R E P O R T R E S U M E S

ED 011 688 EA 000 145

THE FLEXIBLE SYSTEM, AN ECONOMIC ANALYSIS OF ADVANTAGES OF THE QUARTERLY CALENDAR IN PUBLIC SCHOOLS.

BY- BA)MAN, W. SCOTT
TOLEDO UNIV., OHIO, COLL. OF BUSINESS ADMIN.

PUB DATE MAR 66

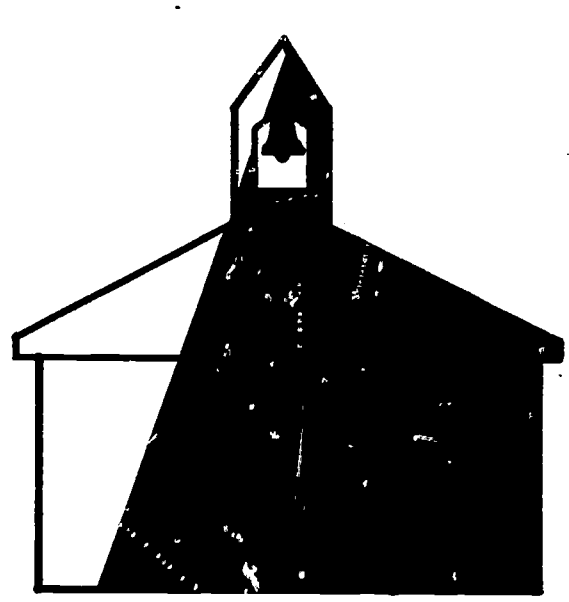
EDRS PRICE MF-$0.09 HC-$1.84 46P.

DESCRIPTORS- *YEAR ROUND SCHOOLS, *ECONOMIC RESEARCH, EDUCATIONAL FACILITIES, *PUBLIC SCHOOL SYSTEMS, OPERATING EXPENSES, EFFECTIVE TEACHING, SCHOOL SCHEDULES, SCHOOL TAXES, EXPENDITURES, TEACHER SALARIES, ACHIEVEMENT, *QUARTER SYSTEM, TOLEDO

THE AUTHOR SUBMITS THAT PROBLEMS OF FINANCE AND STUDENT CAPACITY NECESSITATE INCREASED FLEXIBILITY IN SCHOOL PROGRAMS. A POSSIBLE SOLUTION IS PRESENTED--SCHEDULING THE SCHOOL YEAR ON A QUARTER SYSTEM (OR THE FLEXIBLE SYSTEM)--UNDER WHICH ONLY 75 PERCENT OF THE STUDENTS WOULD BE IN SCHOOL AT THE SAME TIME AND THE SCHOOL YEAR WOULD BE EXTENDED TO 11 MONTHS. THIS SYSTEM WOULD INCREASE TEACHER EFFECTIVENESS BY GIVING TEACHERS PROFESSIONAL WORK 11 MONTHS A YEAR AND SUBSTANTIALLY INCREASING THEIR SALARIES. SUCH A PROGRAM WOULD ALSO GIVE STUDENTS GREATER FLEXIBILITY IN PROGRAM PLANNING. ACCELERATED AND DECELERATED PROGRAMS COULD BE EFFECTED MORE EASILY. TWO POSSIBLE FLEXIBLE SYSTEMS ARE PROPOSED--(1) THE PUPIL ROTATION PLAN, AND (2) THE CONSTANT QUARTER PLAN, BOTH OF WHICH ARE DETAILED IN THE REPORT. (HW)

THE FLEXIBLE SYSTEM

An Economic Analysis of Advantages of The Quarterly Calendar in Public Schools



W. Scott Bauman

A PUBLICATION OF THE
BUSINESS RESEARCH CENTER
COLLEGE OF BUSINESS ADMINISTRATION
THE UNIVERSITY OF TOLEDO
TOLEDO, OHIO 1966

THE FLEXIBLE SYSTEM

An Economic Analysis of Advantages of The Quarterly Calendar in Public Schools

W. Scott Bauman

A PUBLICATION OF THE
BUSINESS RESEARCH CENTER
COLLEGE OF BUSINESS ADMINISTRATION
THE UNIVERSITY OF TOLEDO
TOLEDO, OHIO 1966

F O R E W O R D

Modern man is caught in a dilemma. He is certain he must pour more of his resources into education but he is not certain how this should be done. Explorations into the issue often seek new and improved ways of allocating the human and material resources available to education.

W. Scott Bauman, Associate Professor of Finance, has turned his attention to discussion of the economic advantages of the quarterly calendar for year-round use of school facilities. In his efforts he has maintained that most essential balance, one which tempers the questioning of old and established ways of doing things with illustrations of how new procedures can function without being disruptive to accepted patterns of living.

Dr. Bauman is no newcomer to educational problems. His deep concern for schools led his community to elect him to a seat on its Board of Education. It is from the vantage point of the scholar of business management vested with the responsibility for seeing that school systems remain viable and productive that the author attacks the problem. Solid data and sound logic characterize this monograph. All who are interested in our nation's systems of schools will find it a base for fruitful study.

K. C. DeGood

Associate Dean

College of Education
The University of Toledo

PREFACE

Today, children have a greater need for a high quality and flexible educational program than at any time in history. Although the public demands more services from educational institutions, the necessary economic and financial support is severely limited by over-burdened governmental budgets and by taxpayer resistance.

Since the establishment of our traditional nine-month school year, the economic system has advanced a long way and society has become more complex. In order to adjust successfully to such a life, children need an education that is more closely adapted to their individual needs, abilities, and goals. The traditional school year not only places each child in a school-term "straight-jacket," but is economically wasteful in terms of pupil and public resources.

While a nine-month school year may meet the needs of many students, other pupils need a program which provides more instruction time and flexibility. Some pupils need greater breadth, others need greater depth, some need to accelerate, others need review and remedial work, specialized vocational training students need some sort of scheduled integration between technical classroom education with occupational training experience, and "ungraded learning" programs need flexibility. The Flexible System is designed to use efficiently the school facilities and teaching staff eleven months out of the year and at the same time provide a program which fits closely the varying needs of the pupils. Such a system generates savings which can be applied to necessary program improvements.

I wish to thank Professors K. C. DeGood, Robert F. Hopkins, John L. Mason, and Messrs. Charles A. Scheltema, George L. Hagen, and Robert W. Frye for many helpful comments; Dr. Margaret D. Zaugg and Mr. Victor W. Ullman for thoroughly editing the manuscript; and The University of Toledo for its sponsorship. Except as otherwise indicated in the study, the author assumes sole responsibility for the analyses and views presented.

W. Scott Bauman

March, 1966

CONTENTS

Chapter I

INTRODUCTION

The purpose of this study is to examine the possible advantages to be derived from the adoption of a quarterly system in the public schools. In describing these advantages, it is also the purpose of this study to stimulate discussion and show the need for additional investigation of the feasibility of converting to a quarterly system. Such investigating currently is being done in California where, in June, 1963, the state senate authorized a special committee to study the feasibility of requiring all elementary and high school districts in the state to change to a four-quarter school year.

Flexible System - Defined

To avoid confusion with numerous other types of proposed school calendars, the quarterly system examined here will be called the flexible system. The flexible system is a school schedule in which only 75 per cent of the student body is in session attending classes at any one time. The remaining 25 per cent is, therefore, not in attendance. Each pupil attends school, on an average, three of the four school quarters. By dividing the student body into four groups, three groups are always attending, while one group is always off. By staggering the four groups, one group commences school at the beginning of each quarter and another group drops out at the end of each quarter. By a small increase in the length of the school day, [1] or by other adjustments, the school system could operate its four quarters over 11 months, and close down completely for one month each year. Basically, school attendance in three quarters of a year would be equivalent in instruction time to the traditional 9-month school term.

---

1 According to the National Education Association, almost two-thirds of all teachers estimated their present teaching load as light or reasonable.

Purpose of the Flexible System

The flexible system is primarily designed to help accomplish four tasks:

1. To advance the quality, scope, and flexibility of the educational program available to pupils.

2. To realize tax savings or tax economies, i.e. to obtain a greater amount of pupil education per tax dollar.

3. To allow for the efficient utilization of people in the teaching profession.

4. To increase the utilization of school properties.

This study, basically, will take a financial or economic approach, and, in addition, present educational benefits considered heretofore by educators. It will examine specific economic effects that the flexible system would produce in the United States. Michigan and Ohio will be used as examples to illustrate the effects in individual states.

Magnitude of Public Education

The operations of public schools have a major impact on the United States. In equipping our children to deal effectively with the years ahead, education has a vital bearing on the future social well being and economic prosperity of the nation. In addition, however, public schools have a major direct or immediate impact on the economy that is not widely recognized. Almost everyone is affected by the public schools in one way or another--whether he is a parent, pupil, taxpayer, teacher, businessman, or politician. In fiscal year (FY) 1960, public schools collected $14.7 billion in revenues, enrolled 36.1 million pupils, employed over 1.5 million teachers, and used over 1.4 million classrooms.

