PRELIMINARY DRAFT

NOT FOR QUOTATION OR CIRCULATION

WITHOUT PERMISSION

CO-PRODUCTION: A DIFFERENT APPROACH TO PUBLIC SECTOR EFFICIENCY

BY

MARK SPROULE-JONES
COPPS PROFESSOR
McMASTER UNIVERSITY *

CUTBACK MANAGEMENT FOR LOCAL GOVERNMENT

OCCASIONAL REPORT NO. 1

NOVEMBER 1983

* With the research assistance of Mary Jane Davies.

PREFACE

This report is designed for elected officials, government managers, government employees, academics and citizens interested in improving public sector efficiency. It is expressly designed for the community of Hamilton and Hamilton-Wentworth in Ontario, but should be of practical and theoretical value in other communities and for other levels of government.

A word of gratitude must be expressed to McMaster University (Arts Research Board and Labour Studies) which funded a portion of the research costs of the report, and to the City of Hamilton which established the V.K. Copps Chair in Urban Studies at McMaster University in 1982.

Special thanks must be accorded to the public officials who allowed their departments and programmes to be analyzed, and who also provided extra information when needed. Finally, I must thank my industrious, persistent and effective research assistant, Mary Jane Davies.

TABLE OF CONTENTS

TABLE OF GRAPHS

1. INTRODUCTION

Governments are under increasing financial pressure. The current recession and consequent loss of government revenues are serving to increase the pressure on governments to promote cost-effective and efficient public programmes. Local governments no less than senior levels of government are also experiencing this pressure. Indeed, the pressure on local governments may be greater as senior levels restrain their revenue grants to local levels.

Adding to the fiscal pressures are the pressures of public opinion, from both "right" and "left", to reduce government deficits and reallocate expenditures towards clearly defined priority programmes. Much controversy exists over the extent of restraint and the programmes that should have priority. But this political pressure is clearly intensifying the fiscal strains on all levels of government.

In the light of the pressures, governments are responding with a variety of innovations, generally known under the term "cutback management". The innovations include:

(1) the contracting out of entire functions of government under competitive tender, as well as comparable arrangements for contracting and pricing of inputs (labour, land, buildings, etc.) for government services;

(2) a greater emphasis on user charges for those government services that can be marketed;

(3) the elimination of regulations or the introduction of self policing when the enforcement of regulations is costly;

(4) the introduction of newer management styles enlisting employee co-operation for improved manpower productivity;

(5) (although more controversial) a divestiture of the assets of publicly owned enterprises, and the elimination of government agencies.

Amongst these and other "cutback management" innovations, there is one innovation which has attracted little attention in Canada and yet has the potential for substantial economies in service provision by government. It also has the potential of reducing the political alienation from government that is widespread amongst many sections of the Canadian public. It is the direct involvement or participation of citizens in the production of government services. It has recently been labelled "co-production".

In this first of a series of occasional reports on cutback management in government, we detail the potential advantages and difficulties of implementing "co-production" for government functions.

Section (2) of the report describes "co-production" and gives examples of its use in local governments in Canada and abroad. The economic theory of co-production is relegated to an Appendix note, as are a bibliography and the methodology used in this study, for those readers who wish to pursue a more in-depth analysis.

Section (3) provides evidence on the potential savings and cost-effectiveness from co-production, with data drawn from its current use in the Hamilton-Wentworth area.

Section (4) discusses the key requirements for any successful introduction of co-production into service provision by local governments.

And it discusses the difficulties of implementation.

Section (5) offers concluding remarks and summarizes the thrust of this report for government and for the informed layman.

2. CO-PRODUCTION

Most government services (functions) have the characteristic that they cannot be delivered without the combined efforts of citizen - consumers and government - producers. Education, for example, requires the combined efforts in the classroom of the teacher (typically a government-producer) and the student and his or her parents (citizen - consumers). Social welfare services require the combined efforts of social workers and clients. Health and other so-called "soft" government services similarly require the combined efforts of the consumer and producer. Many so-called "hard services" where tangible products are delivered by government -- waste collection, water, fire suppression and so on -- also often involve co-production. The citizen who places his garbage cans on the curbside is helping to produce the service, as is the citizen who installs smoke detectors or reports incidents of vandalism to the police. All of these activities are instances of co-production.

We have grown accustomed to thinking of citizen participation or volunteerism simply in terms of providing information to government or engaging in non profit social service clubs. Census data and surveys often defines participation or volunteerism in these ways (Statistics Canada, 1981). But the facts of co-production make us realize that citizens are often an integral part of public administration. They are involved in ways more than attendance at zoning hearings or in boys and girls clubs, for example.

Co-production is not a new phenomenon. Local governments, especially smaller ones, have relied on volunteer firemen and policemen.

Schools have often used parents in the classroom. By-law enforcement, road and sewer and water main repairs, and "safety" services like police and fire, have traditionally relied on reporting and complaining from the citizen.

In the private market place, co-production was also at one time a common phenomenon. Robinson Crusoe was both a producer and a consumer of his farming and fishing. Only as a division of labour spread in more complex societies did a division between producer and consumer of any product become the norm of the marketplace. In government, a combination of increased scope and complexity of service provision and the concomitant professionalization of the public service reduced but did not eliminate co-production.

We need to ask whether professionalism is always necessary for all aspects of government service production. We need to ask when can co-production fill the gap between service demands and service supply. We need to ask about the obstacles and difficulties of implementing co-production. And we need to address the cost effectiveness of co-production. While there are obvious savings from co-production, service quality may deteriorate and service effectiveness be reduced. These questions will now be addressed.

3. THE COST-EFFECTIVENESS OF CO-PRODUCTION

In order to make an assessment of the economic advantages of co-production, we selected two types of government functions in the Hamilton/Wentworth Region. One cluster of services comprised "soft" services for the elderly and infirm, the services provided on contract by the Victoria Order of Nurses for the "shut-ins" of the region. These services are classic "soft-services"'. They do not produce or provide tangible products, but that does not mean they are not valued by citizens who receive them. The services are:

(i) The Volunteer Visitor (Friendly Visitor) Programme, which has the objective of supporting family members who care for the chronically ill or elderly in their homes; and

(ii) The Meals on Wheels Programme, which provides hot meals for the disabled and infirm, regardless of age or income.

Both of these services make extensive use of volunteers in delivering their programmes.

The other type of service examined is that of fire suppression. The delivery of fire protection services as a whole comprises more than fire suppression -- inspections and reporting, for example, are important component activities of the entire function. We examine the cost effectiveness of the use of volunteers for the fire suppression activity of five municipalities. Fire suppression is a classic "hard" service. It consists of extinguishing fires, primarily in buildings, through the use of water and allied systems.

Our assessment of the cost effectiveness of co-production thus is based on two radically different kinds of service: one "hard" service

function and one set of "soft" service functions. Because the nature of a government service is an important determinant of its organization and cost-effectiveness, we felt it necessary to spread our analysis over both "hard" and "soft" services.

Our estimates are based on statistical data gathered from the Victoria Order of Nurses and from five municipalities producing fire suppression with or without the use of volunteers. In order to make assessments of the cost-effectiveness of the services, we also examined statistical data of professional service provision of these functions. We received the co-operation of service organizers in this data gathering activity, and would like to thank them publicly for their help and patience. None of the data routinely collected by the agencies was in a form that could make ready assessments of the cost-effectiveness of the programmes in question, and some missing data still exists. Nevertheless, we can make some conclusions with the data at hand.

3.1 FORMAT

The report presents data first on the five suppression service function and then on the two "home-care" services. Key indicators are identified, and line graphs selected as the main vehicle for conveying the results of our study. Inspection of the graphs allows the reader to assess performance over time, as an assessment of a single year's experience may be atypical of the trends within an organization. We will also point out some of the dangers of misinterpretation of our findings during this discussion.

3.20 FIRE SUPPRESSION

The four municipalities that use volunteers as firemen break into two distinct groups:

(i) Those that are 100% volunteer force - two municipal forces.

(ii) Those that are mixed forces of volunteers and full time professionals - two municipalities. One municipal force contains 44% of full time professionals (1978-82); and the second is staffed by 8% full time professionals (1978-80) increasing to 9.9% (1981) and 11.8% (1982).

This distinction between full time volunteer force and a mixed force enables us to see whether or not a mix of professionals and volunteers is more cost-effective than a completely volunteer force. For purposes of comparison, we also have data on a full time (100%) professional force in the area.

Strictly speaking, none of the forces use volunteers. The "volunteers" are paid on the basis of their attendance at calls for assistance and for attendance at training sessions. It is also important to note that the "volunteers" are not unskilled firefighters; they average two hours per week in training on an annual basis. It is possible that the quality of the training experience is different from that of a full time professional force -- in terms of equipment and facilities, for example -- but it is difficult to substantiate whether such a quality difference (if it exists) makes a difference in effectiveness.

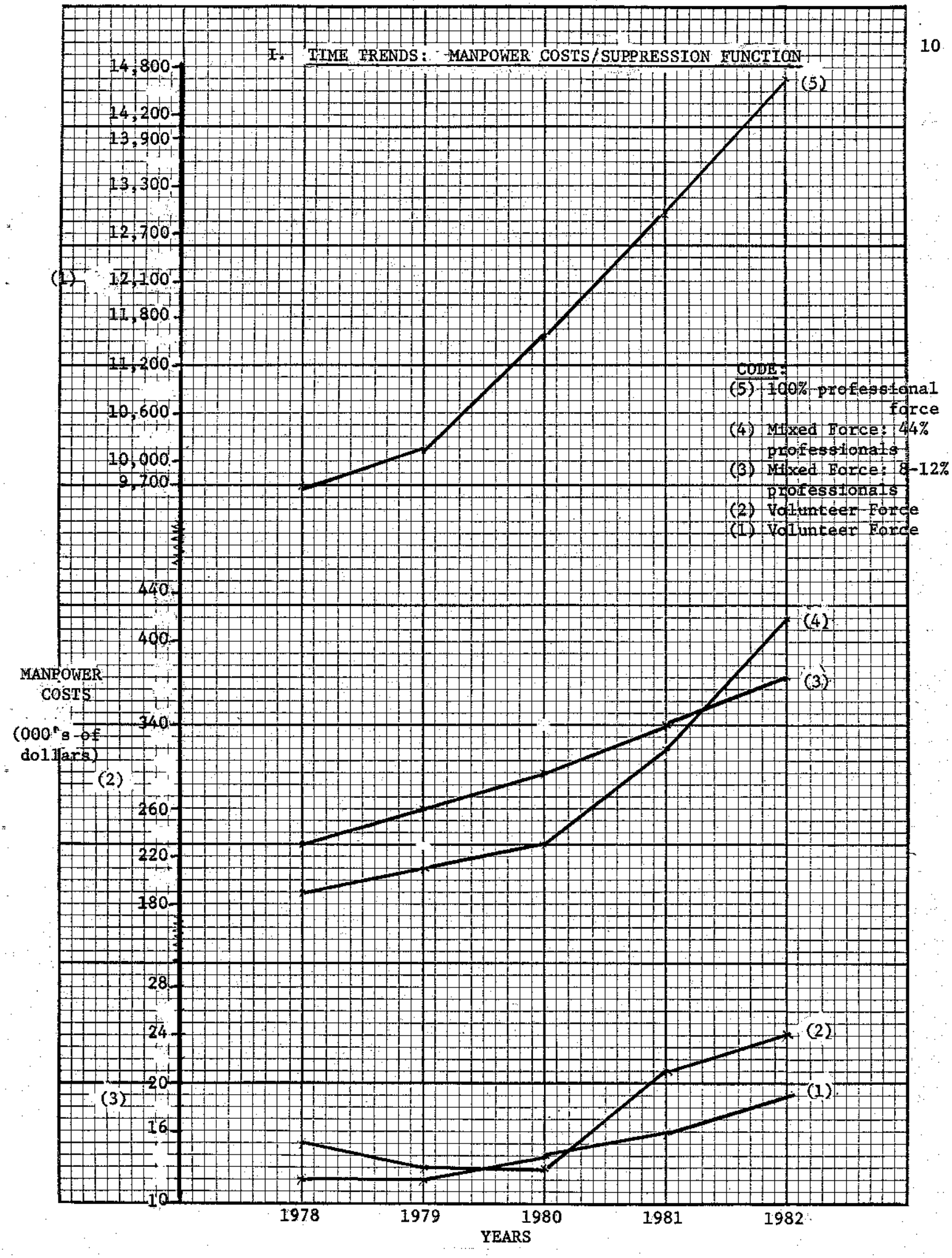
One more preliminary point must be made. We are examining the cost-effectiveness of the manpower portion of the fire suppression functions

We take care to include in our estimates that portion of administrative and other costs that must be allocated to the suppression function, and we exclude those portions of budgets that must be allocated to other inputs in the fire suppression function (capital equipment purchases, for example).

