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ABSTRACT

Current dissatisfaction with operations of the New York City school system calls for policy proposals based on a better understanding of the system, rather than on economic issues. Any policy proposals aimed at reform must describe the goals of suggested programs and indicate how they relate to the goals of other programs. An evaluation of student performance is essential. Also important is a consideration of costs and outcomes of the proposal, the role played by the consumer, and the successful placement of students and personnel in the system. Since the New York City system is too aggregative, properly structured decentralization would be an appropriate route to take. For example, local school boards should be permitted to design their own school systems, paying particular attention to the heterogeneity of the community. The role of the teachers' union, migration to avoid taxation, and contracting out for educational services are other factors to explore when initiating policy reform in the New York system. (Author/LD)

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The Structure of the New York City School System: Research Problems and Research Agenda

by Eric A. Hanushek and Harold Hochman

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Currently there exists considerable dissatisfaction with the operation of the New York City school system. This dissatisfaction arises from a number of related observations and impressions about the school system. First, there is the undisputed increase in the cost of operating the school system. Even after allowing for inflation, the cost per student of education has risen dramatically during the past decade and a half. This cost increase has resulted from both changing the operating patterns of the system--reduced class sizes, increased administrative activities, etc.--and increases in the relative pay of school personnel. Second, these cost increases by themselves might not be reason for dissatisfaction or alarm were it not for an increasingly common impression that the quality of education has stagnated. This latter observation tends to be more impressionistic than the observation about cost increases. Nevertheless, it certainly contributes to dissatisfaction with the system. Thirdly, there appears to be continued and perhaps growing concern about the distribution of educational services. Not only is there little evidence that aggregate quality has improved, but also there is evidence that certain segments of the student population are not being well-served by the system. Finally, there is considerable casual evidence that the system tends to be rigid and has little capacity for change. The administrative and decision-making apparatus of the system appears to inhibit alterations in the operation of the system, making it unresponsive to changing demands, changing economic factors, and innovation possibilities. This system seems on the whole to be easy prey for special interests, although it cannot serve them to their

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satisfaction and succeed in its educational mission at the same time.

This situation has led to a wide variety of suggested changes and reforms, both from educational sources and the client communities. Unfortunately, even if we are willing to accept as factual the casual observations about the problems with the school system, or make easy inferences from the available data, we cannot easily conclude that the suggested reforms are appropriate. To be somewhat cynical, these proposals seem based upon the underlying premise that "any changes we make in the system will improve it." At the very least, the suggested reforms seldom document the analysis or spell out the logic that underlies them. This agenda tries to organize ways of thinking about reforms. In particular, it discusses the issues that must be addressed both in evaluating the performance of the current system and in evaluating the efficacy of alternatives. Part I outlines general areas of inquiry that are fundamental to economic studies of education. Part II, contains more specific subject areas related to the institutional and organizational arrangements prevailing in New York City. The individual sections include both general discussion and an indication of the specific topics that seem important given the range of reforms currently under consideration and the new directions that economic analysis suggests.

Part I -- General Issues

A. Specifying Objectives

It may seem obvious that any evaluation of the current system or proposed reforms must include a statement of the objectives of the school system or some part of the system. However, as obvious as this seems, this step is often left out, or at least taken in a manner which is not operationally useful.

The key requirement is that objectives or goals of a given reform be stated in a way that permits evaluation. Simply stating that a given reform should improve the education of students (or, conversely, that it should reduce costs) is not useful since, without more detail, it generally defies evaluation.

A second aspect of specifying goals is that they should relate to outcomes of the educational process. Very often when goals are stated, they refer to aspects of the educational process itself. For example, stating that the goal of a reform is to reduce class size for a certain segment of the population is not very useful unless we know with some certainty that lower class sizes are directly related to the learning of students with these characteristics.

We generally believe that education affects the abilities of students and that these effects will have an impact on the ability of students to perform later in life. The most important later effect probably relates to earnings capacity, or the ^{subsequent} ability of the student to perform in the labor market. However, other effects--such as the socialization of students, development of moral values, attitudes toward racial and ethnic intergration, etc.--are also seen as goals of the school system. But, there are few studies which actually relate performance in schools or attributes of the schooling system to subsequent performance. Instead there are a number of studies which consider the observable differences in students while they are in school. For example, one of the most commonly used measures is performance on standardized tests. It is generally presumed that test performance is correlated with future outcomes, although there is actually little documentation of this.