Total expenditures for FY 1964 are estimated at over $21 billion. This is a larger public expenditure than any other except national defense.

Chapter II

THE NEED TO REAPPRAISE THE TRADITIONAL SCHOOL YEAR

The traditional school year originated at a time in history when social and economic conditions were vastly different from today. Three of these basic conditions are cited here.

Origin of the Traditional School Year

1. Historically our economy was basically agricultural in nature. The schools were required to close down in late Spring to permit most of the teachers and pupils to help plant crops and do chores on the farm. The schools resumed operations in the Autumn after the harvest. The school operations, therefore, were suspended out of necessity.

2, The need for a formal education was not critical since most school children later worked as adults on the farm, in the home, or elsewhere in predominately unskilled or physical-labor tasks.

3. Because the cost of building and maintaining a relatively simple and austere school system was relatively low, the cost of leaving a school system idle for a fourth of the year was small at that time.

Times Have Changed

The above three conditions no longer exist. Instead, we are faced with the following conditions:

1. With the development of our nation into an advanced industrial economy, almost 93 per cent of our employment is in industry, government, and other non-farm vocations. The employment of the vast majority of our people is, therefore, geared to a more or less steady year-around schedule and not to the traditional school year. This is apparent at the beginning of each summer when school children and teachers enter the labor market seeking employment in industry. In mid-June, 1963, for example, unemployment in the United States rose by 780,000. Just about all of this increase in joblessness was attributable to teenagers unsuccessfully seeking jobs. Then as schools reopen in September, teenage unemployment declines.

2. There is a much greater need for a high-quality, thorough education in today's complex society. One of the greatest problems facing the nation is the high level of unemployment among less educated and less skilled workers which has developed in recent years. Total unemployment in the labor force was 5.6 per cent both in 1949-50 and in 1962. While the unemployment rate for workers with white-collar skills fell between these two periods from 4.25 per cent to 3.75 per cent, the unemployment rate for less skilled workers rose from 6.80 per cent to 7.25 per cent.[1] Educational requirements have noticeably increased within occupational categories. While the unemployment rate among men over age 18 with only 5 to 7 years of school increased from 8.3 per cent in 1950 to 9.7 per cent in 1959, the unemployment among those with 16 or more years of schooling declined from 2.3 per cent to 1.4 per cent.[2] In mid-May, 1963, 1,156,000 teenagers seeking work were unemployed. While only 5.9 per cent of the nation's labor force was unemployed in mid-May, 1963, 17.8 per cent of all teenagers in the labor force were unemployed, a rate three times greater.[3] The educational standards and requirements that are placed upon the high school graduate by industry and by colleges are higher today than at any time in our history. In meeting this growing challenge, the public schools have improved and expanded their programs to a point where the school system today is a far cry from the "little red school house" with its "reading, 'riting, and 'rithmetic."

3. Increasing the effectiveness of our school system has pushed the costs of a modern education higher today than at any time in history. Total public school expenditures have increased steadily from about $63 million in 1870 to an estimated $21 billion in FY 1964. Three reasons for this increase are (a) inflation of costs, (b) increased enrollments, and (c) increased demands placed on public schools to provide more extensive and higher quality educational programs. It is common knowledge that the general price level has increased substantially over the years. This has resulted in corresponding increases in costs of construction and maintenance of public school buildings as well as costs of materials, supplies, wages and salaries.

Increases in school expenditures due to enrollments have resulted from several conditions: (a) increase in the number of children of

---

[1] Business in Brief, No. 49, March-April, 1963, The Chase-Manhattan Bank.

[2] Ibid.

[3] Department of Labor

school age; (b) increase in the per cent of children age 5 to 17 attending school; (c) increase in the number of school years attended by the average student; and (d) increase in the average number of class days in the school year.

These points are supported by the data in Table 1.

Table 1

PUBLIC SCHOOL ATTENDANCE

	Public School Enrollment (in Average Daily Attendance	Number of 5 to 17 Year Olds Enrolled As A Per Cent Of The Population of 5 to 17 Year Olds	High School Graduates As A Per Cent Of The Population 17 Years Old	Average Number Of School Days In A Term
1870	4.1 million	--	2.0 %	132.2
1900	8.2 "	71.9 %	3.5 %	134.7
1920	21.3 "	78.3 %	29.0 %	172.7
1940	22.0 "	84.4 %	50.8 %	175.0
1950	22.3 "	83.2 %	59.0 %	177.9
1960	32.4 "	82.2 %	--	178.0
1970	45.6 " Estimate			

Source: U. S. Bureau of Census

Higher quality school programs and services also cost more. More supplies, equipment, and visual-aids are needed in order for pupils to pursue intensively laboratory sciences, technical, academic, and vocational specializations. Teachers with greater capabilities and higher qualifications need to be recruited and retained. Because of increased educational specialization, many small local schools have consolidated to obtain the efficiencies and benefits of centralization. Consequently, in some suburban and other less densely populated areas which are without adequate public transportation systems, it has been necessary to establish and maintain a school bus system.

Trends in public school finances during the last 20 to 40 years are shown in Table 2.

Table 2

THE RELATIVE SIZE OF PUBLIC SCHOOL REVENUES

FY	Total Revenues Public Schools (Billion)	Gross National Product (1) $Billion	Gross National Product % of Pub. Sch. Rev.	Government Tax Receipts $ Billion	Government Tax Receipts % of Pub. Sch. Rev.
1930	$2.1	$104.4	2.0 %	--	--
1940	2.3	91.1	2.5	$14.2	16.2 %
1948	4.3	234.3	1.8	54.6	7.9
1950	5.4	258.1	2.1	54.8	9.9
1958	12.0	442.8	2.7	108.6	11.0
1960	14.7	482.8	3.0	126.7	11.6

(1) Preceding calendar year
Source: U. S. Bureau of Census; Tax Foundation, Inc.

As shown in Table 2, school revenues increased sevenfold from $2.1 billion in 1930 to $14.7 billion in 1960; during this time Gross National Product (GNP) increased less than fivefold. School revenues, therefore, have grown more rapidly in recent years than has the total economy. It is important to note that school revenues as a per cent of GNP have increased from 2 per cent in 1930 to 3 per cent in 1960. In 1960, a larger portion of the nation's productive energy was allocated to public school revenues than at any time in the last 25 years.

Table 2 shows total government tax receipts for all Federal, State, and local authorities. Of these revenues, 16.2 per cent went to public schools in 1940 when both Federal taxes and defense spending were relatively low. In the 12-year period from 1948 to 1960, the proportion of government revenues devoted to public schools rose from 7.9 per cent in 1948 to 11.6 per cent in 1960.

The real cost of the improvement factor in education is presented in Table 3 (next page). It is expressed in terms of constant dollars so as to eliminate an inflationary bias.

Table 3

CHANGES IN THE REAL COST OF PUBLIC SCHOOL EDUCATION

Fiscal Year	Total Public School Expenditures In Constant 1960 Dollars	
	Per Pupil	Per Capita
1920	$ 98.90	$15.28
1940	222.37	37.66
1950	321.16	48.72
1960	472.17	87.07

Source: U. S. Bureau of Census

It can be noted that total school expenditures on both a per pupil and a per capita basis have continously increased in the last 40 years. In the last twenty years total school expenditures per pupil (in constant dollars) increased 112 per cent, and in the last ten years (through 1960) they rose from $321.16 to $472.17, an increase of 47 per cent. It is estimated that current expenditures per pupil in FY 1964 are 21 per cent higher than in FY 1960, and in real terms (constant dollars) 12 per cent higher.

If educational trends continue toward higher quality, more extensive and more intensive programs, as they are likely to do, the costs will become still higher. Superimposed on this trend is that of a growing school population. Our elementary and secondary school population is increasing by nearly a million pupils a year; under the traditional school year system, an estimated 600,000 additional classrooms will be needed in the 1960's.[4] Over 45 million children are involved in the decade of the 1960's.

The demands for greater financial aid which are being placed on school districts, Federal, State, and local governments (therefore, ultimately felt by the taxpayer) should be carefully examined and efficiencies effected wherever possible. Since about one-third of all state and local taxes are used to finance public schools, and since these schools operate only three-fourths of the year, the school calendar appears to be a good starting point for investigation.

In the United States, certain types of schools tend to operate all year around in order to avoid waste or to handle larger enrollments

[4] 1962 Joint Economic Report, 87th Congress, 2nd Session, U. S. Gov't Printing Office, Washington: 1962.

with the same facilities. A number of schools operate summer sessions and a number of universities operate year-round with a quarterly or trimester system, frequently with classes on Saturday and at night. Two special public schools in Florida started a year-round operation in the Fall of 1963. Some trade and vocational schools operate on this basis. Government and industry operate, more or less, all year around. The American public school system is, therefore, the only major institution in the nation which functions fully on the average of only 180 days out of 364 days a year.