3.21 MANPOWER COSTS OVER TIME

All five fire departments have undergone increasing costs in their suppression functions and in the manpower costs of these suppression functions. The trends over time are graphed in Graph 1.

This information on cost increases for manpower over time tells us very little about the reasons for cost increases, or whether the cost increases were merited in terms of workload% They are displayed simply to emphasize a major problem facing all government agencies, and especially the labour intensive ones, namely that labour costs are increasing, and at an increasing rate, over recent years.


I. TIME TRENDS: MANPOWER COSTS/SUPPRESSION FUNCTION
MANPOWER COSTS (000's of dollars)
14,800
14,200
13,900
13,300
12,700
12,100
11,800
11,200
10,600
10,000
9,700
440
400
340
260
220
180
28
24
20
16
10
(1)
(2)
(3)
(4)
(5)
1978
1979
1980
1981
1982
YEARS
CODE:
(5) 100% professional force
(4) Mixed Force: 44% professionals
(3) Mixed Force: 8-12% professionals
(2) Volunteer Force
(1) Volunteer Force

3.22 MANPOWER COSTS/MANHOUR

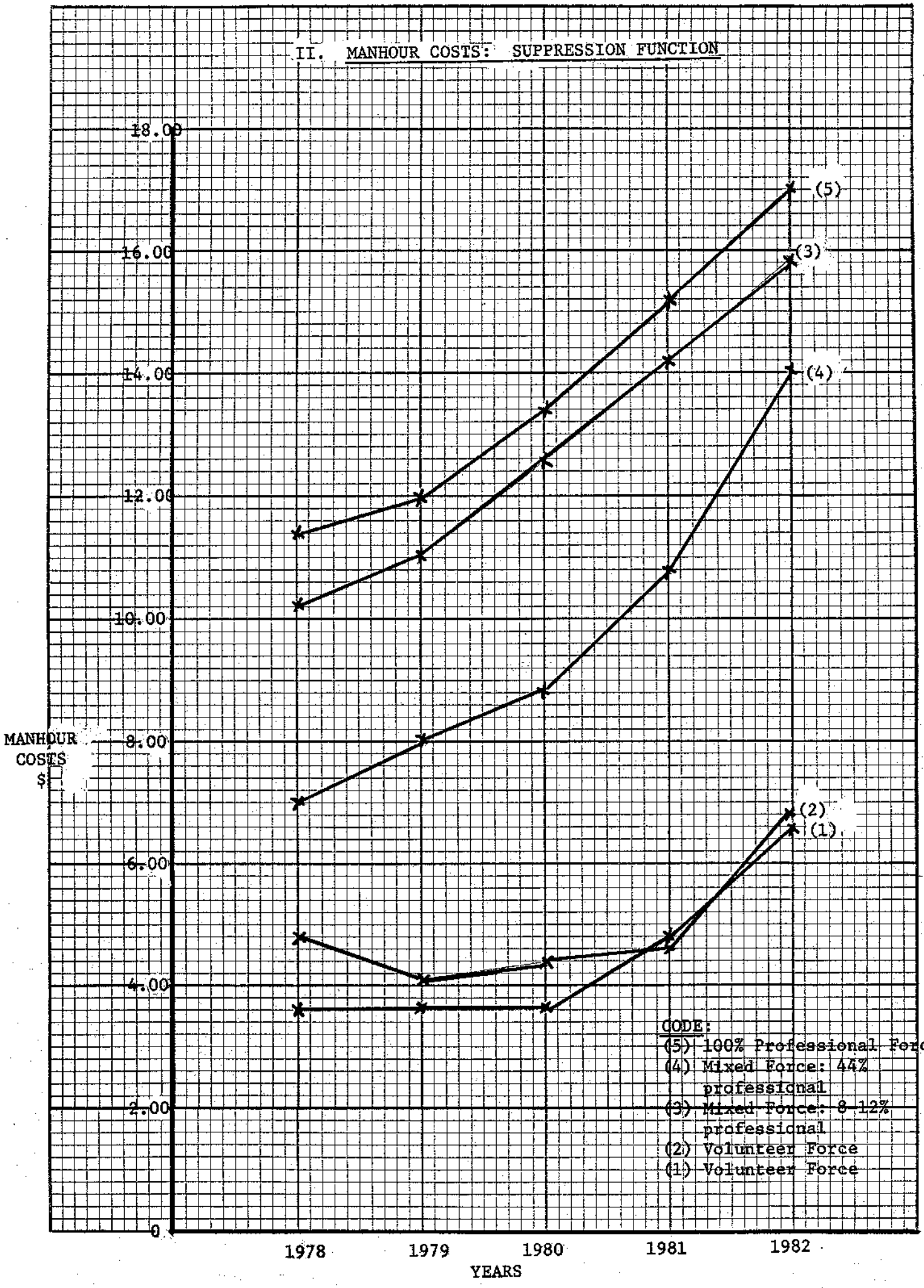
A better perspective on the increases in manpower costs over time is given by examining the manpower costs of all forces per manhour. The previous graph compared very large and very small forces, as well as different types of force, where "volunteers" were paid only for "time on the job". By standardizing the manpower costs per manhour we can directly compare the fire suppression labour costs of all forces.

Once again it is important to stress that the workload and difficulties of fire suppression vary across the municipalities, and we are not assessing here either the effectiveness or the cost-effectiveness of the various forces.

The graphs indicate an increase in manpower costs/manhour over the five year period, with the volunteer forces experiencing most of their increase in the 1981-82 period. The one mixed force increased its manpower costs/manhour after 1980, reflecting an increased proportion of full time professionals on staff. The fully professional force displayed a consistent rate of increase over the five year period.

As is obvious, the use of volunteers is cheaper than the use of professionals, but whether it is wiser to employ more of these depends on workload and effectiveness statistics.

II. MANHOUR COSTS: SUPPRESSION FUNCTION

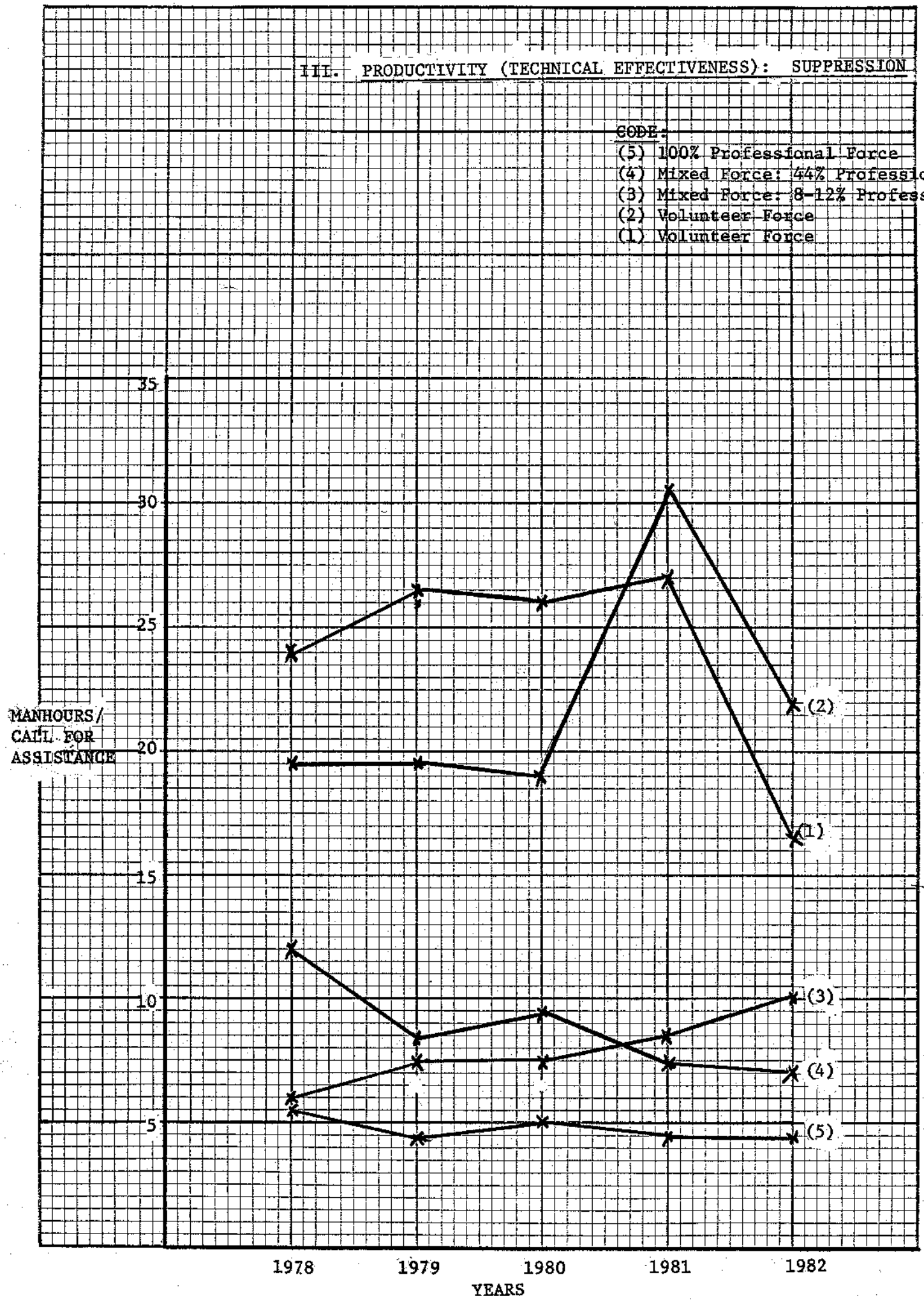


3.23 PRODUCTIVITY

The main argument for a full time professional force is that they can be more productive in suppressing fires than mixed or volunteer forces. In other words, because of their work loads, it will be more productive or effective to employ a fully professional force than a mixed or volunteer force. Our statistics verify this argument (see below). This does not mean that it is more cost-effective to employ full time professionals, but merely that one would expect full time professionals to cope with a higher work load more effectively. The best measure of this productivity is the number of manhours expended per call for assistance.

The following graph demonstrates that the two volunteer forces are considerably less productive than the other forces, and that the full time professional force is more productive than the mixed forces. The volatile nature of volunteer productivity indicates not work load changes, but rather the organization of manpower per alarm call. The considerably better productivity of the two mixed forces indicates that even a small professional core (No. 5 contains 8% to 12% of full time professionals in the time period) can bring marked improvements in productivity. The even better performance of the full time professional force indicates, as far as we can tell: that it is not due to superior training per se, but to organization of fire crews and equipment appropriate to the type of alarm called.