Two issues are important here. First, simply because an achievement measure is available does not mean that it is a particularly good measure of an educational outcome. More thought and imagination is needed in the

specification of the "right" measures of outcomes. Second, even if such indices as test performance are generally useful, they may not measure outcomes well for all possible programs or policies. Use of standardized tests might be wholly appropriate for consideration of compensatory reading programs but inappropriate for considering alternative music programs and irrelevant for examining the impact of education on values and mores.

An important point about the goals and the measurement of student performance is that there is a range of objectives, which are, in some way, competitive rather than complementary. There is no single goal. Programs designed to improve education in one dimension (say the arts) may affect outcomes in another dimension (say reading ability). Therefore, it is important that the relationship between goals in one program area and others be considered. It may be plausible to think that substituting one activity for another in a school day of given length one involve both gains and losses. (This does not have to be the case; perhaps reading skills are enhanced by working more in a particular interest area.) The interaction of policy proposals and the normal activities of schools must be explicitly addressed, and, if there are trade-offs involved, some consideration must be given to the acceptable range of trade-offs.

To summarize, as a first step in the development of policy proposals, an effort must be made to describe (in some detail) the goals of the suggested program and to indicate how they relate to the goals of other programs. At the same time, it is necessary to develop ways of evaluating performance-- i.e., indicating how outcomes might be measured. These outcomes should generally be expressed in terms of student performance, not in terms of process type changes.

Some immediate analytical tasks to be considered are:

- 1) Specify concretely (quantify where possible) the goals behind current

PEA programs and the current programs to which they are related;

- 2) Specify the goals and performance measures currently used in evaluating existing school-system programs;
- 3) Develop a means for relating the measures of success currently employed (such as standardized tests or better attendance rates) to performance after leaving the public school system.
- 4) Ascertain how objectives might differ among the various segments of the school system and subsets of the school population.

B. Production Relationships

Most policy alternatives are phrased in terms of changes in the educational process. Evaluating the efficacy of these policy changes involves observing the effect of the changes on performance measures. For some policy proposals-- those which represent totally different ways of organizing the educational process--it is not possible to know the potential effects beforehand. However, a vast number of policy problems represent continuations or expansions of current policies. In these cases it would be possible to provide prior information about the likely effects. For concreteness, consider a policy which would insure teacher aides in all elementary classrooms. We currently have considerable experience with the use of teacher aides, and it would be possible to analyze the potential effects prior to implementing such a policy change. Similarly, we already have considerable experience with different teacher/pupil ratios. The past experience can be analyzed to gain some insight into potential policies.

Often policies are proposed without fully exploiting available information about their potential effects. Part of this can be explained by imperfect specification or measurement of the objectives of the policy. However, part can be explained by the difficulty of the task. While we often observe

situations which might be relevant to policy consideration, the situations do not represent planned experiments. Instead they are the result of the normal operation of the school system, and they take place within a variety of different contexts. In particular, the students having one "treatment" are often not random, and there are often other "treatments" going on simultaneously. For example, the schools with low pupil-teacher ratios may be those which have had low student performance in the past or may be "disadvantaged" schools. Are differences in performance among schools the result of different pupil-teacher ratios, or do they arise from differences in the students backgrounds, motivations, or abilities?

This type of issue obviously arises in a wide range of circumstances. The effect of different student mixes, different types of teachers, different teacher intensities, etc. are not easy to discern since it is difficult to look at one factor without considering others. In fact, a number of studies of "educational production functions" have been conducted in an attempt to sort out the various influences on student performance. The direct applicability to New York City of results from these studies, conducted on very different school systems and in very different situations, is questionable. However, the approach and methodology (generally multivariate statistical analysis) is useful. Furthermore, it should be noted that much of the information needed to do such analyses is regularly compiled for the system. For example, the school system regularly produces school profiles. These exist in published form and computer readable form for the past four school years. The information contained within these could be used to address a variety of questions. For example, are there apparent gains from changing the class size of schools? Does more community interest affect performance after allowing for other differences among schools? Do general schools produce more or less performance than special schools?

The essential point is that many policy proposals are simply extensions of current operating procedures and, to the extent this is the case, some effort should be devoted to analyzing the current operation. Such analyses are often possible with the data currently collected.