Chapter III

IMPROVING INSTRUCTIONAL EFFECTIVENESS

The most important element in the successful functioning of a school is the teacher.. Since the quality of education received by pupils is determined to a large extent by the qualifications and the motivation of the teachers, it is fitting and proper to examine the affect that the traditional school year has on the efficient use of the teaching profession in economic, financial, and educational terms.

In economic terms, there are over 1.5 million public school teachers; they are paid an average salary of $5,960; and they have completed an average of 4.7 years of college education.[1]

Under the traditional system, a large number of highly skilled professional people are using their very valuable and costly training only three-fourths of the year because only a very small portion of the teachers have opportunities to pursue their professional work during the remaining one-fourth of the year (three summer months). This results in a significant economic and social waste to the nation.

Many teachers employed in educational work three-fourths of the year view teaching as a part-time, temporary, or supplementary occupation. The average salary of $5,960 is obviously low when compared with other educated professions. One of the major explanations for this salary difference, of course, is that other professions work all year around, and hence earn a full year's income for a full year's work. Some argue that teachers are able to work at summer jobs. However, responsible and skilled jobs which use the capabilities of teachers for the three summer months are, by and large, seldom available. The usual alternatives faced by teachers in the summer are to work at whatever job is available, or if none is available, to become an unemployment statistic. In regard to this last point, the Labor Department reported that employment of adult women increased 722,000 in September, 1963, which was about the increase expected because of the return of teachers from an unemployment status to school jobs. Teachers are, therefore, considered fortunate if they can supplement their regular salaries by delivering milk, waiting on table, selling flower-seeds, encyclopedias, etc., tending gas stations, bar tending, or doing other more menial and

---

1 National Education Association (NEA), 1963.

unskilled work. Can you imagine college graduates in other professions, such as nursing, medicine, law, business, engineering, accounting, and banking wasting their talents on such summer jobs? Many of them would rather accept three months of unemployment or turn to some other responsible year-around career opportunity.

The NEA reports that almost 75 per cent of married men teachers hold two year-around jobs, or work summers, or both, in order to supplement the family income; 40 per cent have wives who work, compared with the national average of 34.3 per cent of all men in the labor force. Forty per cent of married male teachers hold outside jobs during the school year. These figures suggest that teaching is not either a full time career or is not providing sufficient compensation to support fully a head of a household insofar as most male teachers are concerned. Consequently, the teaching profession is unable to attract and retain many capable men who desire to teach since many enter other occupations which offer permanent year-around employment with year-around compensation. In any event, questions that concern the economic status of male teachers are significant when we consider the number teaching. There were 364,000 men teachers in FY 1958 compared with 1,054,300 women teachers. In Michigan, for example, about one-third of its teachers are men.

In view of these facts, it is not surprising to find it difficult to hire and retain fully qualified teaching staffs in public schools. In FY 1963, for example, 82,843, or 5.5 per cent of all teachers employed in the public schools did not have the standard teaching certificate, which usually requires a bachelor's degree. In Michigan 5,850 or 8.4 per cent of all teachers were in this category, and in Ohio 7,934 or 9.9 per cent.[2] While a teaching certificate does not provide guaranteed tangible evidence of a good teacher, it does formally identify those who possess teacher qualifications obtained through a professional training program. Turnover rates are also higher than in other occupations. In FY 1958, 137,000 left the profession; this represented about 10.9 per cent of all teachers.[3] It was found through a nation-wide survey made by the NEA, that only three out of every four teachers would choose teaching as a career again, given the chance to go back to their college days and start over.

It is believed that the flexible system will, with improvement of the instructional effectiveness of public schools, reduce instructional costs. The flexible system is designed to make teaching a permanent, full-time profession by providing the teacher with 11 months' professional employment.

---

[2] Department of Health, Education, and Welfare (HEW)

[3] HEW.

If the teachers taught all four quarters under the flexible system, we would theoretically need only 75 per cent of the teachers formerly required under the traditional schedule, with no change in the pupil-teacher ratio. This is because only 75 per cent of the student body is in session at any one time. With the reduction of the teaching staff, the shortage of good teachers would be alleviated. Since pupil enrollments will be increasing in the years ahead, 25 per cent fewer new teaching positions would be necessitated with any given increase in enrollments. Schools would need fewer teachers who are not fully qualified.

Since, under the flexible plan, teachers would be employed 11 months instead of only 9, an increase in salaries by about 20 per cent may be considered adequate. This would seem a reasonable adjustment from the viewpoint of the teacher because it would, in all probability, represent more than could be realized from two months of summer employment. If a teacher were receiving $6,000 for 9 months, for example, then a 20 per cent increase would be $1,200, making a total salary of $7,200 for 11 months.

The annual salary for the average teacher would now be substantially higher. Schools would be in a much stronger position to compete effectively with industry in attracting intelligent and capable men and women who would enter and remain in the educational profession as a full-time career. Likewise, schools would more likely hold the full attention and loyalty of their teachers by the reduced need for teachers to work at outside jobs during the school year. Teachers would no longer be forced into an annual three-month retirement (without pay) that dulls their mental talents and dents their pocketbooks. Members of this profession would be in a better position economically to stand on their own feet. Teaching salaries would more fully support the entire family unit, thereby reducing the necessity for supplementary earnings by other family members. In other instances, this would eliminate the view among some two-income families that the teaching salary is the more modest supplement to the primary source of income.

In the transitional stage of conversion to the flexible system, it may be desirable to have some of the teachers employed for only three quarters. With personnel attrition, an increased number of teachers would have the opportunity to teach four quarters. After the transition period, the school system would experience a saving approaching 10 per cent of its total teacher payroll. This is illustrated below:

Contract Period	Number of Teachers Needed	Average Salary	Total Payroll
Traditional - 3 quarters	100	$6,000	$600,000
Flexible - 4 quarters	75	7,200	540,000
		Savings in dollars:	$ 60,000
		Savings as a per cent:	10%

By reducing the instructional staff 25 per cent, and increasing the pay of those remaining by 20 per cent, a total payroll saving of 10 per cent results.

Since about 62 per cent of total current expenditures represents teacher salaries, this is a major saving. Since total teacher salaries, nationally, amount to over $8 billion, a 10 per cent savings would amount to over $800 million. The comparable saving in Michigan and Ohio would be in excess of $38 million annually for each State. Obviously, this substantial saving could be applied to reducing taxes or bond indebtedness, improving the educational program, or to any combination of benefits. Part of the savings realized can be used to reduce excessive pupil-teacher ratios or for other instructional benefits such as to increase salaries, pay tuitions for education courses, provide occasional paid leave-of-absences for educational purposes, etc. Some teachers may continue to be employed on a three-quarter basis. Their work could be arranged to parallel that of a given three-quarter pupil group. In this category, a mother with young school children could be placed on the same cycle as her children, so the family would be on vacation in the same quarter. Teachers desiring to attend college during a quarter could be encouraged to teach only three quarters. Teachers working four quarters could still take education courses, in many instances, in the late afternoon, in the evening, and on Saturdays, and attend summer work shops during their month's vacation.

One of the most valuable contributions that can be made for the future of our children and for society is to improve the present status of the educational profession, thereby attracting more capable people to the profession and retaining those who are able. By providing our children with high quality instruction and guidance furnished by well-qualified, professionally-oriented, and properly-motivated teachers, pupils will be properly motivated to develop their talents. By effectively encouraging and stimulating our children, they will be better prepared to meet the rising standards of industry and colleges. In addition, the high school drop-out rate may be reduced. At the same time, the nation will be increasing the social usefulness and economic productivity of a vitally important and highly skilled professional group consisting of 1.5 million men and women.

Chapter IV

SCHOOL EFFICIENCY AND THE TAXPAYER

The budgets of state and local governments, especially local school districts, have been under increasing financial strain. One of the major reasons for this has been the rapid increase in costs of public schools as described in Chapter II. By far the largest part of all state and local government expenditures goes to education, which accounted for 35.9 per cent of the total in 1958. In FY 1960, $15.6 billion was spent on the public schools, 167 per cent higher than in FY 1950; Michigan spent $812 million, which was up 199 per cent; Ohio spent $800 million, up 174 per cent.[1]

Financial Experience With The Flexible System

While there have been theoretical discussions concerning the quarterly or flexible system, very little has been presented in terms of detailed financial and cost analyses. Likewise there has been a surprising lack of actual experience with this system in public schools. The best known experiences were in two small school districts in the 1930's. The schools in Aliquippa, Pennsylvania used the quarterly system for ten years and in Ambridge, Pennsylvania for six years.[2] Mr. Wilson, in Aliquippa, reported that considerable economies were effected in the school budget and the cost to educate each pupil was reduced.