III. PRODUCTIVITY (TECHNICAL EFFECTIVENESS): SUPPRESSION



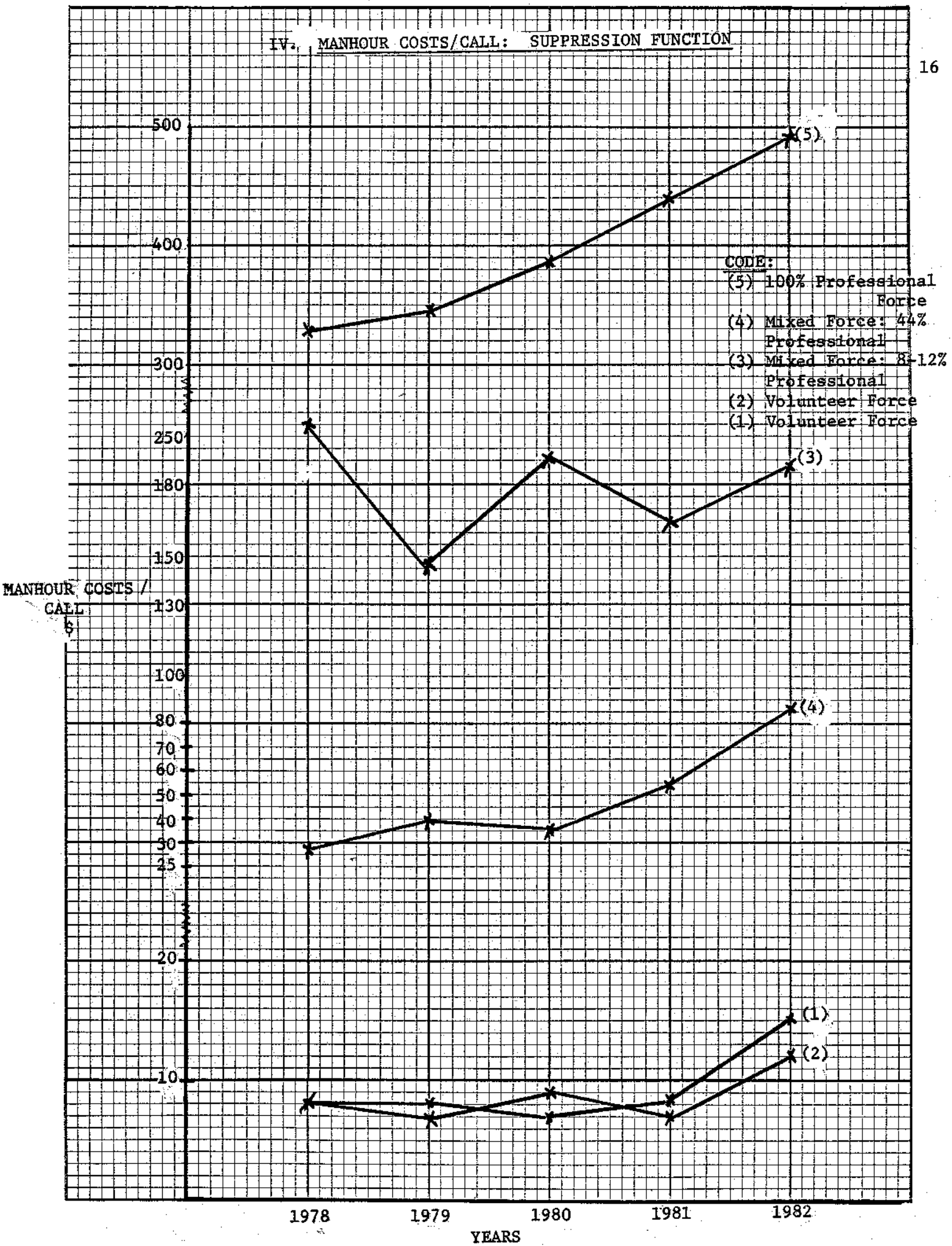
3.24 COST-EFFECTIVENESS (1)

One can measure cost-effectiveness in a variety of fashions. We single out three measurements that we believe indicate the appropriate cost-effectiveness of the various forces. As we showed, it costs more to employ a fully professional force than a mixed one and, in turn, a volunteer force. But this does not mean it is always economical to prefer full time professionals to a mixed force to a volunteer force.

Our first indicator of cost-effectiveness measures is manpower costs per call for assistance (or alarm), with manpower costs standardized by the hour for comparison amongst the forces. Our findings are startling. It currently costs about $500 per manhour to put a member of a fully professional force in the field to answer a call for assistance. Our mixed force with a 36% professional staff costs $190 approximately per manhour. Our other mixed force and which currently (1982) employs only a 12% professional work force, can put a man in the field for an hour for $86 per hour approximately. And our two total volunteer forces (where we have data) can put a man in the field for an hour for some $16 and $12 respectively.

Note that those figures indicate nothing about the severity of an alarm nor do they say anything about the effectiveness of the force in fighting the alarms. Nevertheless, they give a gross indication of the economic advantages of co-production. Better figures are given by subsequent figures and discussions.

IV. MANHOUR COSTS/CALL: SUPPRESSION FUNCTION



3.28 COST-EFFECTIVENESS (2)

The statistics on manhour costs/call are simply one indicator of cost-effectiveness. Some important elements of effectiveness are not captured by the sheer number of calls for assistance. For example, the response time of forces in reaching an alarm site and the severity of the fire are important aspects of fire suppression effectiveness.

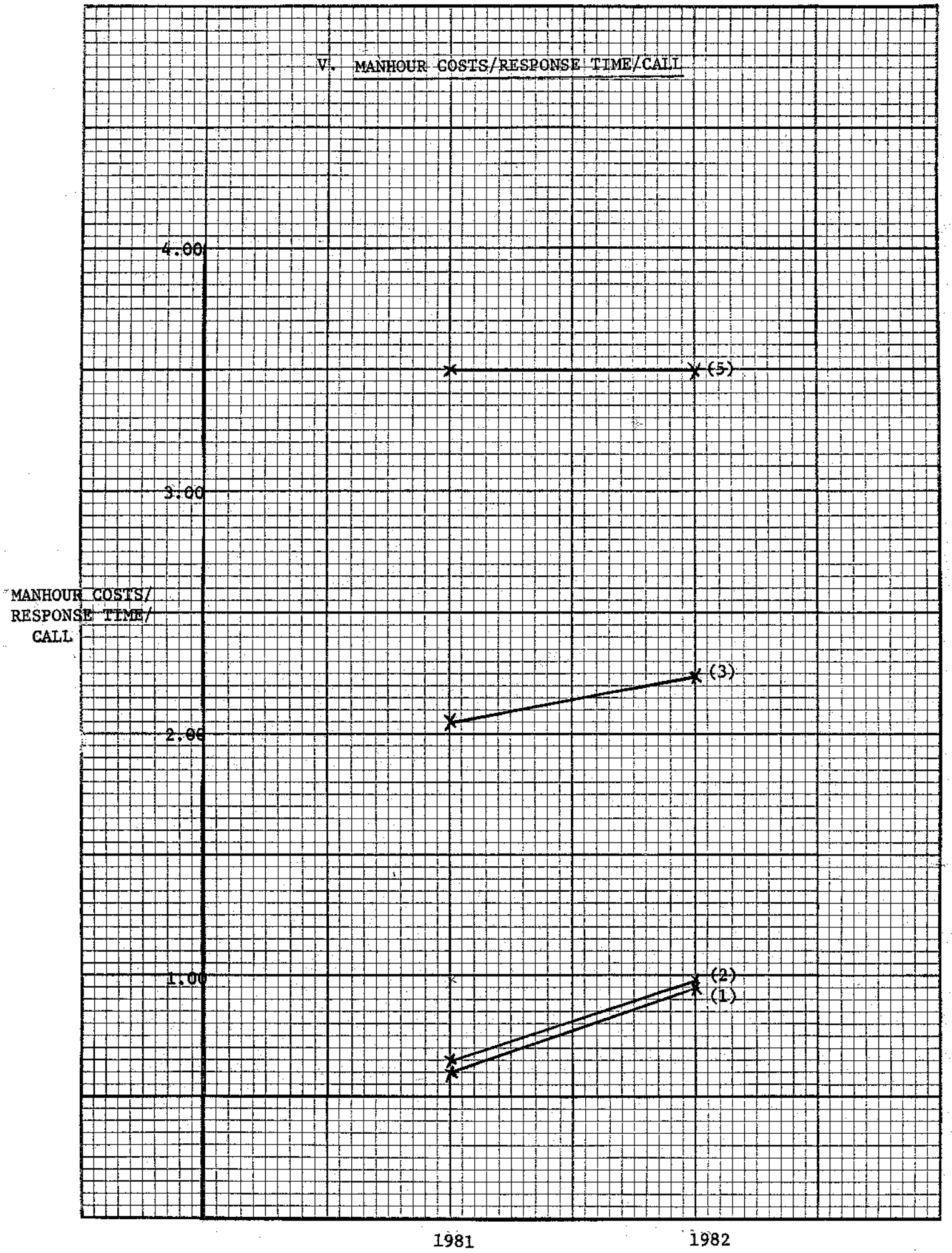
In order to measure responsiveness, we use two types of data. A direct measure in minutes is only available for four of the forces and only for the years 1981 and 1982. The manhour costs per response time per call are presented below. They again show how much more expensive a professional force is than a mixed force and a volunteer force. And this is despite the fact that the professional force is over twice as fast is reaching a call than is the mixed force and the volunteer forces. (Table 1)

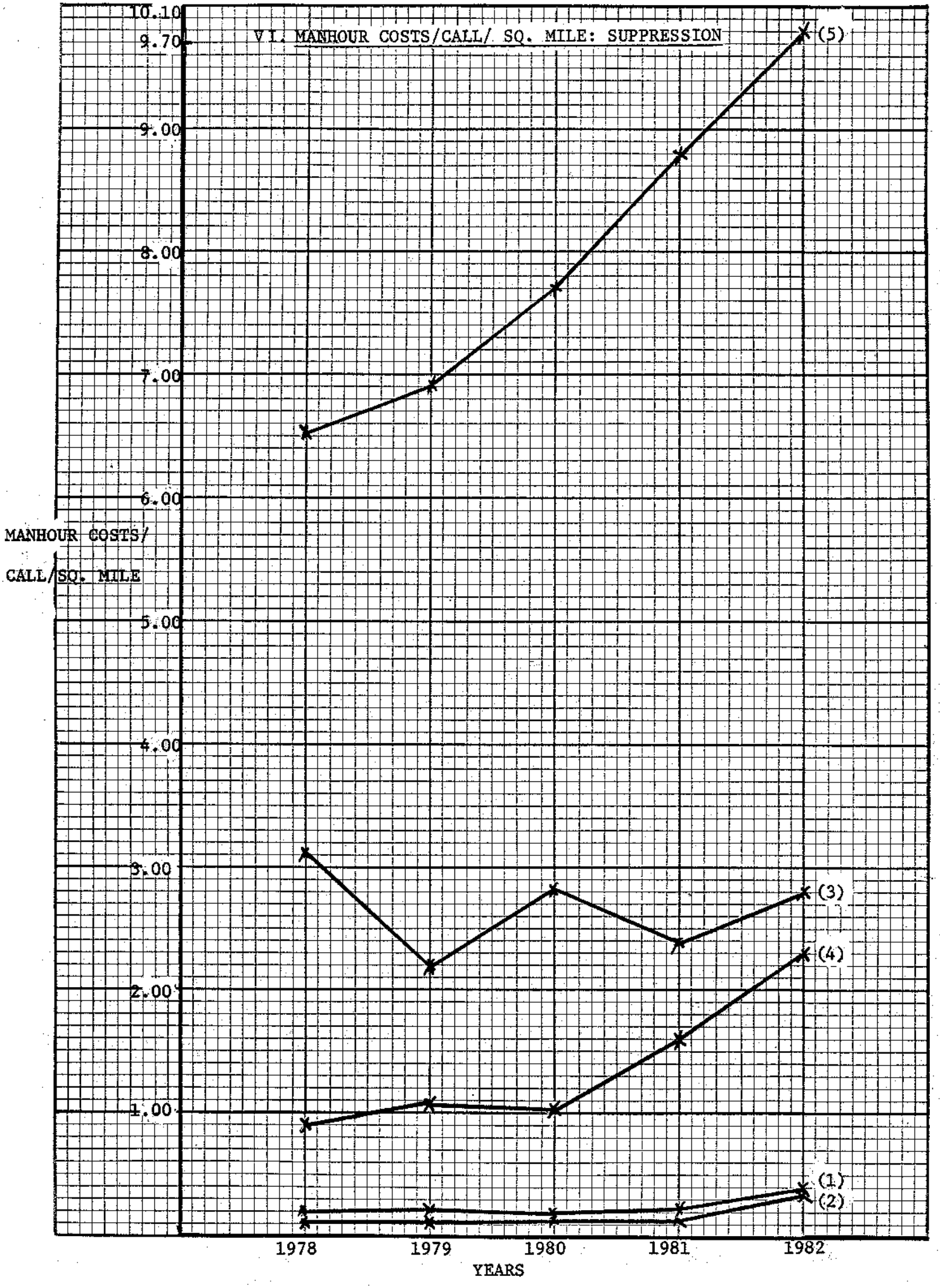
Response times/calls 1982

Professional Force (5)	3.5 minutes
Mixed Force (3)	7.1 minutes
Volunteer Force (2)	6.9 minutes
Volunteer Force (1)	7.0 minutes

Because we have figures on response times for only two years, we also describe below the manhour costs/call/square mile over the five year period. It is not as good a measure of responsiveness as is minutes to reach an alarm site, as it neglects the location of fire halls within a municipality. But it does shed some more light on cost-effectiveness and again illustrates that volunteer forces are more cost-effective than mixed forces who are in turn more cost-effective than fully professional forces.