For situations which do not represent extensions of current programs (and which have not generated observations about effectiveness), a key element of a policy proposal should be an evaluation scheme. That is, some effort should be made to ascertain the impact if the policy is adopted. This might include structuring the introduction of a policy in an experimental way, i.e., controlling its introduction so as to provide evaluation data. It might also include the requirement of new data which would make evaluation feasible.

C. Alternative Delivery Systems

The choice between alternative ways of providing education is not solely a function of the impact of different programs on student output. The policy choices should also relate to the costs of the various alternatives.

In general, we have little hope of addressing the economics of the school as it stands. The immediate question that arises in such an endeavor is "relative to what?" The best we can hope to do is consider the relative merits of various alternatives. To be specific, we can generally choose between two options which produce the same student outcomes at different costs; or between two options which cost the same but produce two different levels of outputs. However, without some alternative in mind we cannot generally say the current system is doing well or doing poorly or is efficient or not.

For analytical purposes, it is useful to divide proposals into two categories: cost-saving and output expanding. This is somewhat imprecise, but the notions behind them are straightforward. The first category includes

proposals which would provide the same output mix at lower cost, while the second category includes policy changes which increase student outcomes at the same cost as current programs.

Actual policy proposals often consider just costs without regard to outcomes or just outcomes without regard to costs. The essential point here is that costs and outcomes must be jointly considered. For example, plans to expand the definition of schools to include other community agencies (such as art museums or community recreational activities) might improve educational outcomes but probably cost more than current operations. Consideration of these policies must take into account what the school system could do with the additional funds that would be needed for such a "total learning" plan.

One difficult assessment problem arises when policy alternatives imply a different distribution of outcomes. Some policy options increase the learning of certain students but decrease the learning of others. For example, a policy which re-shuffled teachers (for example, put the "best" teachers with the most disadvantaged students) would imply some win and some lose. There is no way to assess the merits of this without introducing certain moral or political values--values about which legitimate differences of opinion might exist. In other words, policy decisions of this sort are not analytical ones but political ones. (The analytical task in this situation is to delineate clearly the character and magnitude of the distributional impacts.)

Proposals to expand the definition of schools to include other agencies and community inputs are very relevant in considering alternative delivery systems. As pointed out by the PEA, there is the possibility of using community inputs--probably at a lower cost than if purchased by the school system on its own. This concept of educational "networks" deserves analysis in its own right. In the past, the school system has probably defined its role and scope of operations in too limited a way. It would be very valuable to

analyze the costs and impacts of including other community resources in the educational system.

Finally, analyses of delivery systems have generally been conducted in a very partial manner. For example, alternative ways of providing "compensatory" education have been evaluated against each other. However, the impact of compensatory education systems is not restricted to disadvantaged students but often impacts "regular" students. Nowhere is this as obvious as in the area of special education. The new law on handicapped education includes a number of requirements for the treatment of the handicapped. However, this may have important impacts on other "regular" students. First, the financial requirements may lessen the resources available to other students, in as much as Federal and state funding are unlikely to cover the total costs of meeting the requirements of the law. Second, the provisions for mainstreaming may affect the education of nonhandicapped students in the same classes. (Here, again, there may be both positive effects, such as improved attitudes, and negative effects, such as decreased academic performance). The interrelationship between changes for special education and the rest of the system deserves immediate and intensive consideration. Careful analysis could have a great impact in examining similar issues of the interactions between programs in other areas.

D. Revealing Demand

One implication of the heterogeneity of educational outputs is the need to know the demands for its various components. The school system is designed to provide a set of general outcomes (basic reading skills, etc.) and a set of more specific outcomes (vocational training, the arts, etc.). How these different aspects are balanced against each other is a difficult question. In particular, how much of a role should the consumers have and how much should be simply dictated by the school system? Further, to the

extent that individual consumers should have a significant role, what processes should be used to uncover their demands?

One argument for community involvement is to discover the demands for different types of services. (This is clearly not the only argument for community control. Other arguments include the development of more accountability in the system and mobilization of community inputs to aid the school system). There are also other ways in which demand information is sought. Specialized schools such as Bronx Science or the Maritime School have formal application and admission systems. The Education for All Handicapped Act mandates certain procedures for finding out demands for specialized services.