If these two school systems returned to the traditional year, as they in fact did, why should we consider the adoption of the quarterly

---

[1] HEW.

[2] Lytle M. Wilson, Superintendent of Schools, Aliquippa, The All-Year School In Aliquippa, Pennsylvania (unpublished); H. S. Irons, Principal of the Ambridge School, American School Board Journal, March, 1934; see Grace S. Wright, The All-Year School, Circular No. 688, OE-10020, June, 1962, Office of Education, U.S. Dept. of Health, Education, and Welfare, Washington 25, D.C.; Alf F. Harbo, A Longer School Year, Code IX-B-376, Research Project No. 12, May 1, 1958, Dept. of Education, State of Minnesota.

system today? Two major changes make the public school situation different today than it was in the middle and later 1930's: (1) The real cost of public education, both in terms of per pupil cost and in relation to the tax burden on the economy, is substantially higher (as illustrated in Chapter II); and (2) enrollments have been and are continuing to increase more rapidly than in the 1930's (when the birth rate was lower and the average schooling per pupil was shorter.)

In the first instance, an important part of this increase in costs is represented by fixed or semi-fixed overhead costs. These expenses continue, more or less, whether the school buildings, machinery, equipment, and personnel are used 180 days or 220 days a year. Therefore, these fixed costs, on a per pupil basis, would decline as the number of operating days is increased. In the second instance, with increased enrollments, school facilities are now crowded and good teachers are in short supply. In addition, the need for large capital outlays is generally greater with growing enrollments. Consequently, the educational problems and financial waste are greater under the traditional school year than heretofor.

State Government Financial Aid

State governments should be vitally concerned with the costs of public education because they are important contributors to the schools. In 1958, the Michigan State government paid 48 per cent of public school costs while the Ohio government paid 30 per cent. For education purposes in FY 1961, the Michigan State government expended $554.7 million and Ohio $316.8 million. With these large and rapidly increasing outlays, it is no wonder that many state governments are facing serious fiscal problems.

In response to pressures from voters and taxpayers, state governments have established goals for fiscal reform, for balanced budgets, and have resisted tax increases. Ohio has taken steps to accomplish these goals by effecting considerable governmental economies. Additional fiscal savings of millions of dollars are being advocated for the state government by Ohio's "Little Hoover Commission." If Ohio adopted the flexible system in its public schools, the state government could save $30 million to $40 million or more in annual expenditures, the exact amount depending on how the savings are used.

Local Taxes

Public officials have been plagued for years with the problem of finding "less painful" or more acceptable sources of public revenue to finance government expenditures. One of the important goals of tax reform proposed by Michigan's present state administration is to reduce the heavy reliance of school districts on local property taxation. Reliance on other proposed sources of revenue would generally reduce the burden of school property taxes, especially for low income earners and senior citizens. This is an admirable goal

because 56.6 per cent or $8.3 billion of U. S. public school revenues in FY 1960 were collected locally, primarily through levies on property. Michigan school districts obtained $295.5 million in FY 1958 from local taxes, an increase of 66 per cent over FY 1954; Ohio districts obtained $407.5 million locally, up 47 per cent. Figures for subsequent years are significantly higher.

It is evident that taxpayers are becoming reluctant to assume continued increases in educational outlays. In local elections, school bond levies and operating levies are frequently defeated regardless of their urgency. Consequently, a number of school districts seem to face serious revenue shortages. These school districts include small rural townships as well as large metropolitan areas such as Detroit.

In a way, it is paradoxical that the public expects a greater educational performance on the part of public schools yet at the same time expresses a reluctance to provide the additional financial support. The following comment, made by a community leader, may to some extent be indicative of public sentiment: "If taxpayers continue to defeat school levies we will seriously weaken our program. Due to the reluctance of citizens to tax themselves further, it should be the obligation of educators to get their own house in order and be aggressive in promoting a year-around school plan or other proposals."

School Expenditures and the Flexible System

The NEA estimates total public school expenditures in FY 1964 at over $21 billion, an increase of over $5 billion since FY 1960. These expenditures in 1960 amounted to $15.6 billion or 4.1 per cent of personal incomes. In1960, Michigan public schools spent $812 million, enrolled 1.79 million pupils, employed over 69,000 teachers and used about 60,000 classrooms. Ohio schools spent $800 million, enrolled 2.08 million children, employed about 80,000 teachers, and used over 72,000 classrooms. Total United States enrollments are estimated at 41 million in FY 1964 compared with only 24 million 15 years ago. Enrollments are expected to total about 45.6 million children by 1970.[2]

It seems imperative that all possible saving and efficiencies which do not weaken the educational program be effected in school operations. The flexible system appears particularly suited in providing significant savings and economies. Following is a list of the actual public school expenditures in the United States in 1960:

---

[2] HEW.

Table 4

UNITED STATES PUBLIC SCHOOL EXPENDITURES IN FY 1960

Number	Item	Millions	Per Cent
1	Administration	$ 528	3.4
2	Plant Maintenance	423	2.7
3	Other (health & food service)	542	3.5
4	Other Programs	133	0.9
5	Instructional Staff Salaries	7,475	47.9
6	Text Books, Supplies, etc.	876	5.6
7	Plant Operation	1,085	6.9
8	Insurance & Other Fixed Charges	909	5.8
9	Interest on School Debt	490	4.7
10	Pupil Transportation	491	3.1
	Operating Expenditures	$12,952	83.0
11	Capital Outlays	2,662	17.0
	Total Expenditures	$15,614	100.0

Source: HEW.

Let us now make some rough estimates as to what these expenditures might have been had public schools operated under the flexible system, whereby only 75 per cent of the pupils attended school at any given time. Certain expenditures would decline, others would increase, while still others would remain unchanged because of offsetting factors.

Table 5

ESTIMATED UNITED STATES EXPENDITURES IN FY 1960
UNDER THE FLEXIBLE SYSTEM

Number	Item	Savings Per Cent	Savings Million	New Cost Million
1	Administration	0.0	$ 0.0	$ 528.0
2	Plant Maintenance	0.0	0.0	423.0
3	Other (health & food services)	0.0	0.0	542.0
4	Other Programs	0.0	0.0	133.0
5	Instructional Staff Salaries	10.0	747.5	6,727.5
6	Text Books, Supplies, Etc.	5.0	43.8	832.2
7	Plant Operation	20.0	219.0	866.0
8	Insurance & Other Fixed Charges	20.0	18.2	890.8
9	Interest on School Debt	25.0	122.5	367.5
10	Pupil Transportation	5.0	24.5	466.5
	Operating Expenditures	9.1	$1,175.5	$11,776.5
11	Capital Outlay	25.0	665.5	1,996.5
	Total Expenditure	11.8	$1,841.0	$13,773.0

Expenditures Unchanged

Certain expenditures, as a whole, would tend to remain at about the same level. Certain Administration (Item 1) expenses would decline because the school plant, staff, and enrollment would now be 25 per cent smaller. On the other hand, the additional efforts concerning the planning, administration, and scheduling of four separate groups of pupils would tend to offset other administration savings.

Plant Maintenance (Item 2) would, in general, be expected to remain about the same. Some savings would be realized since the school plant and other facilities would be smaller. There would be 25 per cent fewer buildings and grounds to maintain; however, each building would be used 11 months instead of only 9 months a year. Therefore, the maintenance expense per building would increase since each facility would receive fuller use.

Expenditures for other services and programs (Items 3 and 4) might be expected to remain about the same with certain savings being offset commensurately with other increases.

Expenditure Savings

As described in Chapter III, Instructional Staff Salaries (Item 5) could be reduced about 10 per cent, providing a reduction in expenditures of about $747.5 million. This is the largest single source of savings.

Some savings, possibly 5 per cent, could be realized in expenditures for Text Books, Supplies, Equipment, Etc. (Item 6) since enrollments at any one time will be 25 per cent less. Therefore, less expenditure would be required annually to replace outdated educational materials and obsolete equipment. It is expected that this source of saving would become increasingly larger as greater amounts of materials and equipment are required by more sophisticated methods of learning, and as the rate of technological obsolescence continues to accelerate. The schools should keep up to date with the rapid changes in modern equipment in the fields of visual aids, laboratory sciences, stenography, typing, technical, and vocational training courses.

A large source of savings is provided in Plant Operations (Item 7). With approximately 25 per cent fewer buildings, grounds, and other facilities, substantial reductions could be made: (1) in the custodial staff and payroll, and other costs in caring for school properties; (2) in heating fuels since there is 25 per cent less space to heat and because little or no fuel is needed for schools in the summer months; and (3) in classroom electricity, since there are more daylight hours in the summer months than in the winter. A few costs, such as custodial supplies, may not be expected to decrease 25 per cent. Therefore, it is estimated that total plant operation expenditures might decline by 20 per cent, producing a saving of about $219 million.

Insurance and Other Fixed Charges (Item 8) may be reduced 20 per cent, or by about $18.2 million. Premiums on property and employee insurance and pensions would be reduced since there would be considerably less property and personnel to protect.