V. MANHOUR COSTS/RESPONSE TIME/CALL



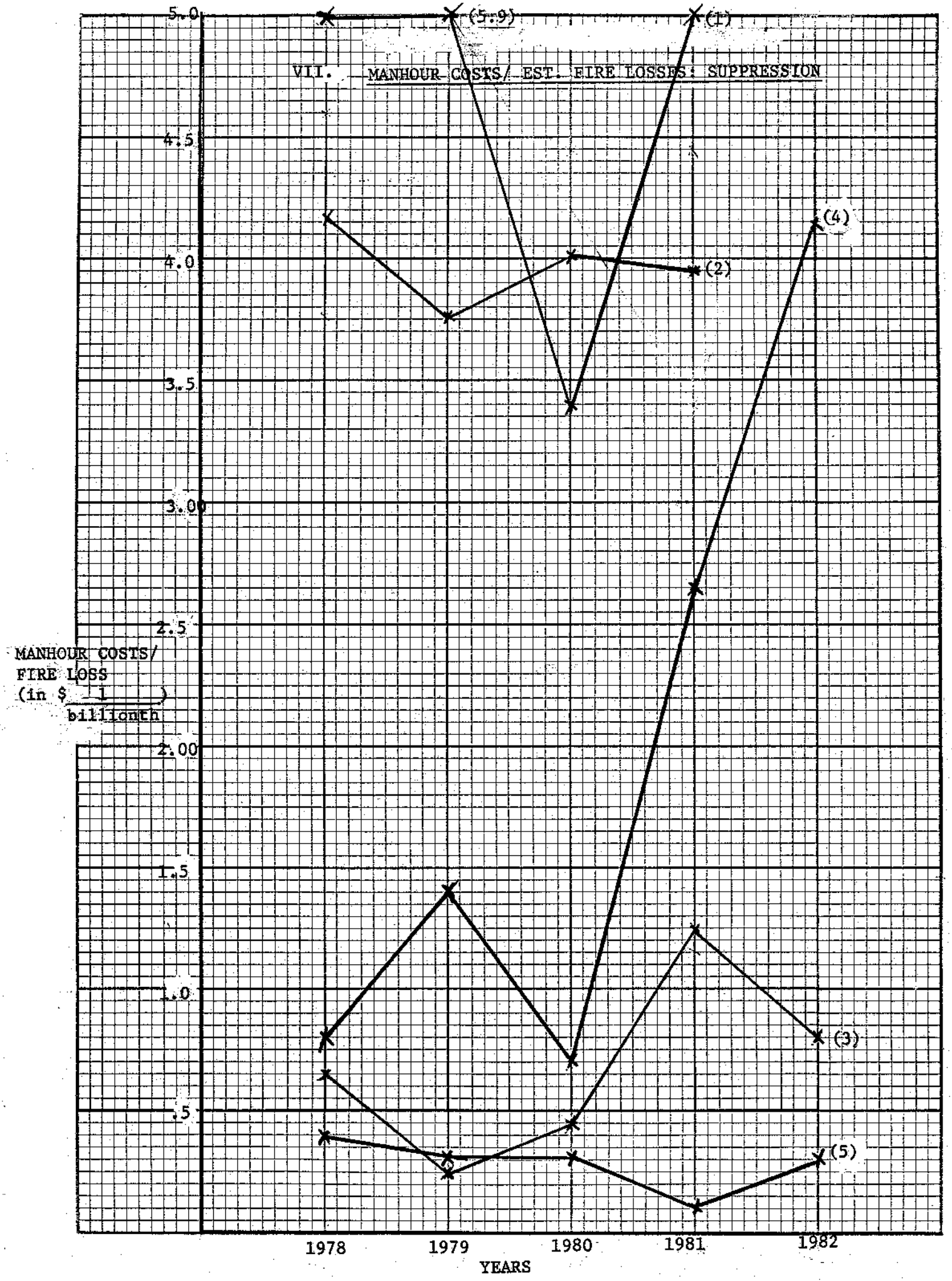

VI. MANHOUR COSTS/CALL/ SQ. MILE: SUPPRESSION
10.10
9.70
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
MANHOUR COSTS/
CALL/SQ. MILE
(5)
(3)
(4)
(1)
(2)
1978
1979
1980
1981
1982
YEARS

3.26 COST-EFFECTIVENESS (3)

Among the reasons for employing professional fire fighting force, one is the expertise and training they bring to suppressing severe and dangerous fires. One would expect a professional force to be more cost-effective in this regard. Our figures bear out this expectation. The fully professional force is more cost-effective in fighting fires that are severe than are the other forces, although the difference between the forces are not as great as one might have expected.

These results confirm our previous findings on the productivity of the forces. The more professional a force the more productive it is in fighting fires, and the more cost-effective it is in dealing with severe fires.

VII. MANHOUR COSTS/ EST. FIRE LOSSES: SUPPRESSION



3.27 COST-EFFECTIVENESS (4)

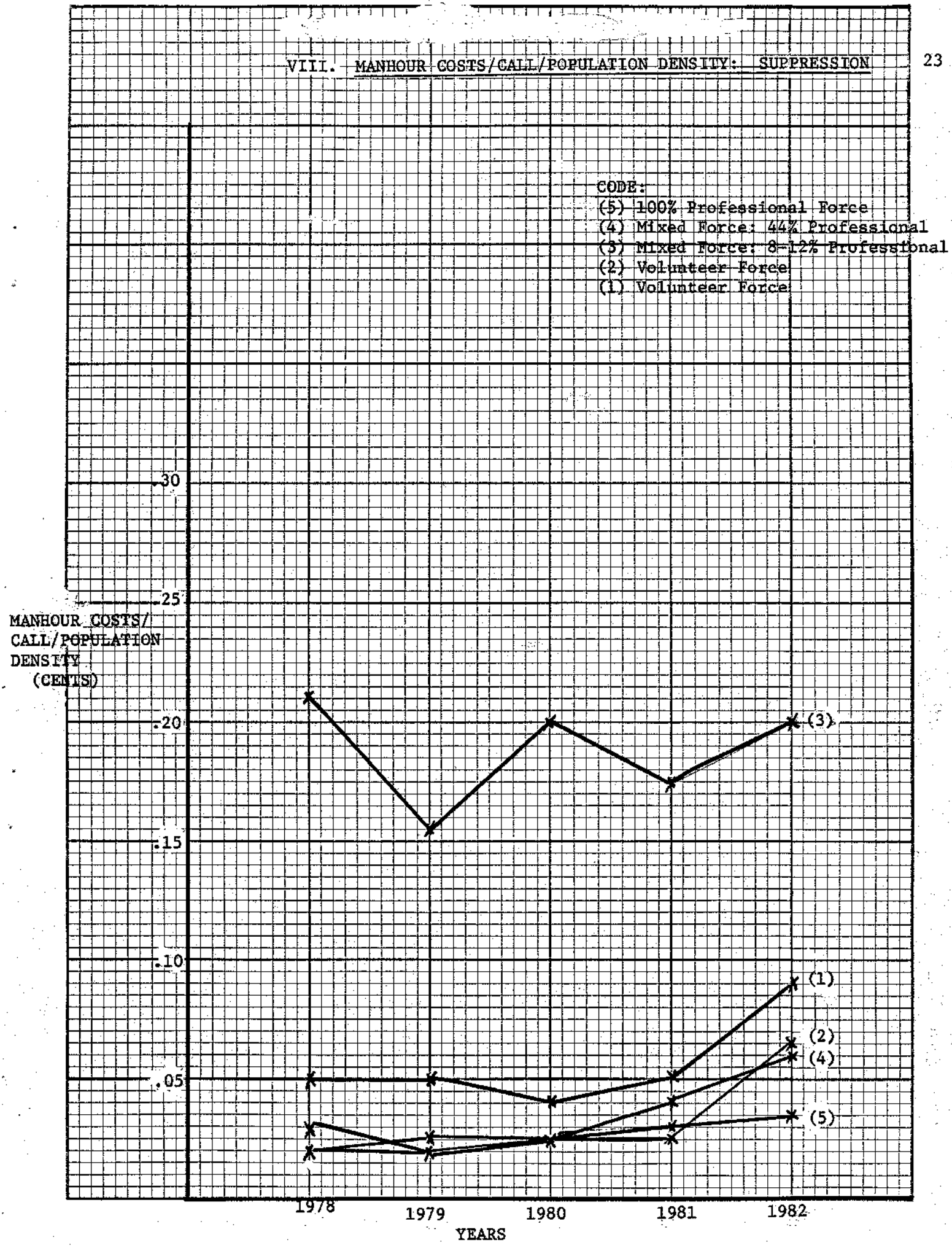
Another view of the cost-effectiveness of the various kinds of forces can be gathered by examining the effects on costs of the density of population. The denser the population the more likely are calls for assistance. Population density reflects potential demand for fire suppression services.

It is not a perfect indicator of potential demand. Age of housing and property stock, and education of the population in safety can both make critical contributions. But it is one of the better measurements of potential demand.

The figures show that a professional force is more cost-effective in meeting potential demand than are the mixed and volunteer forces. I cannot explain with these statistics why the one mixed force is so less cost-effective than the other mixed force or indeed all five forces. Observation of the municipality in question suggests that the more expensive mixed force is organized in a wealthier community, with larger lots and with newer housing and improvements, all of which factors would depress potential demand for service.

A contrast with 3.24- Cost-Effective measure No. 1 - indicates the real dilemma facing decision makers. A professional force can be as cost-effective as volunteer and (we think) mixed forces in dealing with potential demand, but much less cost-effective in dealing with actual demand.

VIII. MANHOUR COSTS/CALL/POPULATION DENSITY: SUPPRESSION



3.28 COST-EFFECTIVENESS (5)

Our last measure of the cost-effectiveness of manpower used in fire suppression measures manhour costs in relation to calls/population served.

The previous measure (4) measured effectiveness in terms of population density. Alarms generated per thousand of population is the classic measure of fire incidence. It is subject to general criticism because it is an inaccurate indicator of potential demand - so many other factors beside population can make a difference.