Several analytical questions arise in this area. First, it would be extremely useful to evaluate the demand information that is currently generated. For example, do schools that have strong community representation tend to operate differently than those which do not have such involvement? What is the character of the demand for specialized schools? Has this demand been changing? What kinds of students tend to apply to special schools? Is there excess demand for available services? Second, it would be useful to evaluate possible alternative systems of demand revelation. For example, could free transfers be expanded? Could educational vouchers be introduced even within just the public system?

In part of the questions of consumer involvement revolve around issues of information and consumer choice. One argument against citizen input into the educational process is that consumers either do not have enough information to make proper choices or they are not good at making such choices. It would be possible to analyze the quality of the information available to different consumers. At the same time, one could consider what information the school system should routinely supply to its clients. For example, should schools be required to provide test score information or information

about the attributes of teachers and programs in individual schools?

E. Sorting and Placement

Policy questions about the organization of the schools and about the range of options offered within the schools often involve decision rules about the placement of both students and school personnel (teachers, administrators, and other staff). In fact, perhaps the most important decisions, given the current operations of the school system, are the placement decisions. The placement of teachers has been the subject of recent Civil Rights Commission challenges to the school system. The placement of students is one of the major concerns of the new handicapped student act.

The concern over both student and staff placement is undoubtedly guided by general beliefs about the educational effects; in other words, a general belief about certain aspects of the production function in elementary and secondary education. However, the discussion is never very precise, partly because information about the production process is lacking.

The linkage between assignment rules currently used and educational outcomes is an interesting and important area of investigation. (Simply compiling the various assignment rules would in itself be quite useful.) An analytical effort which could sensibly be related to this would be the consideration of alternative assignment rules. This could be done in two ways. First, it would be possible to simulate the effects of alternative rules (such as the random assignment of teachers). Alternatively, one could attempt to derive optimal rules to be used in achieving different results. For example, how should teachers be allocated to maximize performance on standardized tests, subject to current spending levels? Or what should be the location of specialized schools to minimize the commuting distance of students? Should specialized programs be conducted at centralized locations

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or in a series of smaller, more local locations?

The issues here are really concerned with the overall structure of the school system and the analytical approaches in part assume information about the preceding issues. Given information about costs, production possibilities, and demands, it would be possible to develop placement rules which improved upon the organization of the system. With sufficiently detailed information, a variety of optimization techniques could be used both to calculate the best possible rules and to estimate the real costs of the current mode of operation.

Some historical analysis would be helpful here. Without hard analysis, it is easy to assign the blame for the current situation in public education in New York to any convenient cause. A study that sorts out the facts, with appropriate cross-sectional comparison with other cities, seems essential.

The first step in this is to indicate how good the New York system was before, at some base point in time, in serving various segments of the population and meeting its objectives. One must then ask if the system is worse now and why, and whether its objectives have changed.

On the demand side, such a study must consider factors such as the changing demographic and social character of the school population, and the reasons why this has changed, such as through the movement of students to the suburbs and to private schools. On the supply side, it must examine changes in the nature of the bureaucratic decision-making process, the implications of decentralization, unionization, affirmative action etc., in addition to the recent tightness of the budget.

Essentially, then, what is called for is a model, pulling together the relationships examined in detail in other studies, which contains both demand and supply systems, and permits them to interact. This is difficult, because many of the salient features are difficult to quantify, but the attempt itself, even if the results are incomplete, would be enlightening.

Part II -- Specific Analyses

A. Bureaucracy

It is often argued that bureaucratic rigidities, which inhibit adaptation to changing circumstances and prevent efficient resource use, plague the New York school system. The result is that output levels, given inputs, are lower than they might otherwise be. Many research issues arise in this context. Some are aggregative, in the sense that they relate to the system as a whole, while others, relating to particular schools or subsets of the school population, are more specific. What these issues have in common is a concern with the decision process within the New York school system and the division of decision-making authority and responsibilities for service provision that it implies. In describing these issues, it is assumed that educational objectives have been defined and that the overall budget of the school system has been specified. These assumptions enable us to focus on the problems of managing the school system.

There is ample evidence that economies of scale in the provision of public services are exhausted at relatively modest levels of provision (Hirsch, etc.). Our suspicion is that the New York system is too aggregative, with a resulting separation of responsibility and authority and poor performance, in terms of (unmanageable disparate) educational objectives. The question of how aggregative a school system a heterogeneous city such as New York should have is, therefore, an appropriate subject of research.

