recession began, unemployment compensation in Switzerland was a mixture of compulsory and voluntary systems The national government had passed legislation establishing minimum standards for unemployment insurance, but it was barred by the Constitution from establishing a national unemployment fund Instead, unemployment funds were administered by Cantons and local districts, trade unions, and private companies In most Cantons, unemployment insurance was only compulsory for low-income workers, and many other occupational groups were excluded—among them public officials, agricultural workers, and nursing staffs Consequently, a relatively low level of coverage existed in 1974 when the recession struck Only 1 out of 5 workers was covered by an unemployment insurance plan

Some improvements were introduced in 1975 The terms of coverage were liberalized, benefits were increased, and the duration of benefits was prolonged The recession prompted more workers to enroll voluntarily, the Cantons extended their obligatory systems, and the national government tried to encourage enrollment Still, as of June 1976, only 1 out of 3 workers had unemployment insurance coverage

The Swiss government consequently drafted a constitutional amendment authorizing a system of compulsory national unemployment insurance It was approved by voter referendum on June 13, 1976 Interim provisions went into effect April 1, 1977

Under this legislation, employers and employees each contribute 0 4 percent of earnings up to a ceiling of 46,800 francs per year, which is a little more than twice the average earnings of a Swiss worker in manufacturing in 1975 (23,228 francs) The law also provides for contribution rates to be lowered when sufficient reserves have accumulated in the unemployment fund

The interim program left benefits virtually the same as they were under the old system Those without dependents receive 65 percent of the latest covered monthly salary Employees with dependents receive 70 percent of salary, plus supplements for dependents, up to a maximum unemployment benefit of 85 percent of last salary. Benefits cannot exceed 150 days (180 days for handicapped workers and workers over age 55) and are subject to suspension if several job offers are declined

A worker must have paid contributions for 150 days of work out of the 365 days preceding his unemployment to qualify for benefits Benefits were not paid during the first 6 months of the program's operation, unless the employee was covered under a preexisting unemployment insurance plan

The new law on unemployment compensation thus complements the other changes in the Swiss pension system It further increases the capabilities of social insurance programs to cope with the impact of recession

SUMMARY

Legislation drafted in Switzerland in 1975–77 aims at countering the effects of inflation and recession by bringing increased revenues into the system, reducing expenditures, devising a mechanism to adjust pensions automatically, and improving income maintenance for the unemployed

The proposed legislation to place the social security system on a sound financial basis now needs voter approval in a referendum Swiss voters meanwhile rejected (in mid-1977) a government-proposed value-added tax designed to finance increasing government contributions during 1978–82 Still to be resolved, therefore, is the problem of how the government will finance higher contributions and still achieve its stated goal of a balanced budget

PROGRAM OPERATIONS

(*Continued from page 2*)

10 percent in the ratable reduction percentage used in the computation of grants The increase of $49 95 in average payments in Nebraska reflected a legislative change in the maximum—from $294 for a family of four to $370, or $250 for the first child and $60 for each additional child West Virginia's lower average was the result of the large payment in the preceding month to include a one-time back-to-school allowance In Rhode Island a three-pay-period adjustment affected average payments in both the regular and the unemployed-parent programs

Medicare Benefits

Withdrawals from the hospital insurance (HI) trust fund for payments to hospitals, skilled-nursing facilities, and home health agencies providing services to beneficiaries totaled nearly $1 6 billion in December 1977 Supplementary medical insurance (SMI) benefits amounted to $510 million Cumulative withdrawals from the hospital and medical insurance trust funds for fiscal year 1978 were $4 4 billion and $1 6 billion, respectively

As of December 31, 1977, Social Security Administration records indicate that 9 6 million bills were approved and $11 9 billion was reimbursed under HI from January through December 1977

The average amount reimbursed for all ages was $1,457 per inpatient hospital bill (all hospitals), $158 per home health bill, and $528 per skilled-nursing facility bill Approximately 89 percent of the total amount reimbursed during this 12-month period was for the population aged 65 and over, and 11 percent was for the disabled

Short-stay hospital bills accounted for 81 percent of all bills approved and 95 percent of total reimbursements Hospital charges were $199 per day for the aged and $215 per day for disabled beneficiaries Fewer covered days of care were recorded for the disabled, however (9 4, compared with 10 0 for all ages)

As of December 31, 1977, 111 million bills were recorded and $6 2 billion was reimbursed under SMI since January 1, 1977 Approximately 15 percent of the total amount reimbursed was for the disabled The average amounts reimbursed per bill for disabled beneficiaries were $59 for physicians' services, $117 for outpatient care, $18 for independent laboratory services, $114 for home care, and $223 for all other services