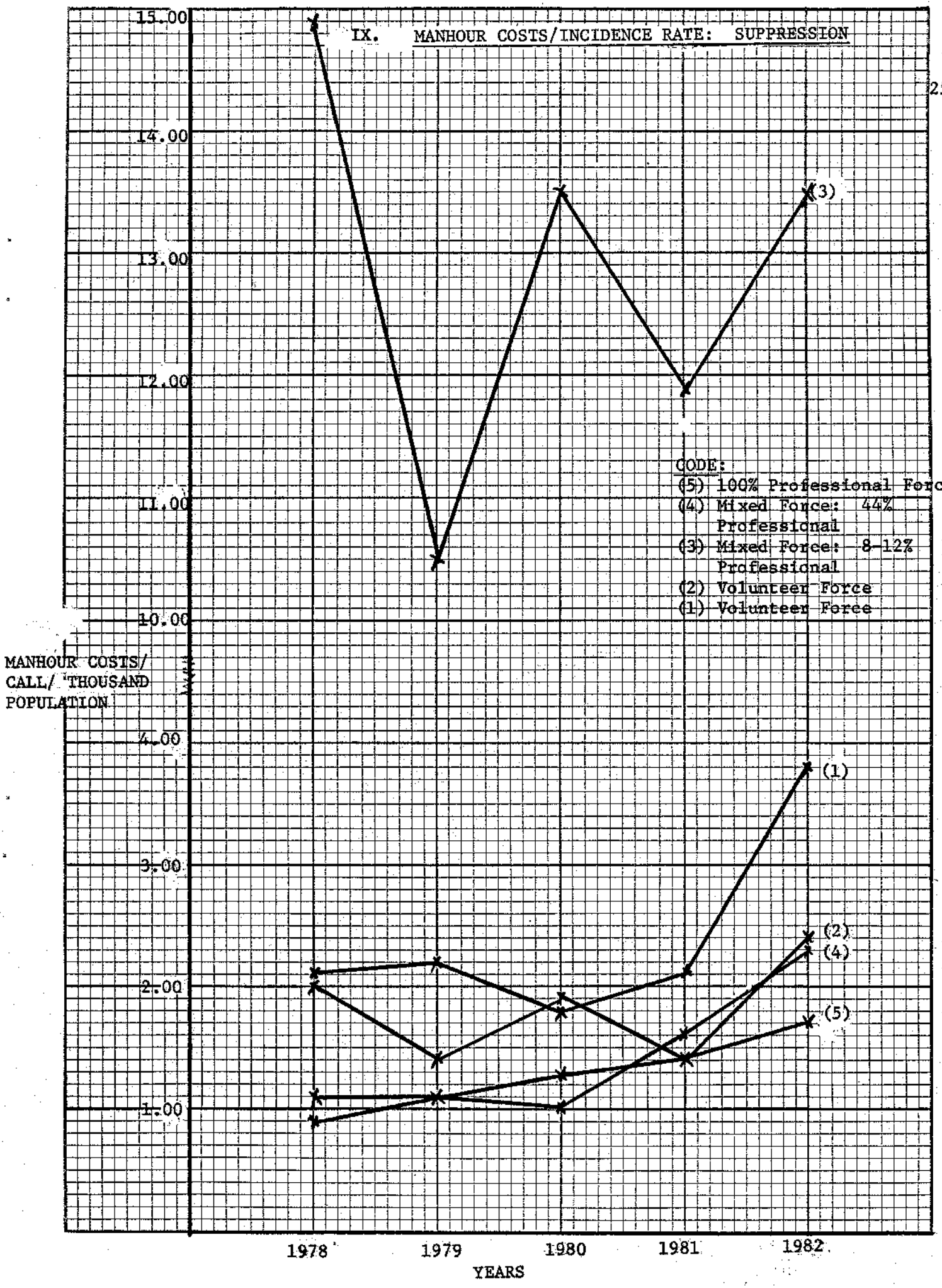
As we would expect the manhour costs of suppression in the professional force in relation to the fire incidence rate are as low - if not lower - than the other forces. The aberrant performance-of force No. 4 is again noted.

While the graphs reinforce the previous conclusions on cost-effectiveness, two important policy decisions are highlighted and which will be discussed in the next section.

(a) Manhour suppression costs are roughly comparable amongst the forces, regardless of status, in terms of fire incidence rates and potential demand for service. However, the more professional a service, the greater the costs in terms of actual demands for suppression delivery. The key policy decision is how can the links between potential and actual demand be reduced so that the costs of employing more professionals can be curbed.

(b) In view of the greater cost-effectiveness of the forces employing a proportion or total of volunteers, how can volunteers be usefully employed in municipalities where the severity of fires and potential demand for service exists?

IX. MANHOUR COSTS/INCIDENCE RATE: SUPPRESSION



3.29 CONCLUSION: POLICY DECISIONS

Our figures indicate that the manpower costs of suppressing fires are increasing in all municipalities, whether or not they employ a fully professional, a mixed or a volunteer force. And these costs are increasing at a very time when the all forces are becoming more technically productive in responding to calls for assistance. Greater productivity does not mean, necessarily, lower delivery costs or greater cost-effectiveness. Manpower expenditures can offset gains from productivity.

In view of this general conclusion, policy makers face two broad strategies for improved cost-effectiveness of their forces.

(1) They can attempt to reduce the linkages between potential and actual demands for suppression services, thus reducing the actual workloads of the forces and enabling them to reduce allied manpower expenditures without reducing effectiveness. Most forces and municipalities have emphasized this strategy by improving inspections and other elements of fire prevention services (for example, education of the population in fire hazards and improved building codes). There does not appear to be any evidence, however, that policy makers have attempted to stabilize manhour costs at the same time.

(2) Decision makers can explore ways of substituting volunteers for professionals and vice-versa in suppression services, without reducing the technical effectiveness of the forces. Our data, as well as studies elsewhere, confirm that volunteers are more effective in fighting severe fires and spend

fewer hours in fighting each fire, when they are organized and work alongside a core of professionals. A mixed force can be almost as technically effective and productive as a professional force, and much superior to a volunteer force in these regards. Yet mixed forces are demonstrably less expensive and hence more cost-effective than the professional force.

Municipalities, therefore, that employ all volunteer forces or small mixed forces may well want to explore contractual arrangements for buying the time of some professionals from an all professional force.

At the same time, professional forces should explore ways to use more volunteers (civilians) in fire suppression functions, especially those that are less severe. Most professional forces employ a sophisticated reporting system that enables them to send different numbers of crews and equipment types for different types of calls for assistance. For calls of lesser severity, some use of part-timers (volunteers) could be integrated with such a reporting system. It would improve their overall cost-effectiveness.

3.3 TWO HOME CARE PROGRAMMES

We also examined data for two "soft" services, the Volunteer Visitor (Friendly Visitor) Programme and the Meals on Wheels Programme to guard against unwarranted conclusions about the advantages and disadvantages of service production by volunteers. The nature of a government function - particularly whether it results in a tangible ("hard") product or an intangible ("soft") product - is an important determinant of organizational design and effectiveness.

Our analysis of these services is also somewhat different from that of fire suppression. Both the Volunteer Visitor Programme (VVP) and the Meals On Wheels Programme (MWP) are part of a package of home care services delivered to the aged and infirmed in the Hamilton-Wentworth area. They are administered by the Hamilton-Dundas Branch of the Victoria Order of Nurses and include other services such as in-home nursing care, in-home housekeeping and maintenance services and social work visitations. In essence, the Victoria Order of Nurses contracts with a number of service funders (the Ontario Ministry of Health, the Regional Municipality, the United Way, and private benefactors) to supply a package of soft services. Some of the package are produced by the VON, others organized by VON personnel with the use of volunteers, and still others contracted out. Both the VVP and the MWP fall into the second category above.

Because the VVP and MWP are essentially the only programmes of their kind delivered in the area, we cannot directly compare their cost-effectiveness with other programmes in the region. The delivery of a hot meal at lunchtime is quite different, of course, from the delivery of medical nursing care at home.

But we can evaluate the use of volunteers to delivery the VVP and MWP, by asking such questions as:

(a) What would be the costs of the programmes were they to be delivered by full time professionals, compared to the current mix of professionals and volunteers?

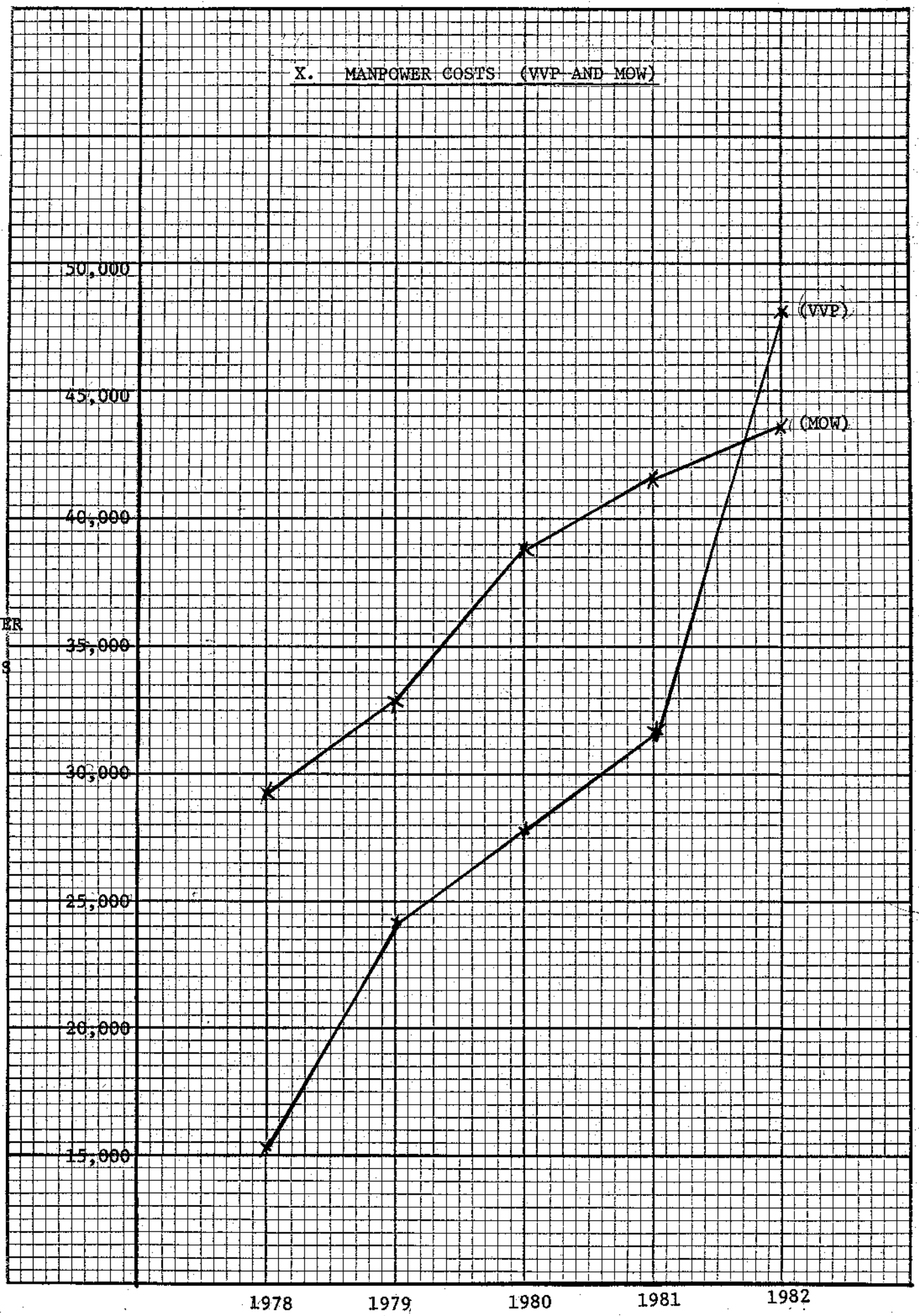
(b) What would be the comparable effectiveness?

(c) What would be the comparable cost-effectiveness of fully professional delivery?

3.32 MANPOWER COSTS

Both the VVP and the MOW are relatively small social programmes when viewed in terms of expenditure. In 1972, the VVP delivered its service at the cost of just under $58,000 and the MAW at a cost of just over $140,000. But in physical rather than dollar terms, they are large endeavours. The VVP in 1983 organized 361 volunteers through a professional staff of one full time organizer, one part time organizer, and the part time backings of a clerical worker, a bookkeeper, and the district director of the VON. The MOW organized 183 volunteer employees with an equivalent fully paid staff. Expenditure figures do not, in other words, present the full story of the managerial and organizational size of the programmes. Graph IX, which displays the total manpower costs of the programmes of the two programmes should be judged in the light of these qualifications. The rapidly increasing manpower costs of the VVWP compared to the MWP should be interpreted as part of the unforeseen and

X. MANPOWER COSTS (VVP AND MOW)



attendant consequences of introducing a new and, so it turns out to be, a popular and highly labour intensive social programme.