One recommendation, recently withdrawn, would have replaced the Board of Education with a Commissioner, making public education a mayoral agency (though it would still have operated subject to guidelines and constraints established by the Board of Regents). Would this change (or any alternative change in the assignment of high-level responsibilities for system management)

have made any difference, given educational objectives, to the ability of the system to provide services? Would it have made the system even more susceptible to short-run political interests or to the interests of the political majority, at the expense of the rest of the population? Would this have been good or bad? Would it have simply replaced one bureaucratic structure with another?

New York seems, in effect, an environment in which special interests, in the name of public interest, turn governance into a negative-sum game. It is important to think through how the structure of governance in public education might be re-designed to minimize this.

To many decentralization, properly structures, seems an appropriate route, though there has been considerable disappointment with the results of past efforts in this direction. How much decentralization should there be and how might it be made effective?

At a minimum, several conditions must be met. Pre-set rules and constraints must be laid down by the central authority. Incentives, perhaps fiscal, to make these effective (in other words, which bring local and system-wide objectives together) must be devised. There must be serious delegation of the residual decision-making to the local school boards.

The problem, as indicated earlier, is that a school system operating in a community as diverse as New York must be capable of satisfying a variety of interests. Because objectives are heterogeneous, structural and procedural heterogeneity seems essential and inevitable. To the extent, however, that there are educational activities and outcomes that are essential, the allocation of resources to their performance must be centrally mandated. The question becomes then one of how optimal arrangements can be determined and put into effect.

One possibility is this. Permit local school boards, subject to

appropriate (?) constraints, to design their own school systems, (kindergarten through high school) with an emphasis appropriate to the local community they serve. Mandate that each school board permit, say, up to twenty percent cross-registration of pupils living in other districts, to be transported (at their own expense?) so as to provide options for those with educational preferences that differ from the majority of the district. Similarly, establish special admissions tracks, in particular, at the upper levels, that are operated by the Central Board, as a safety valve. Set in motion a procedure for adjusting budgets and district borders periodically, to reflect success in meeting general objectives and the educational demands of constituents, with revealed demand (registration) being a guide to the character of adjustments made. (This system has many similarities to a voucher system in that client demand is an important input into the decision-making process).

The object of a proposal such as this (a variety of such alternatives might be scrutinized) is to take advantage of the possibilities inherent in the ^{hetero}homogeneity of citizen preferences and to experiment with systems geared to different interests and tastes. These would, under the conditions specified, be placed in effective competition with one another, to see which forms turn out to be more successful.

At a more mundane level, it is important to identify the impediments to efficiency the public school bureaucracy poses at the service delivery level. Are such problems worse in New York than elsewhere? How can the system, through properly designed incentives, be made more flexible and more productive?

In a bureaucratic setting, modern theory tells us, a larger budget is a desideratum (Niskanen). The incentive to seek budget increases (or increases in allocations from a fixed budget) seems inevitable. The issue is not to change this, because there is no way to do so, but, through proper specification of goals and of rewards and penalties, to harness it to performance.

(Clearly, one issue that must be examined is the extent to which union and civil service regulations limit this.) PEA might consider, for example, a proposal to let local districts vote wage supplements (from their budget allocations) to "good" teachers, measured by pre-set standards. (Set by whom?)

Rules governing the mix of resources used to produce educational services should be examined in cost-benefit terms. We refer here to the division of the education budget (overall and at the district and school levels) between administrators, teachers and paraprofessionals. Rules governing "excessing" and "bumping" should be re-examined, to ascertain whether they are consistent with educational objectives. In this context, estimates of cost, in dollars or output levels, should prove enlightening.

Within districts, what sorts of schools (what mix by type of school?) are best? What mix of schools and programs is best able to sort good and bad students, and develop a capability for dealing with all groups (separately?) at the district level? What is the optimal size of administrative units? What can be done to reconcile the goal of equality in educational opportunity with that of assuming that individual students develop to the limits of their capabilities? Presumably, there should be plenty of room for variation in the New York system.

PEA should rethink the Board of Education procedures for adaptation to decline, both in the school budget, due to fiscal causes, and because of decline in the school-age population (which will vary from district to district within the city). Union and civil service rules preclude rational adaptation. Thus it must examine ways in which such impediments might be removed.

B. Unionization

In New York the United Federation of Teachers seems to be a crucial factor in public education. Its role, in controlling the supply of the most

essential input to public education, suggests a variety of research questions, both positive and normative.