If the flexible system had been in operation, Interest on School Debt (Item 9) would be about $122.5 million lower. Since the schools would have had 25 per cent fewer properties, presumably they would have borrowed 25 per cent less capital to finance land and building acquisitions, and hence would have enjoyed a corresponding 25 per cent savings in interest charges.

Efficiencies would be realized in Pupil Transportation (Item 10). Although the bus fleet could be reduced about 20 to 25 per cent, each vehicle would receive greater use each year, and hence each bus would require more maintenance. The transportation staff could now receive a few of the benefits previously described for the teaching staff; that is, regular bus maintenance and operation would be required 11 months a year instead of for only 9 months. This would contribute to steady and efficient utilization of bus drivers and mechanics. Aside from this, other definite benefits would be realized: (1) significantly less capital would be tied up in busses; (2) since many busses are purchased with loans, interest charges could be reduced correspondingly; (3) part of the depreciation expense associated with transportation machinery and equipment takes place over time whether the items are in use or not--batteries age, tires and tubes deteriorate, metal bodies rust, oil gets dirty, etc.; (4) in fact, part of this type of depreciation actually increases when equipment isn't adequately used over extended periods such as during the three months in the summer. The depreciation and replacement costs, in these respects, would be reduced since the bus fleet would be significantly smaller and since each vehicle would receive steady year round use.

As shown in Table 5, a total saving in operating expenditures of about $1.18 billion could have been realized in FY 1960 under the flexible system. This represents an estimated 9.1 per cent reduction in total operating expenditures.

With an increasing pupil population, there is a smaller need for additional school facilities under the flexible system, since only 75 per cent of the pupil population would now be enrolled in any given quarter. Capital outlays (Table 5, Item 11) for additional space could be reduced by about 25 per cent without affecting the pupil-classroom ratio. This savings alone represents a reduction in expenditures of about $665 million. Actually, the reduction in this expenditure would be even greater, since many school districts making such expenditures in 1960 would already have a surplus of space under the flexible system. Also, in the future, the cost would be less for functional and technological obsolescence of facilities as there would be less facilities to become outdated.

In conclusion, total school expenditures, as shown in Table 5, could have been reduced by an estimated 11.8 per cent, or by about $1.8 billion. As can be seen, these savings are considerable. It should be noted that the full amount of these savings cannot be realized immediately upon conversion to the flexible system. While many expenditures can be reduced immediately, the time it takes to reap the full benefits of the flexible plan will depend on various circumstances in each school district. Upon conversion, the typical district will have some surplus personnel, space, and other facilities. In time this surplus will be absorbed through attrition of personnel, depreciation and obsolence of facilities, and/or increased enrollments.

The estimated 9.1 per cent ultimate reduction in operating expenditures for U. S. public schools represents a national average. The ultimate reduction that can be expected by a given state or a given school district may be more or less than 9.1 per cent depending upon its composition of individual expenditure items relative to its total school expenditures. The proportion of total expenditures devoted to salaries, plant operation, text books, pupil transportation, etc., varies from one locality to another.

For purposes of obtaining a rough idea of the magnitude of potential savings that are involved in the States of Michigan and Ohio, let us assume that these states are somewhat representative of the national averages. On the basis of FY 1960 data, annual operating expenditures in Michigan could be reduced by about $58 million and annual capital outlays reduced by about $20 million, as shown below:

	Cost Under Traditional System	Savings Under Flexible System	
	Millions	Per Cent	Millions
Operating Expenditures	$642.7	- 9.1	-$58.5
Capital Outlays	$169.3	-11.8	-$20.0

In Ohio, operating expenditures could be reduced by around $60 million and capital outlays reduced by over $15 million a year, as shown below:

	Cost Under Traditional System	Savings Under Flexible System	
	Millions	Per Cent	Millions
Operating Expenditures	$665.1	- 9.1	-$60.5
Capital Outlays	$134.9	-11.8	-$15.9

These potential savings are produced not by a reduction in the quality of the educational program, but by a substantial increase in operating efficiency, through a better utilization of school personnel and facilities. Since enrollments and expenditures are now higher than in FY 1960, and are expected to increase in the years ahead, the annual savings under the flexible system will naturally be correspondingly greater. As to whether these savings should be applied to a reduction in taxes or applied to improvements in the school program is a question for the public to decide.

Chapter V

BENEFITS TO SCHOOL CHILDREN

The benefits to our children as they relate to any school issue should be of primary consideration because, after all, the school system is intended to benefit our future adult generations and, in turn,the future well-being of our community and society.

Quality of Instruction

Therefore, the increased benefits to teachers and the increased operating efficiencies just discussed should be thought of first in terms of their benefits to our children. In Chapter III we discussed the flexible system in terms of the instructional staff. The children would benefit by receiving uniformly high quality instruction. How? First, a school needs approximately 75 per cent of its former number of teachers. This substantially reduces or eliminates the need to hire less qualified teachers. This reduces the temptation of giving tenure to less qualified probationary teachers. Second, by making the teaching career a full fledged year-round profession and offering an attractive salary structure, an increased number of highly capable people will be attracted to the educational profession and competent teachers and administrators will be motivated to remain in it. Third, with attractive annual salaries, teachers will be more inclined to give their full attention and loyalty to their pupils because of the reduced need to supplement their nine-month salaries with part-time jobs and unrelated summer jobs. Fourth, each pupil could receive more individual attention by the reduction of pupil-teacher ratios.

Classrooms and Equipment

A serious school deficiency exists because of a shortage of classrooms, according to figures compiled by HEW. In the Fall of 1962, there were 418,341 pupils attending public school for less than a full or normal school day. Out of this total number of short-changed pupils, over 16,000 were in Michigan (1,067 in Detroit), and 13,895 were in Ohio.

When we consider the number of pupils enrolled in crowded schools, the classroom shortage appears even more serious. In the Fall of 1962, over 1,666,700 pupils were in excess of normal school room capacity; of this total 83,984 were in Michigan (26,785 in Detroit), and 61,727 were in Ohio. The tabulation on the following page shows the number of pupils in excess of normal capacity as a per cent of total enrollment.

PUPILS ENROLLED IN EXCESS OF NORMAL CAPACITY
AS A PER CENT OF TOTAL ENROLLMENT

	All Schools	Elementary Schools	Secondary Schools
U. S.	4.3	3.6	5.6
Michigan	4.7	3.9	6.0
Detroit	9.2	7.4	12.0
Ohio	3.0	2.4	4.5

Source: HEW.

Michigan has a larger per cent of its pupils in the excess category than the national average, while Ohio is below the average. Michigan's above-average per cent of excess pupils is largely due to conditions in Detroit where almost one-third of Michigan's excess pupils reside. In Detroit, 9.2 per cent of its total enrollments is excessive; 12 per cent of its high school enrollment is excessive. It should be kept in mind that we are referring to only excess pupils. Once a classroom has excess pupils, all the pupils suffer from overcrowded or, otherwise, inadequate conditions. Therefore, the total number or per cent of the enrollment, which is adversely affected by overcrowding, is substantially higher than the figures pertaining only to excess pupils.

As an illustration of these shortages, the following instruction rooms were needed in the Fall of 1962 to accommodate excess enrollments and to replace unsatisfactory facilities:

	Number of Rooms Needed	As a Per Cent of Total Rooms Currently Available
U. S.	121,235	8.4
Michigan	8,319	13.5
Detroit	2,210	26.2
Ohio	3,729	4.9

Source: HEW.

In the United States, over 121,000 rooms are needed, or 8.4 per cent more rooms. Michigan needs 13.5 per cent more rooms than it currently has, or a total of 8,319 more rooms. Detroit needs 26.2 per cent more rooms, while Ohio needs 4.9 per cent more rooms.

This serious problem can be almost completely solved by the

flexible system. Under the conventional system, rooms are used only three quarters of the year. Under the flexible system, each room is used an additional quarter, so that rooms provide 33 per cent greater use. Consequently, existing school rooms have a capacity to handle 33 per cent more pupils per year. Enrollments in crowded classrooms would be immediately reduced, pupils could attend a full or normal school day, split sessions could be eliminated, substandard facilities closed, and capital outlays for new facilities substantially reduced or, in some cases, eliminated. The effects from the change are so great that many districts will find that the flexible system shifts them from a condition with excess pupils to a condition with excess rooms. However, this pleasant problem may exist only temporarily until growing enrollments fully absorb surplus rooms. The funds saved under the flexible plan could be used, with public approval, for various programs which benefit the children and the community.

Let us now examine other less obvious, though nonetheless very valuable benefits derived from the considerable flexibility offered by this new system. If we use specific schedules for illustrative purposes, this flexibility can be more clearly visualized.