3.33 MANHOUR COSTS

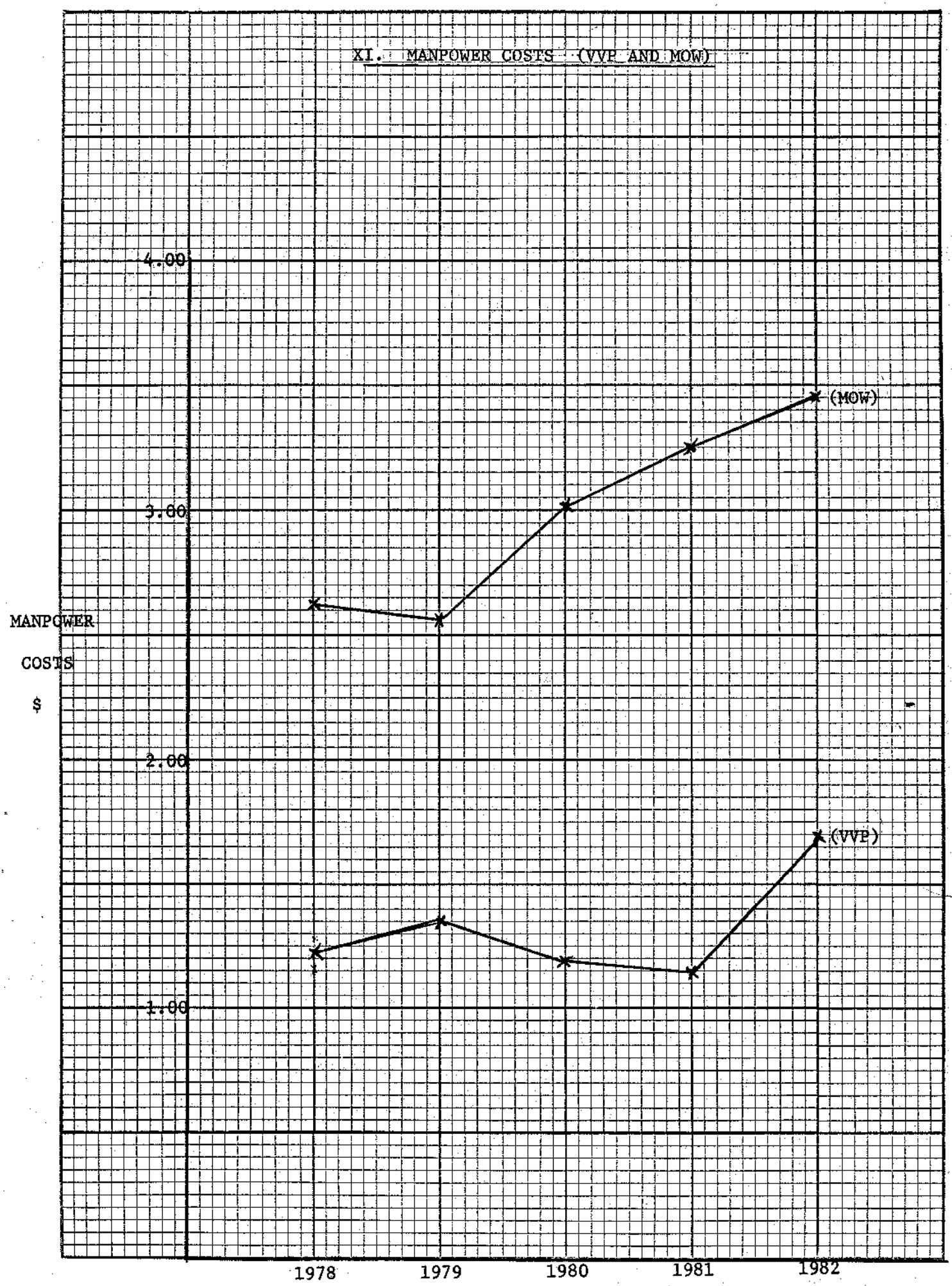
A better perspective of the expenditures on manpower of the two programmes is displayed on Graph X. Both the VVP and MOW are able to deliver their services at hourly rates significantly below minimum wage rates in the community. For example, in 1982, almost 5,000 hours of service were donated to the VVP and over 43,000 hours of service were donated to the MOW to enable hourly manpower costs to be $1.74 for the VVP and $3.35 for the MOW.

3.34 COST-EFFECTIVENESS - VVP (1)

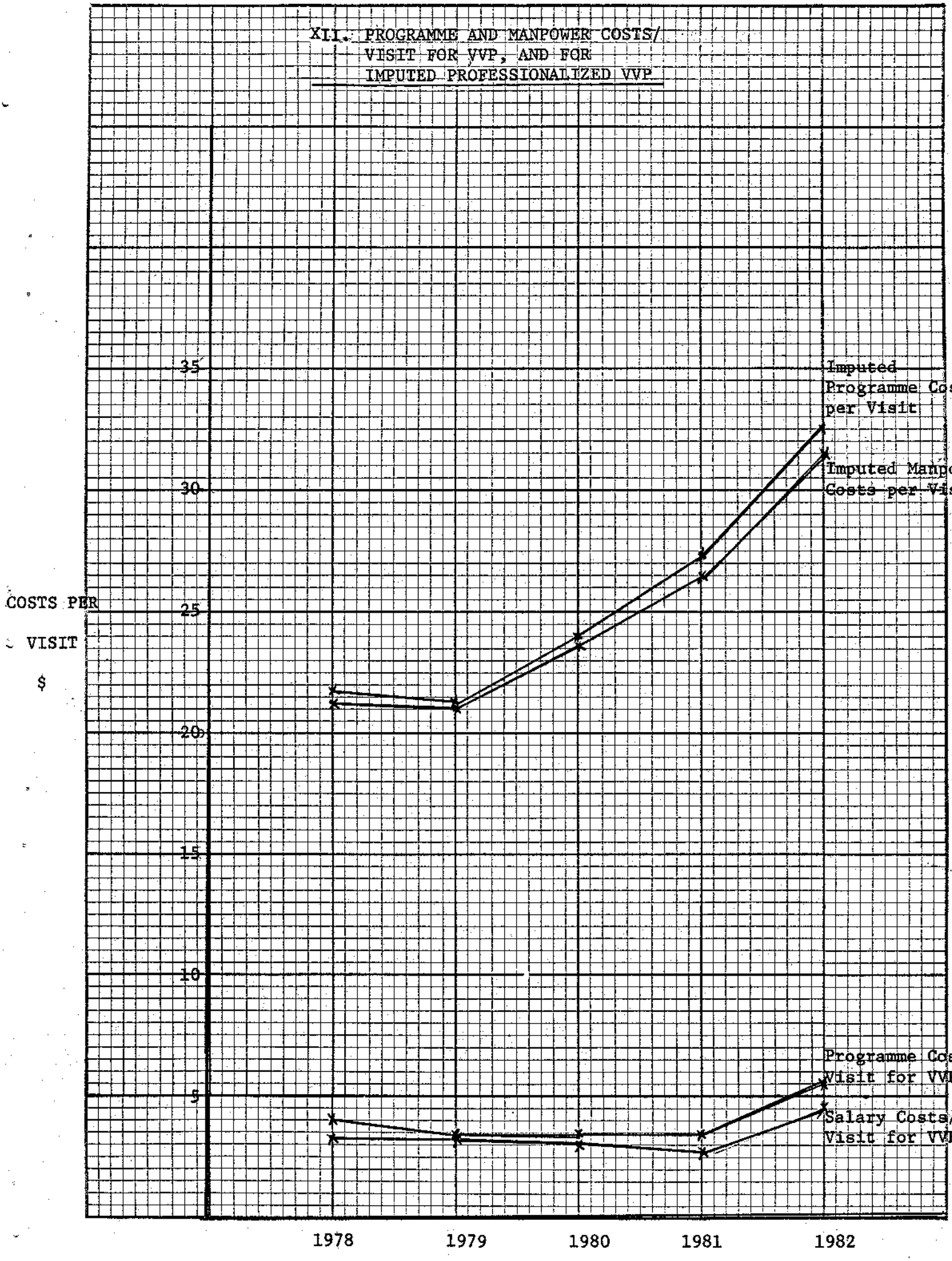
As indicated previously, we cannot legitimately compare the VON and MOW to see which is more cost-effective, because the programmes themselves differ in objectives and tasks. What we can do, however, is compare the actual cost-effectiveness of both programmes with the imputed cost-effectiveness were fully trained professionals to be organized to produce the same services.

In this section (3.24), we examine the cost-effectiveness of the VVP in terms of the programme costs and manpower costs per visit. In this case the number of visits is taken as a measure of effectiveness. Medical research indicates that visitations are a good proxy of both the quantity and quality of the programme, as it is the visitation itself (rather than the activities engaged in during visitation) that is the

XI. MANPOWER COSTS (VVP AND MOW)



XII. PROGRAMME AND MANPOWER COSTS/ VISIT FOR VVP, AND FOR IMPUTED PROFESSIONALIZED VVP



best predictor of increased morale, increased self rated health status, reduced agitation and reduced lonely dissatisfaction of the clients (O'Neill 1982).

We compare the programme costs/visit and manpower costs/visit of the VVP over time, with the programme costs/visit and manpower costs/visit were the visits to be carried out by professional nurses. The results are striking. In 1982, for example, a fully professional force would result in almost a six fold increase in programme costs/visit, and almost a sevenfold increase in manpower costs/visit. Moreover there is some evidence (O'Neill) that the quality of the programme would suffer were health care professionals to be substituted for non health care visitors.

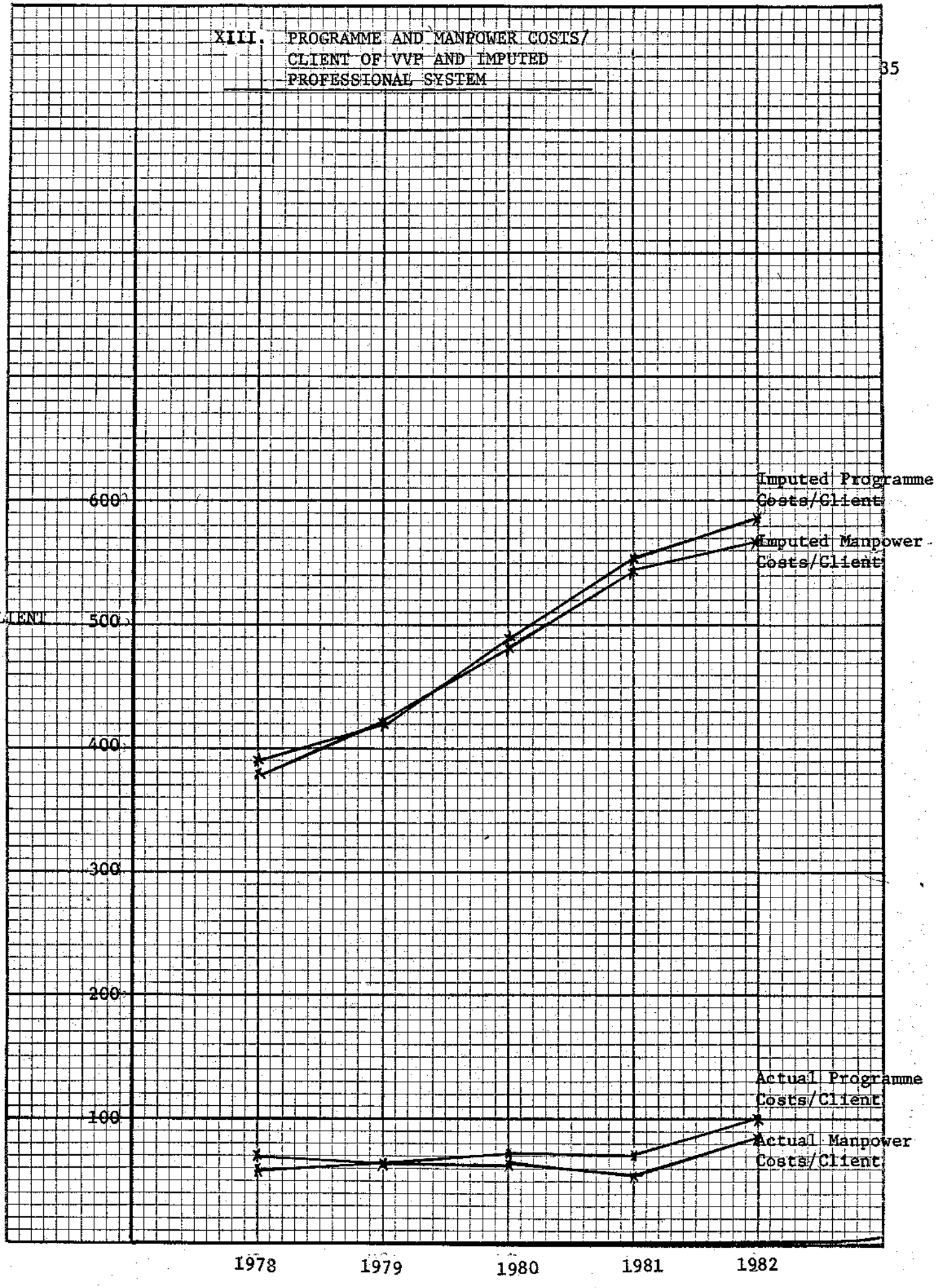
3.35 COST-EFFECTIVENESS - VVP - (2)