What is it that the union should do? Does pursuit of its interests and the interests of its members coincide with systems objectives? Conversely, what powers does the union have, given the rest of the institutional setting such as the Board of Education? And what can the Board of Education and the management of the school system and individual schools do, given the union and its powers?

What are the revealed objectives of the union? Does it serve the interests of its membership or its leadership, and does it do this within a short-run or a long-run perspective? How can New York City provide the union with incentives which make it in the union's interest to increase satisfaction, within the community, with the school system? What perspective does the union bring to bear on productivity issues, and on such crucial factors as curriculum change and the sorting and tracking of students? Does the union function as a significant constraint on change? What will it and what won't it accept? To what degree are the constraints it imposes (or seems to impose) binding? Has this changed in light of the fiscal crisis?

How does the union interact with the Board of Education and the other interest groups that play a role in determining the nature of the public education system? Would it accept disaggregation and decentralization (in what forms?) if it is thought they will improve educational performance? In this connection, for example, should teacher tenure be system-wide? What are the effects of non-wage factors in the union contract on the flexibility of the public education system and its ability to adapt to changing circumstances? Does the union, as some allege, make impossible (or significantly hinder) administrative change in management of the system?

If there were an increase in the budget of the Board of Education (from

internal sources or external aid) how much of it would be dissipated in salary increases and additional pension costs? Would such increases in cost be warranted by prior inequities or current increases in productivity?

C. City-Suburb Interactions

School finance, in particular, whether local reliance on the property tax gives rise to intolerable interjurisdictional inequalities in educational opportunity, has been in the forefront of constitutional discussion during the past decade. In addition, of course, to the questions that have arisen in this discussion (as in the Serrano and Rodriguez cases), a number of important questions, centering on the Tiebout hypothesis (which suggests that residential location decisions respond to expenditure benefits and tax burdens), arise in connection with the delivery of public education in New York City and its metropolitan area. Migration, in response to fiscal incentives (on the tax side or in perceptions of educational benefits associated with tax payments), may not only affect the ability of the city to finance its public education system, but alter the production function in public education.

There should be a careful assessment (retrospective and prospective) of the relationship between the public school setting (the quality of service delivered and the environment in which it is delivered) and the inter-jurisdictional (as well as, say, inter-borough) movement of households (and firms?). Comparisons of quality of service received and costs should be made explicit. An effort should be made to pin down how these effects differ with position of the household in the income distribution.

In addition to such studies of the implications of interjurisdictional differentials for the demand for public education, their implications for its supply must be examined. What factors, for example, lead teachers to prefer suburban employment?

Research should be directed to the prospects of voluntary cross-jurisdictional registration of city students in suburban schools. In other words, would it be desirable to convince the suburbs to accept NYC students (in return for payments of some sort)? Would it be practicable? Is this a reasonable alternative for minority students who cannot find suitable "tracks" in the City school system? What has the experience in Massachusetts and Connecticut taught us about voluntary programs?

A cross-section comparison of the problems faced by New York with those confronted by other, albeit smaller but likewise heterogeneous, cities in its metropolitan area would be illuminating. Adjustments would have to be made for differences in the economic setting, demographic and racial composition, etc., so as to isolate the causes of the problems that seem most acute in New York.

D. Contracting Out for Service Delivery

Supply arrangements that make more use of market sources (or market mechanisms) to meet both regular and special demands for educational resources are one possible way of increasing efficiency in the provision of educational services. There is an ample literature dealing with this subject, with relation to the educational area and to other public services. Studies undertaken in this context must sort out what the real constraints are, e.g., commitments implicit in the union contract.

Examine a variety of voucher plans--with different eligibility criteria and terms of payment. Vouchers could, for example, be used for a parallel system of private or public alternative schools, both for the "typical" student or for students who warrant enrollment in special education programs.

Examine more limited plans, under which the public sector contracts out for the production of certain (which?) educational services, while remaining

responsible for their provision. In other words, the financing is out of taxation and the allocation decisions are made, in the final instance, by the school system rather than parents. Here, again, special education, for gifted or handicapped, physically or emotionally, seems a candidate area. Trade schools are another..

Study contracting out of those non-educational services that seem to have been particular trouble spots for the New York school system, such as provision of school lunches and transportation to and from school for all or certain subsets of the school population, custodial services, and the purchase of supplies.