The Flexible System Schedules

First of all, starting and ending calendar dates need to be selected for each of the four quarters. As one possibility, for example, the following dates might have been adopted for the 1963-64 school years:

Quarter	Start	Finish
1st	August 2, 1963	October 22, 1963
2nd	October 24, 1963	January 22, 1964
3rd	January 24, 1964	April 13, 1964
4th	April 15, 1964	June 30, 1964
Closed	July 1, 1964	August 2, 1964

Under this particular arrangement, the school would operate four quarters between August 2, 1963 and June 30, 1964, and all pupils and teachers would be on vacation during the entire month of July.

Next, a cycling or rotation schedule needs to be chosen. This schedule determines which quarter each pupil attends school and which quarter the pupil is out of school. Two types of cycling plans will be described in detail here: (1) the Pupil Rotation Plan, and (2) the Constant Quarter Plan.

Under the Pupil Rotation Plan, the whole student body is divided into four separate groups which we will designate as Cycles I, II, III, and IV. To illustrate how the Pupil Rotation Plan works, a complete schedule is shown in Table 6, on following page. The grades are shown as K (kindergarten), 1, 2, etc. through 12 (high school senior). Each

grade includes three quarters of work, with each quarter of work designated chronologically as A, B, and C. A ninth grader, for example, takes three quarters of work designated as 9-A, 9-B, and 9-C, in that order. Under this plan, a pupil is able to stay in the same cycle all the way from kindergarten through the 12th grade.

Table 6

THE PUPIL ROTATION PLAN SCHEDULE

CYCLES:	I	II	III	IV
	GRADES			
Quarters				
4	K-A			
1	K-B	K-A		
2	K-C	K-B	K-A	
3		K-C	K-B	K-A
4		1-A	K-C	K-B
1	1-A	1-B		K-C
2	1-B	1-C		1-A
3	1-C		1-A	1-B
4	2-A		1-B	1-C
1	2-B	2-A	1-C	
2	2-C	2-B	2-A	
3		2-C	2-B	2-A
4		3-A	2-C	2-B
1	3-A	3-B		2-C
2	3-B	3-C		3-A
3	3-C		3-A	3-B
4	4-A		3-B	3-C
1	4-B	4-A	3-C	
2	4-C	4-B	4-A	
3		4-C	4-B	4-A
4		5-A	4-C	4-B
1	5-A	5-B		4-C
2	5-B			5-A
3	5-C		5-A	5-B
4	6-A		5-B	5-C
1	6-B	6-A	5-C	
2	6-C	6-B	6-A	
3		6-C	6-B	6-A
4		7-A	6-C	6-B

CYCLES:	I	II	III	IV
	GRADES			
Quarters				
1	7-A	7-B		6-C
2	7-B	7-C		7-A
3	7-C		7-A	7-B
4	8-A		7-B	7-C
1	8-B	8-A	7-C	
2	8-C	8-B	8-A	
3		8-C	8-B	8-A
4		9-A	8-C	8-B
1	9-A	9-B		8-C
2	9-B	9-C		9-A
3	9-C		9-A	9-B
4	10-A		9-B	9-C
1	10-B	10-A	9-C	
2	10-C	10-B	10-A	
3		10-C	10-B	10-A
4		11-A	10-C	10-B
1	11-A	11-B		10-C
2	11-B	11-C		11-A
3	11-C		11-A	11-B
4	12-A		11-B	11-C
1	12-B	12-A	11-C	
2	12-C	12-B	12-A	
3		12-C	12-B	12-A
4			12-C	12-B
1				12-C

Schedule Benefits

Let's examine the flexibility offered by this plan:

(1) Since only three cycles are in session in any one quarter, only 75% of the student body is attending school at any one time.

(2) Each pupil has the same teacher for all three quarters of the same grade or year's course work. Each pupil takes each grade in three consecutive quarters so that vacation quarters come only between grade promotions.

(3) Each teacher is able to teach all four quarters of the year. For example, the first grade teacher who teaches the first grade in Cycle I, finishes with that group at the end of the third quarter, starts the fourth quarter with a new group of first graders who are in Cycle III. When she finishes with that group in the first quarter, she starts the second quarter with a new group in Cycle IV, and so on. Under this plan, a minimum of three first grade teachers are needed in a school system.

(4) The vacation quarters taken by each pupil are regularly alternated, each year. The children in Cycles I and II take the third and fourth quarters off every other year; on those occasions, their vacation would include two Winter months (February and March), three Spring and Summer months (April, May and June), plus their regular annual July vacation. The children in Cycles III and IV take the first and second quarters off every other year; on those occasions, their vacation would include their regular annual July vacation, plus four Summer and Autumn months (August, September, October, and November), and two Winter months (December and most of January).

(5) With a flexible vacation schedule, the children and their families may now take full advantage of recreational activities and sports which are offered in all the different seasons of the year. For example, in the Winter months, families may now avail themselves of the hunting season, of skiing, ice skating, and Winter carnivals and sport tournaments in the North, and of warmer weather activities and trips in the South. By taking trips in different seasons of the year, such as in the Spring, Fall and Winter, families will often be able to have enjoyable vacations at substantially reduced off-season rates frequently applicable for airlines, lodging, and other tourist accomodations available in the United States and abroad. Off-season travel would be more pleasant in terms of avoiding highway congestion and crowded facilities. Some businesses would welcome the opportunity of spreading employee vacations over various parts of the year rather than having all employee vacations concentrated in only eight weeks or so of the summer. Where families have more than one child attending school, arrangements could be made to have all the pupils from the same

family assigned to the same vacation cycle. In this way all children from the same family would be on vacation at the same time.

(6) The problem concerning the recurring increase in juvenile delinquency during the warm summer months may be reduced. Since only one-fourth of the students would be on vacation during the summer (except for one month), the opportunity would be lessened for the development of unwholesome relations and cliques under uncontrolled and extended periods of idleness.

(7) It is easier for students to obtain temporary employment while on vacation for several reasons. Since only a fourth of the pupils are on vacation at any one time, it is much easier for employers to absorb a larger portion of this available supply of job seekers year around than when all the students are available for employment in only the three summer months. In addition, some employers would be encouraged to rely permanently on this supply of help with the knowledge that when their student employees return to school, a new group of students would be available to fill the jobs vacated by the group returning to school. Under the Pupil Rotation Plan, the student job applicant is more desirable to employers because the student can retain a full-time job for periods in excess of five or six months, instead of for only three months. The employer is obviously better able to afford more extensive indoctrination and training for an employee who will hold a job for six months than for one who stays only three months. Also, some employers have a slack period in the summer, while their greatest seasonal need for temporary workers is in other seasons, such as during Christmas time and in the Spring.

It is important for students to obtain temporary jobs during vacations. First, it is desirable for a student to begin making a useful productive contribution to the economy and to begin sharing some of the family's burden in his financial support. Second, it is of lasting educational value to the student if he (she) can blend his (her) formal education obtained from school with the realistic experiences and practical training obtained from commerce and industry. Third, student employment increases the student's abilities, gives him pride of self-attainment, instills a feeling of self-confidence and a sense of responsibility, and channels his time and energy into wholesome worthwhile activities.

(8) Perhaps the most important advantage offered by the plan is the educational progress made possible by the flexibility provided. On the basis of ten years of experience in the schools in Aliquippa and six years in the schools in Ambridge (both in Pennsylvania), it was reported that in terms of pupil progress and achievement, the advantages appeared to be with the four-quarter plan.[1] It is much easier to adapt the flexible plan to the educa-

---

[1] See footnote 2, Chapter IV.

tional needs of each pupil. With the pupils in four separate cycles, classes for each grade are commencing four different times a year. Kindergarten pupils, as well as other pupils, entering such a program are now able to enter the cycle in that part of the calendar year which most closely approximates their ages and abilities without being forced ahead or held back six months to a year.

The pupil with classwork deficiencies caused by excessive absences, health, or other reasons, need not be held back a whole year. Since each school year's work is studied in three quarterly units, he need only obtain remedial work or repeat the work in the deficient unit. This is done by shifting him to another cycle. For example, if the child was in Cycle I and did unsatisfactory work in Unit C of the 6th grade (see Table 6) in the second quarter, he would transfer to Cycle II and repeat, or take remedial work in 6-C in the third quarter. After satisfactory completion of 6-C in the third quarter, he could continue in 7-A with the pupils in Cycle II, or transfer back to Cycle I, and take 7-A with his original group. Under the flexible plan it is much easier, consequently, for the pupil to catch up on work in which he has fallen behind.

It is also much easier to accelerate mature children with exceptional ability under this plan. The child may progress more rapidly by permitting him (her) to attend classes during the quarters that he would have otherwise been on vacation. This is done simply by transferring him from one cycle to another. For example, if the child completed the fourth grade in the fourth quarter in Cycle III (see Table 6), he could be transferred to Cycle I and commence the fifth grade in the first quarter, rather than taking a vacation in the first and second quarters. Notice that under this arrangement, the child is not skipping any school work but is only skipping a vacation. However, in other instances where it is considered desirable for a pupil to skip course material, the pupil need only skip a third of a course instead of a half or a whole year's work.