We also examined the cost-effectiveness of the VVP in terms of the number of clients the programme serves, rather than the number of visits. Not all clients receive the same number of visits within a monthly or annual period.

Again we compare the cost-effectiveness, where costs are measured in both programme terms and in manpower terms, of the existing programme with an imputed programme whereby professional nurses are assumed to undertake the visiting function.

Our results (displayed in Graph XII) indicate again how cost-effective co-production is in comparison with professional production. In 1982, the programme costs/client were 17% of what would have been the

XIII. PROGRAMME AND MANPOWER COSTS/ CLIENT OF VVP AND IMPUTED PROFESSIONAL SYSTEM



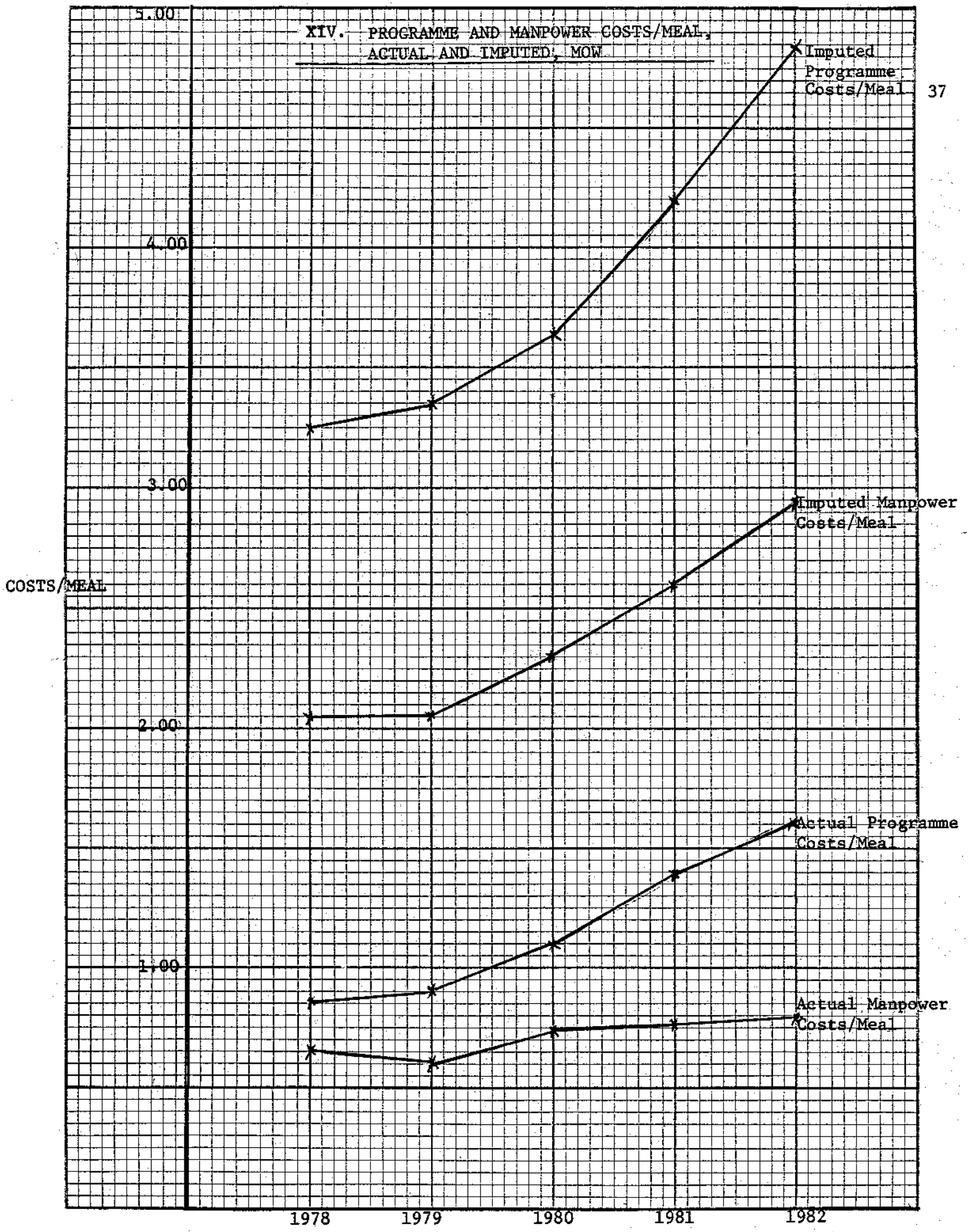
programme costs/client under a fully professional system. And manpower costs/client -are 15% of the imputed manpower costs/client.

3.36 COST-EFFECTIVENESS - MOW - (1)

Co-Production in the Meals on Wheels Programme is evaluated by applying the same technique as for the Volunteer Visitor Programme evaluation. In other words, we compare the programme and manpower costs per visit (meal) and per client served with a hypothetical MOW programme delivered by a professional force. We again applied the salary figures for professional nurses employed by the Victoria Order of Nurses to estimate these hypothesized costs. While we might have used the salary structure of "take out restaurants", we decided to use the health care salary structure because volunteers act as health status reporters when they deliver their meals to clients.

Our figures displayed in Graph XIII again indicate the massive cost-effectiveness of co-production in the MOW programme. While the programme is not as labour intensive as the VVP, substantial savings are accrued through the use of co-production. In Graph XIII, the cost-effectiveness in terms of the number of meals delivered per annum is displayed. In terms of programme costs/meal, the current MOW operation is 55% less than would be a fully professional operation, and some 27% less in terms of manpower costs/meal.

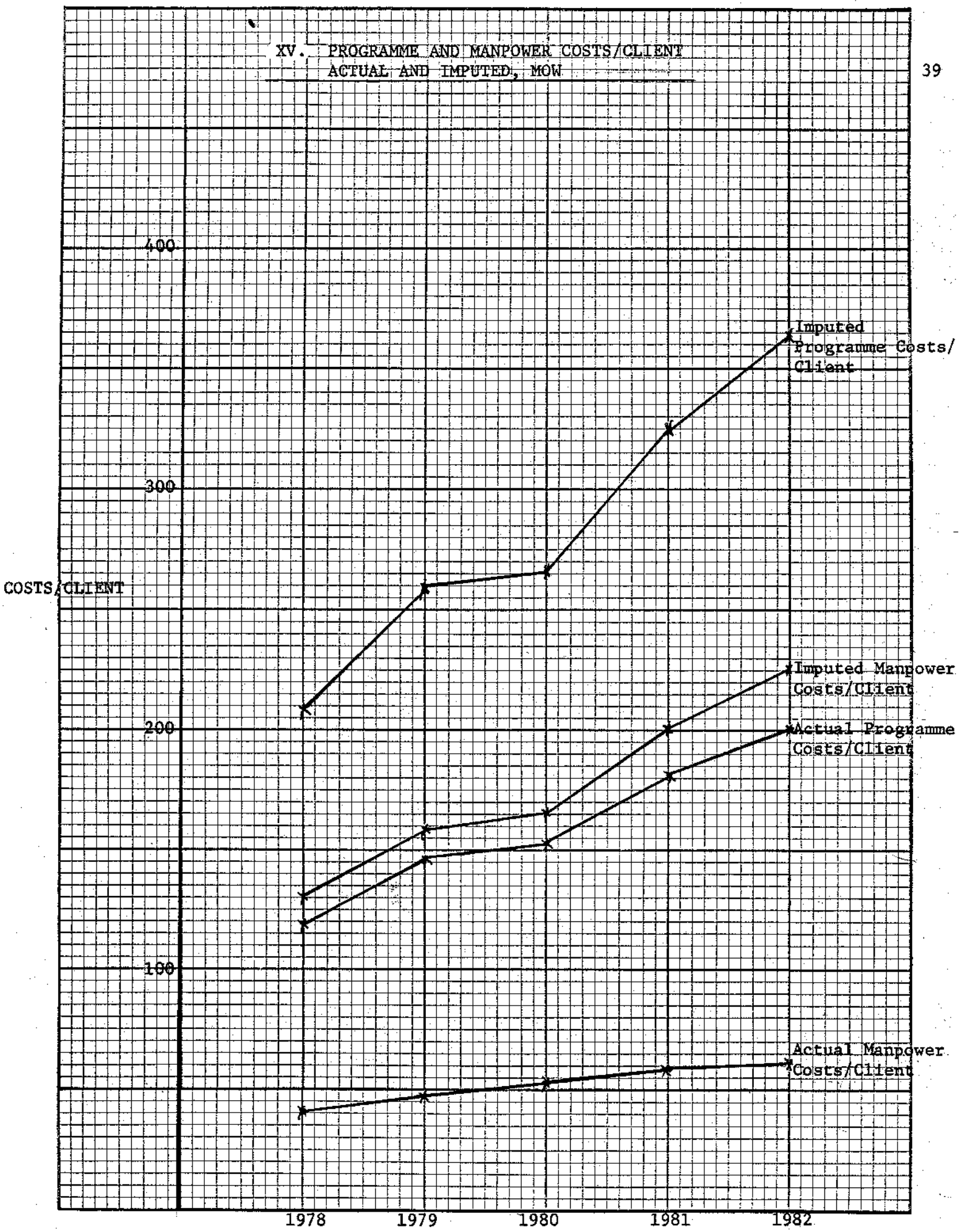
XIV. PROGRAMME AND MANPOWER COSTS/MEAL, ACTUAL AND IMPUTED, MOW



3.37 COST-EFFECTIVENESS - MOW- (2)

In Graph XIV, the actual and imputed costs/client served are displayed. They are displayed for both programme and manpower costs/client. Programme costs/client are 55% less under co-production, and salary costs/client are 27% less under co-production (1982).

XV. PROGRAMME AND MANPOWER COSTS/CLIENT
ACTUAL AND IMPUTED, MOW



3.38 CONCLUSIONS. POLICY DECISIONS

Our studies of co-production of the two "soft" services organized by the Victoria Order of Nurses indicates substantial cost-effectiveness compared with an hypothesized professional delivery system. Indeed, while manpower costs are lower, effectiveness may well be higher than under professional organization. In this latter respect, the two programmes differ from our examination of the fire suppression function.

Both the VVP and MOW are organized not as purely volunteer services, but as mixed services. Both programmes are staffed by one full time and one part-time professional, plus clerical, bookkeeping and management assistance from the parent organization, the VON. This small professional core is necessary for effective management of some 24,000 donated man-power hours to the VVP (1982) and some 10,000 donated manpower hours to the MOW (1982).