E. Racial, Ethnic and Social Balance

Materials describing the Office of Civil Rights complaints against the New York school system suggest that the validity of the criteria used by OCR in claiming discrimination on grounds of race and sex should be carefully reviewed. It is simply not demonstrated that differences in teacher assignment, equipment quality, student suspensions, etc. used as the basis of discrimination claims do not reflect other, legitimate (though doubtless regrettable) factors. It is necessary to determine what attitudes are and whether it is class, race or ethnic identity that seems important. This must be pinned down to understand what should be done and the interface of the residential location and discrimination issues. Clotfelter's study, prepared for the CUE conference in May, is quite relevant. What is the relationship of these issues to special education and tracking, which seem one of the keys to getting more high-quality educational output out of the system? This relates directly to the previous discussion about understanding the educational production process.

What are the implications of racial and ethnic considerations for the

proper restructuring of the educational system in New York City? This is a very general question, but one which requires quite specific answers, which must take account of the diversity of relevant interests and the dynamics of the Tiebout process (vis-a-vis the shift from public to private schools as well as residential location) as well as the standard "equity" considerations.

F. Hiring, Teacher Supply, and Quality

The importance of developing a better understanding of the educational process is clearly evident when one considers hiring and placement policies. What has been the effect of affirmative action hiring on the composition of the stock of teachers (and administrators)? On quality? On ability to relate to students? Do the Office of Civil Rights charges hold up under critical analytic scrutiny?

How can the quality of teaching be judged in so disparate a system? To what extent do the difficulties of teaching in this system (absenteeism, discipline problems, etc.) distort the relationship between teaching potential and teaching success? Should the examination used by the New York City School system in its ranking procedures be abandoned or replaced with some other criterion or set of criteria, quantitative and/or qualitative? Do the teacher assignment procedures properly match teachers with students?

How significant a factor in the budget are pension costs? What effects would changes in pension provisions have on the supply and quality of teachers and teaching?

G. Legal Constraints

One area, in which we unfortunately have little expertise but which seems important, is the influence of legal constraints on the operation of the school system. Clearly the school system is not entirely free to operate in any way it wishes to. For example, certain placement rules for teachers

may violate the contract. Moreover, Federal, state and local statutes may prohibit certain actions. For example, the requirements of the handicapped law preclude certain operations and mandate others. Also, the state teacher tenure laws place restrictions on hiring and firing policies.

Several important analytical efforts are called for in this area. First, an attempt should be made to compile the relevant laws (federal and state) which impose restrictions on the educational process. More importantly, some effort should be made to understand the effects of any such restrictions. Again, this analysis assumes that we already know a fair amount about the production process. Given that, the same techniques discussed in sorting and placement could be used to estimate the cost of various laws. This would provide considerable information for the consideration of recommendations to change existing statutes or operating rules.

Part III -- Some Conclusions

The main thrust of this research agenda is the necessity for basing policy proposals upon a better understanding of the operation of the school system. There is a tendency to focus on the "fiscal squeeze" or related issues and label them as the "economic" issues. However, this is probably inappropriate. The problem of a shortage of funds in the short run is probably not nearly as important as the use of currently available funds. Nevertheless, analyzing the current usage of funds is difficult because our understanding of the educational impacts of altering this usage is very rudimentary.

In many ways the New York school system is unique. The size, complexity, and heterogeneity of the system is quite different from most other school systems. However, at the same time, much analysis has gone into the form of education production relationships, the operation of markets for teachers, the effects of alternative incentive systems, and so forth. One area which

might have a large pay-off for the PEA would be the synthesis of relevant research material. Many of the policy areas which occupy the attention of the PEA have been analyzed previously, albeit in different systems and different environments. This work can be a great help in developing and supporting policy suggestions.

A crucial element in implementing policy proposals is the development of supporting evidence about the likely effects of a given policy. Part of the task in developing this supporting evidence is simply being precise about the policies and the desired outcomes. In the course of setting the backdrop for proposals, the available and needed information becomes much clearer.

A major part of the discussion here has been providing a way of organizing and structuring the important issues in developing policy proposals. Clearly some of the inescapable issues are ones for which little information is currently available. These would be areas where the PEA might consider sponsoring research efforts. Other issues, however, are currently fairly well researched and understood. Unfortunately, the results of this research are often not in a particularly useful form for policy makers. In such cases, the PEA might consider providing an interface between research and policy. This latter area promises to be one of high immediate pay-off for the PEA.

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