Other Considerations

Some educators favor an extended school year while others favor an expanded summer school enrichment program; these educators would be opposed to the flexible system because it is incompatible with their proposals. They argue that pupils need an increased number of hours of instruction per year. Under an extended school year program, the school year is extended from 9 months to 9½, 10, or 10½ months for all pupils. Chief opposition to such programs is that total costs and per pupil costs would noticeably increase. This impasse may, perhaps, be overcome through the use of the flexible system. All or a part of the savings generated by the flexible system, previously enumerated in Chapter IV, could be used to permit students to take additional courses during their vacation quarters. They could enroll in special courses created for such purposes or in courses regularly being offered each quarter. Con-

sequently, instead of conflicting with the purposes of an extended school year program, the flexible system could be used to facilitate the gradual transition to such a program.

It would be desirable to permit and to encourage parents of qualified and capable pupils to enroll their children in courses during one or two of their vacation quarters, particularly under the Pupil Rotation Plan where the pupils are on long vacations which cover two consecutive quarters. It should be clearly understood that if pupils took courses in their vacation quarters, the education received during the year would be greater than they would have obtained under the traditional school system. Because the basic unit of study is a quarter instead of the semester or year, some believe that subject matter may now be developed to fit a wider choice of time periods.

Under the flexible system, the schedule for a cooperative vocational program could be established whereby students would attend school 11 months a year in split sessions, using the remainder of the day working at a job. Under this program, the student is gaining skills through a combination of formal education and on-the-job training and experience. Some employers could employ second session students in the morning and first session students in the afternoon. Under such arrangements, expensive equipment and machinery needed by public schools for vocational courses could be used by a larger number of students over an 11 month school year.

The Constant Quarter Plan

We have presented a detailed explanation of the Pupil Rotation Plan. Let us now describe another cycling plan called the Constant Quarter Plan. The Constant Quarter Plan is very similar to the Pupil Rotation Plan, in that we have the same schedule of four quarters. However, the difference is that the pupils in each cycle attend school in the same quarters, year after year, and are on vacation in the same quarter, year after year. This plan is much simpler than the Pupil Rotation Plan and is illustrated as follows:

Table 7

THE CONSTANT QUARTER PLAN SCHEDULE

CYLES:	I	II	III	IV
	Grades			
Quarters				
1	1-A			
2	1-B	1-A		
3	1-C	1-B	1-A	
4		1-C	1-B	1-A
1	2-A		1-C	1-B
2	2-B	2-A		1-C
3	2-C	2-B	2-A	
4		2-C	2-B	2-A
1	3-A		2-C	2-B
2	3-B	3-A		2-C
3	3-C	3-B	3-A	
4		3-C	3-B	3-A
1	4-A		3-C	3-B
2	4-B	4-A		3-C
3	4-C	4-B	4-A	
4		4-C	4-B	4-A
1	5-A		4-C	4-B
2	etc.	etc.	etc.	etc.

The important advantages in this plan are: (1) the scheduling of classes in the four cycles is simpler and easier to plan; (2) all the pupils have a vacation quarter each year (i.e., in addition to the regular one-month summer vacation); and (3) vacations with a duration of two consecutive quarters are avoided. As can be seen from the above schedule, however, each pupil has a vacation quarter in the same season, year after year. There may be no objection to this arrangement insofar as it concerns the pupils in Cycle I, since they have their vacation in the Spring and two-thirds of the Summer (April 14 through July), nor as it concerns the pupils in Cycle II, since they have their vacations during two-thirds of the summer and during the autumn (July through October 23). However, the other two cycles will tend to be less popular since the pupils in Cycle III will always have their vacation in the second quarter (October 24 to January 22), and the pupils in Cycle IV will always have their vacations in the third quarter (January 24 to April 13). Even though all pupils will have an annual vacation in one summer month, the pupils in Cycles III and IV would always have their annual vacation quarter in the colder seasons. Those states or districts which consider the adoption of the flexible system will need to weigh the advantages with the disadvantages offered by such schedules as the Pupil Rotation Plan and the Constant Quarter Plan.

One final word about the Pupil Rotation Plan and the Constant Quarter Plan. In the case of small school districts, there may not be enough children enrolled in each type of curriculum, to justify the maintenance of four separate cycles with four separate sets of classes. This may be true at the high school level, particularly in certain college preparatory programs. If, for example, only 25 per cent or so of the student body is enrolling in the college preparatory program, then all these students could be assigned to the same cycle. In this way, the advanced and specialized courses such as chemistry, physics, solid geometry, trigonometry, etc. would be required only once each year.

Savings Used for Various Improvements

With the reductions in operating expenditures afforded by the flexible system, millions of dollars are released which could be used, with public approval, for other useful or urgent school needs. These improvements in the school program could be of considerable benefit to the children and, at the same time, be made without an increase in revenues or school taxes. The money saved could be applied to expanding and improving the educational program by creating new courses, hiring additional staff, acquiring additional equipment, or expanding facilities. Let us cite some specific examples.

Costly high school vocational and technical training programs should be expanded to increase the skills of the 70 per cent of students who enter the job market directly upon leaving public school. Some of the funds could be used to establish or expand local community colleges, (post-high school) trade and technical schools, and adult retraining programs.

Some of the savings could be used to expand the physical education program and for recreational facilities such as an indoor or outdoor swimming pool, additional gymnasium space, tennis courts, baseball field, etc. Student social activities could also be expanded. These programs could be both supervised and unsupervised. They could be made available to students in session and those on vacation. If the program and facilities were made available to all children all year round, it would have the desirable effect of providing continuous physical and social development and thereby discourage idleness while dissipating excess energy that might otherwise involve vacationing students in juvenile delinquency.

Part of the reduction in capital outlays realized by the flexible system could allow for air conditioning buildings. This could make school in the summer months more attractive than vacations, if that is humanly possible. The additional fuel expense for operating an air conditioning system would not be great when compared with the heat fuel expense incurred in the winter months, when it is recalled that the school would be closed down during one of the warmest months in the summer. In any event, summer heat apparently is not a significant factor, at least in the Northern states, according to the experiences of the Aliquippa and Ambridge schools. Their experience was that attendance in the summer months was either better or varied by less than one per cent. Classes were dismissed on those few occasions when temperatures reached 90 degrees--usually in the last hour or two in the school day. Class time lost would be less than in the Winter months when schools close down and pupils are absent because of snow storms, freezing temperatures, icy road conditions, and pupil respiratory illnesses. In lieu of air conditioning, the school day could start and end earlier in the day during the cooler hours, and teachers and pupils could be permitted to wear light weight casual summer attire.

By now it should be quite apparent to the reader that there are all sorts of possibilities offered by the flexible system which may be exploited so as to improve and adapt the educational program to the differing and vital needs of pupils and a modern community.

Small School Districts

Small school districts would encounter difficulties if they were to adopt either the Pupil Rotation Plan or the Constant Quarter Plan inasmuch as these plans require the establishment of four separate pupil groups and, in general, need a minimum of three teachers for each grade level. Some school districts may not have a sufficiently large pupil enrollment to justify four separate pupil groups in each grade. There are several possible alternative solutions.

One, establish four separate cycles in those grades where class enrollments would be sufficiently large. Those grades would most likely be in the elementary grades and possibly the junior high school grades. If certain programs have small enrollments, such as the college preparatory program in the high school, consolidate these students into a single cycle, as suggested earlier.

Second, consolidate small school districts into larger ones in order to have a more efficient size. Apparently there are still a large number of school districts which are too small to efficiently operate even under the traditional system.[2]

Third, adopt the Grade Rotation Plan. This plan is illustrated in the schedule below.

Table 8

The Grade Rotating Plan Schedule

Quarter	Grade	Quarter	Grade
1	K-A	1	7-B
2	K-B	2	7-C
3	K-C	3	
4		4	8-A
1		1	8-B
2	1-A	2	8-C
3	1-B	3	
4	1-C	4	9-A
1		1	9-B
2		2	9-C
3	2-A	3	
4	2-B	4	
1	2-C	1	10-A
2		2	10-B
3	3-A	3	10-C
4	3-B	4	
1	3-C	1	11-A
2		2	11-B
3	4-A	3	11-C
4	4-B	4	
1	4-C	1	
2	5-A	2	12-A
3	5-B	3	12-B
4	5-C	4	12-C
1	6-A		
2	6-B		
3	6-C		
4	7-A		

2 See Paying For Better Public Schools, Appendix A, The Committee for Economic Development, 711 Fifth Avenue, New York 22, New York: December, 1959.

This schedule offers some similar advantages as the Pupil Rotation Plan: (1) The pupils attend school in different quarters and their vacations come in different quarters; (2) the school system operates 11 months every year; and (3) only 70 per cent to 80 per cent of the student body is in attendance at any one time. Under this plan, however, only one class and one teacher for each grade in each year is needed.