Our figures also suggest that co-production is of greater value for more labour intensive services than for less labour intensive services. The value is greater, for example, for the VVP than for the MOW. Given that most government services are labour intensive rather than capital intensive in nature, the benefits of co-production in government may be considerable.

Finally, the rate of increase in programme costs and manpower costs over time is much less under co-produced service arrangements than under professional arrangements. Co-production may thus be a useful counterpressure to the "wage push" within public sector organizations.

4. IMPLEMENTATION

Co-production may he a cost-effective way to produce different kinds of government services. But despite its cost-effectiveness, it may be difficult to introduce into existing programmes. Three kinds of difficulties often deter local governments, and other levels of government, from using citizens to produce certain services.

(i) Tradition -

Existing programmes of government that appear to run successfully often have little incentive to explore how and when co-production can be introduced. Even under fiscal pressure, the orthodox opinion often advocates doing the same function with lower expenditures. Cutback management is seen as non-replacement of established positions, postponement of equipment and capital purchases, and reduction of activities. As a result, co-production is often successfully introduced only for new programmes (like the VVP) or for extending traditional activities (like volunteerism in rural fire departments).

(ii) Employee Security -

Co-production is sometimes not introduced because of perceived threats to existing professional jobs. Union security and grievances are considered obstacles to implementation of co-production.

(iii) Information -

From a management perspective and from a citizen perspective, the opportunities for co-production may not realized because of a lack of information. Management information systems may not reveal the expenditure savings or the changes in effectiveness from using citizens alongside professionals for designated activities within a programme. Citizen production may not always be appropriate either with or without professional help, but neither may a purely professional force be cost-effective. Management information systems often do not reveal this difficulty. From a citizen perspective, the availability of useful and meaningful contributions to their government may not be known. The success of "the Guardian Angels" in the North-Eastern United States is partly due to the publicity accorded to the personally meaningful ways in which citizens can contribute to the safety of their communities.

These obstacles or difficulties were revealed to us during the course of our investigations. But they appear to be obstacles that can be overcome with appropriate strategies on the part of governments. Recently, the New England Municipal Center of Durham, New Hampshire, suggested successful strategies for dealing with these and other obstacles to implementation. Of particular relevance are their strategies to overcome the obstacles we have detected.

(1) Commitment from the top. Elected officials and senior managers in Government play a strategic role in changing traditional production practices within agencies and departments. The staff and public must be persuaded of the cost-effectiveness of co-production. Unions must be persuaded of the increases in programme cost-effectiveness, and therefore of increased job security, by employing citizens alongside professionals. And agency and department heads must be persuaded that their programmes can be more effectively maintained by co-production.

(2) Professional management. In order to identify positions within existing departments and agencies that could be filled with volunteers, and to identify entire subfunctions of existing programmes that can be co-produced, management expertise is needed. Often existing managers do not have the time or the inclination to identify positions or subfunctions for co-production. In addition, co-ordination of the schedules of a large number of part-time volunteers requires constant problem solving expertise. Finally, recruitment and training of volunteers in different tasks and functions requires experience and knowledge of personnel management. Our data confirms that mixed rather than purely voluntary organizations can be as effective as professional organizations, and that substantial savings can still be accrued with an element of professional management and support.

(3) Union support. Most government functions, especially at the local level of government, employ a large proportion of union members. Union members need to be convinced that volunteers can save some existing programmes and jobs from elimination, and can contribute to a responsive and efficient public service. Union members realize they are taxpayers as well as employees of government. Union leadership needs to be involved in selecting professional management, identifying functions and jobs amenable for co-production, and negotiating reassignment of existing personnel through the local government. They also need to be involved in negotiating the terms and conditions whereby professionals may be contracted out to purely volunteer programs (perhaps of another government) to take advantage of mixed force cost-effectiveness. There can be scope for union support if co-production is seen as a necessary part of the recruitment, compensation, classification, re-classification, training and development functions of public personnel management.

These three broad strategies should solve the difficulties of implementing co-production, but the organizational climate of different municipalities may require modifications to the strategies. The intent of these comments about implementation is to suggest that co-production is not simply cost-effective, but also a feasible approach to cutback management in government.

5. CONCLUSION

One feature of modern Government in western Societies is the expansion of the administrative state. Everyone seems aware of the increasing size and scope of Government, whether measured in terms of expenditures, numbers of employees, numbers of agencies and regulations, and sources and scale of revenues. Many students of politics fear that not only have citizens lost control of the state, but that elected representatives in Parliaments, Cabinets, and local governments have also lost control. There are demands made for improved representation, increased accountability, and greater responsiveness from Government.

In the course of this debate, relatively little concern has been directed towards the professionalization of public services and the merits of co-production. Often the complexity and scale of Government is seen as inevitably requiring full time trained professional staffs albeit responsible and accountable to elected representatives. We must now question that assumption. There are indeed many functions of Government that require full time trained professional expertise. But there are also many functions that can be effectively, and cost-effectively, produced by citizens themselves. The value of co-production may not, however, be one of simple economics. The value may be much broader. Co-production may be one of a number of ways in which the administrative state can be recaptured by citizens.

We have shown that there are certain subfunctions or activities of government service delivery that can be more cost-effective under co-production than under professional production. The examples of

municipal fire suppression, a traditional "hard" service of Government, and community services to the aged and infirm, a "soft" service of Government handled traditionally by charitable and religious bodies, both exemplify the economic virtues of co-production. There are undoubtedly other examples that could be studied, not only at the local level of government, but also at the national (Federal) and subnational (Provincial) levels.

Our studies also reveal that there are two prerequisites for cost-effective co-production. First, the activities or subfunctions or distinct parts of any government service must be identified. Fire suppression is a separable activity or a distinct part of a cluster of activities comprising fire protection. Visiting and nutrition activities are only parts, but distinct parts, of a cluster of services for the aged and infirm. All government services can be disaggregated into distinct activities. For some activities, co-production is warranted. For others, professional production is warranted. But we can no longer assume that all activities for all functions of Government should remain fully professionalized for efficiency purposes.

Second, our studies show that citizens require organization for co-production. Simply abandoning activities or subfunctions to citizens will obviously decrease the costs and burdens of Government. But it will not be economical or cost-effective. To sustain the effectiveness of service delivery and at the same time to reduce the costs of service delivery, requires professional management and expertise. It need not be extensive professional management and support services. But organization is a prerequisite. Governments should therefore consider establishing

a new top level personnel position devoted to the identification of jobs and of entire activities within service functions that would be filled by citizens. This person would also recruit and organize citizens for such jobs and activities. The position should be a top level position and have the support of elected and senior management officials for successful implementation. The position should also be established after union consultation.

The key question is not whether co-production works. We have shown that it works and that it works efficiently. The key question is whether Government and the administrative State can become part of the community.

6. APPENDIX ONE: A NOTE ON METHODOLOGY

The raw data for the calculations in the study came from Fire Department budgets, supplementary Fire Department information, publications of the Ontario Fire Marshall's Office, and from budgetary and supplementary information provided by the Victoria Order of Nurses.

The methodology for analyzing the Fire Department data consisted of (1) calculating the manhours expended on the suppression as opposed to other subfunctions of the Departments; (2) calculating the manpower expenditures on these functions; (3) allocating overhead costs to the suppression subfunction by using conventional benefit-cost methods; and (4) apportioning the cost data against effectiveness indicators. The procedure was repeated for each of the five years under study.

The methodology for analyzing the VVP and MOW was simpler because the VON calculates the full cost of each of its programmes and (unlike many public agencies) apportions overhead costs by programme. The number of volunteer hours and volunteer costs (travel expenses) were added to professional support staff costs, including a proportion of the costs of VON personnel, in order to estimate manpower as opposed to programme costs. The imputed fully professional delivery costs of the VVP and MOW were calculated by substituting VON nursing costs/hour for volunteer Fours on the programmes. The cost data was then apportioned against the effectiveness indicators, and the methodology repeated for each of the five years.

7. APPENDIX TWO: A NOTE ON THEORY

The theory of co-production is based on the economic theory of property rights, contracts and transactions as exemplified in the works of Coase (1937), Alchian and Demsetz (1972), Williamson (1975) and Cheung (1982). This theory demonstrates that all economic transactions in the marketplace, even in a neo-classical competitive economy, are costly. The consumer finds it to his advantage not to purchase all factors of production separately and transform them into consummable products. Some products may be produced at a lesser cost by firms and organizations than by each consumer. But this does not mean that all products may be less costly produced by organizations. Indeed, many public and private sector organizations engage in multi-product functions, many of which are separable into distinct activities, and many of these activities may be less costly for the consumer to produce than for the ostensible producer to produce.

Technological, institutional and economic reasons account for the amount of co-production that exists in any economy and society (Parks et al, 1981). Both public sector and private sector organizations have a problem of organizing and managing individual employee contributions to the team production. Public sector organizations that obtain revenues through taxation have an additional problem of calculating the value of their outputs. Consequently, public sector organizations may inefficiently expand or contract their services, and inefficiently substitute profes-sional production for co-production. Technological constraints may alter the scope of professional or co-production for each separate activity and each separate function.

8. APPENDIX THREE: BIBLIOGRAPHY

Ahlbrant, R.S. (1973), "Efficiency in the Provision of Fire Services", Public Choice, Vol. 16, pps. 1-15.

Alchian, A.A., and H. Demsetz, (1972), "Production, Information Costs and Economic Organization", American Economic Review, Vol. 62, pps. 777-795.

Bureau of Municipal Research (1975), Fire Protection Services in Metro: Is Unification the Answer?, Civil Affairs Bulletin, Toronto, Ontario.

Casey, S.B. (1982), Developing Successful Volunteer Programs: A Guide for Local Government, New England Municipal Centre, Durham, NH.

Cheung, S.N.S., (1983), "The Contractual Nature of the Firm", Journal of Law and Economics, Vol. 26, pps. 1-22.

Coase, R.H., (1937), "The Nature of the Firm", Economica, Vol. 4, pps. 386-405.

Confidential, (1978-82), Departmental Budgets and Allied Information, Various Municipal Fire Departments, S.W. Ontario.

Office of the Fire Marshall, (1978, 1979 and 1980, 1981), Fire Losses in Ontario, Ministry of the Solicitor General, Government of Ontario, Toronto, Ontario.

O'Neill, B.L., (1981), Efficiency of the VON - Hamilton - Dundas Branch Friendly Visitors' Program, M.H.S. Thesis, McMaster University: Hamilton, Ontario.

Parks, R.B., et al, (1981), "Consumers as Co-producers of Public Services: Some Economic and Institutional Considerations", Policy Studies Journal, Vol. 9, pps. 1001-1011.

Rich, R.C., (1981), "Interaction of the Voluntary and Government Sectors: Toward an Understanding of the Co-production of Municipal Services", Administration and Society, Vol. 13, No. 1, pps. 59-76.

Schaenman, P.S., and Swartz, J., (1974), Measuring Fire Protection Productivity in Local Government, National Fire Protection Association, Boston, Ma.

Sproule-Jones, M.H., (1979), "Urban Bads and the Structure of Institutional Arrangements", in K.G. Denike, (ed), Managing Urban Settlements: Can Our Governmental Structure Cope?, University of British Columbia, Vancouver, B.C., pps. 1-10.

Statistics Canada, (1981), An Overview of Volunteer Workers in Canada, Labour Force Survey Research Paper, No. '26, Ottawa, Ontario.

Victoria Order of Nurses, (1977-82), Annual Reports, Budgets and Allied Information, Hamilton, Ontario.

Warren, R.L., (1982), "Citizen Participation in the Production of Services: Methodological and Policy Issues in Co-production Research", paper delivered at 1982 Annual Meetings of the Western Political Science Association, San Diego, 25-26 March.

Whitaker, G.P., (1980), "Co-production: Citizen Participation in Service Delivery", Public Administration Review, Vol. 40, pps. 240-246.

Williamson, O.E., (1975), Markets and Hierarchies, Free Press, New York.