While the Grade Rotation Plan offers greater economies than the traditional school year, its chief disadvantage is that it offers less savings and fewer efficiencies than the Pupil Rotation Plan because: (1) the services of some of the teachers will probably be required only three quarters a year; and (2) the number of pupils attending school and using the elementary school facilities and the high school facilities would probably fluctuate more widely from one quarter to the next.

Chapter VI

MISCELLANEOUS COMMENTS AND CONCLUSIONS

General Effects

If a significant change is made in an important institution, such as the public school system, effects would be felt in other sectors of our society and economy.

Since school children are able to take vacations in a broader range of months under the flexible system, businesses and industry would be able to spread out, over a wider portion of the year, the individual vacations of each businessman or employee who is a parent of school children. Many businesses presently experience a dissipation or slackening off in operations because a large number of their personnel with children concentrate their vacations in the same two or three months of the year when all the schools are shut down. This disruption has sometimes proved so costly that some companies simply close down and require all employees to take their vacations at the same time.

By spreading out vacations, there would be a more even or more stable use of various public facilities throughout the year. Highway congestion and resulting accidents in the summer months would be lessened. The need for additional highways in some areas might be lessened. Certain social, recreational, and commercial facilities would be used more efficiently instead of being over-burdened in some months and partially or totally unused in other months of the year. This would tend to apply to hotels, motels, restaurants, airlines, buses, and other public transportation, theatres, museums, parks, YMCA's, boy's clubs, community centers, roller and skating rinks, bowling alleys, year-round type resorts, retail establishments, etc.

Under the flexible system, only 25 per cent of the high school seniors would be entering the job market at any one time. This makes it easier for a graduate to get a job than when all the seniors hit the job market in June. Likewise, it is easier for employers to fill job openings as they arise if there is a steady stream of high school graduates entering the job market four different times a year. Some contend that it would be easier for colleges to accept and admit a larger number of freshmen, if they are entering college in different terms. At present, some students find it easier to gain college admission at times other than in September.

Conclusions

A number of direct benefits to the public schools may result with the adoption of the flexible system. Four major benefits are:

(1) Our children would have the opportunity to obtain a better quality education at no additional public cost--consequently, with better educated children, our future generations would be able to make a more effective contribution to the nation's productive effort. This would foster economic growth and a rising standard of living for everyone. Likewise, this is an indirect attack on the national problem of persistent unemployment of the inadequately educated and less skilled, particularly among the teenagers. The unemployment problem has led to the maintenance and the expansion of various expensive welfare assistance programs.

(2) By realizing significant savings in public schools, the government--particularly at the state and local level--might be able to reallocate part of its revenues, formerly earmarked for schools, to other urgent needs, such as higher education, community colleges, and vocational and technical schools, urban renewal, highway construction, welfare programs, etc.

(3) Part of the savings can be applied to the reduction of school debts and burdensome school taxes, particularly property tax rates. By the reduction of taxes, disposable incomes would be increased thus stimulating expansion in the private sector of the economy through increased consumer spending and investment.

(4) By employing and paying the teaching profession 11 months a year, we are increasing the production and efficient utilization of a talented and skilled segment of the nation's human resources. Since fewer teachers are required under the flexible system, many capable people are released and made available for other expanding occupational areas.

Under the flexible system, approximately 75 per cent of the pupils are attending school at any one time. It should be pointed out that maximum efficiency is obtained when the pupils in each grade are divided into four groups of equal size so that the school has the same approximate number of pupils in attendance at any one time. It is natural to anticipate that a number of parents would prefer having their children attend the quarters which fall in the colder months and to have them on vacation in the quarters which fall in the warmer months. Consequently, in order for the schools to obtain the greatest efficiency, it would be necessary for school officials, in a number of cases, to arbitrarily assign pupils to specific quarters so as to maintain balanced enrollments in all four quarters. Arrangements could be made to have all the school children from the same family attending school in the same quarters.

Some argue that the independent attitudes of American citizens and the family inconveniences and hardships which would develop in the

initial stages of conversion, are obstacles that would prevent adoption of the flexible system. These obstacles and resistances to change have discouraged adoption of flexible-type plans by communities in the past. Conversion to the flexible system is, of course, a question for the public to decide. Some argue that there is growing evidence that public opinion is changing, and if educational trends and conditions described in this study persist, the decision to adopt the flexible system may become an increasingly easier one.

Some argue that a flexible-type system will never be adopted if it requires somewhat arbitrary assignment of pupils to specific quarters because of encroachment on the independence and freedom of parents. On the other hand, each time a new tax is established or an existing one is increased, bitter protests result because this likewise reduces the freedom of each person as to how much money he will have left to spend as he individually pleases. Today, taxes take a much greater portion of each citizen's income than at almost any time prior to World War II. Although the public seems to have resigned itself to high taxes, empirical evidence suggests that there may be an upper limit beyond which the public will be unwilling to be taxed.

Clearly then, the public needs to become fully aware of the choices which need to be made. Three choices are:

(1) Pay the higher taxes necessary to support a good quality public school system using the traditional year;

(2) Accept deficiencies in public school programs employing the traditional year; or

(3) Accept the personal inconveniences associated with the flexible system.

The advantages offered by the flexible system may be particularly significant for communities where:

1. Pupils are attending school in crowded or substandard facilities.

2. Pupils are attending school for less than a full school day. This would include many of the "half-day" and split session type school days.

3. The school district is unable to hire fully-qualified teachers.

4. The existing pupil-teacher ratio exceeds established standards.

5. Worthwhile and important subjects are not offered in the school program because of lack of funds.

6. The district's assessed property valuation per pupil is rather low.

7. The school tax millage rate is rather high.

8. Total pupil enrollment is increasing rapidly each year.

The Future

If one is convinced that there may be some real merit gained by a change from the traditional school year, the reader may wonder what type of action should be taken at this time. Since the public school system is a major institution in the nation, action could be initiated on several fronts.

At this stage, serious studies and bold experimentation should be conducted in depth. The scope of such studies should be on a national, state, and local level. It would be entirely appropriate to have additional technical research concerning the school calendar, conducted by experts and organizations from the fields of education, public administration, public finance, and government. Public acceptance of change is facilitated if aggressive leadership and guidance is provided by those professionals within whose field a change may be needed.

Because the responsibilities of many aspects of education have been assumed at the State level of government, it would be fitting for the administrative and legislative branches to initiate detailed investigations. State action of some sort would be almost necessary to enable local school districts to adopt major changes in their calendars. State financing programs would have to be modified so that credit is given to schools operating in four quarters. This would not impose an additional state financial burden because the same number of pupils would be attending school each year as before. In the absence of permissive legislation which gives recognition to staggered enrollments, the education of a quarter of the student body would probably have to be financed completely at the local level. Other laws may also need to be changed. In certain states, students may not participate in various school programs if they are not currently enrolled in a certain number of courses. Under such laws, students in vacation quarters may be prohibited from participating in varsity sports, in the school band, etc.

Detailed investigations concerning the educational, tax, and social effects at the local level should be initiated by county and local school districts. Such investigations and discussion may be conducted by local municipal leagues, civic groups, and citizens committees, composed of school officials, school board members, representatives of parent and teacher groups, businessmen, and community leaders.

The public will more likely make intelligent decisions concerning its school system only when it has access to the specific findings of such research. It is to that end that this study is directed.

BIBLIOGRAPHY

Jensen, George M., Let's Update Our School Calendar, pamphlet printed by Twin City Federal Savings and Loan, Minneapolis, Minnesota.

Harbo, Alf F., A Longer School Year, Code IX-B-376, Research Project No. 12, May 1, 1958, Dept. of Ed., State of Minnesota.

Wright, Grace S., The All-Year School, Circular No. 688, OE-10020, June, 1962, Office of Ed., U. S. Dept. of Health, Education & Welfare, Washington 25, D. C.

Facts and Figures on Government Finance, 12th ed., 1962-63, Tax Foundation, Inc.

Year-Round School, American Association of School Administrators, 1960.

The Year-Round School, Theory Into Practice, Vol. I, No. 3, Bureau of Educational Research and Service, The Ohio State University, June, 1962.

U. S. Department of Health, Education, and Welfare, Office of Education, Washington, D. C.: U. S. Government Printing Office: Fall, 1962, Enrollment, Teachers, and Schoolhousing Trends in Financing Public Education 1929-30 to 1959-60. Survey of Public School Classroom Shortages in the Fall of 1959 in Borrowed-up Districts. Revenue Programs for the Public Schools in the U. S. 1959-60. Current Expenditures Per Pupil in Public School Systems, Urban School Systems, 1958-59. Public School Finance Programs of the U. S. 1957-58. Statistical Summary of Education 1957-58, Chapter 1, Teacher Turnover in the Public Schools, 1957-58.