EDUCATIONAL GROWTH AND EDUCATIONAL DISPARITY*

by

Johan Galtung, Christian Beck and Johannes Jaastad

Chair in Conflict and Peace Research
University of Oslo

1. Introduction

The purpose of this project is to study educational disparities within and between nations. By this is simply meant, roughly, how much difference there is between those at the top and those at the bottom of the educational ladder. Thus, educational disparity, or inequality, is not the same as educational injustice. Educational injustice is the condition that exists when there is a correlation between the amount of education attained and any other (particularly ascriptive) variable, such as class, sex or race. Clearly, one could very well imagine a society where the same proportion from any class, sex, national or racial groups had a Ph.D., or were illiterates for that matter. Although this society would exhibit educational justice it would clearly not have educational equality because of the difference between Ph.D. and illiteracy. For educational equality to have a meaning it must mean, roughly, that all the members of the society above a certain age or in the same age group have more or less the same educational level, be that level low or high.

Further, educational inequality is not the same as inequality of educational opportunity either. The latter refers to the starting condition: is the system made in such a way that everybody has the same chance of getting launched on equally good educational ladders, or is it made in such a way that the system tends to discriminate against some by denying them access, or giving them access only to poorer parts of the total system? Clearly, even in a system where everybody starts under exactly the same condition they may still end up differently, and if they do so the system will produce educational inequality as this is conceived of here. Simply stated, people may differ, and circumstances may differ, and as a result of either or both educational attainment may differ. Thus, equality of educational opportunity does not imply educational

equality. Nor does educational equality imply equality of opportunity - for it may have been obtained precisely through unequal opportunity - e.g. by giving more schooling to the weak than to the strong.[1]

The reference to equality of educational opportunity just given leads us straight into a problem area that has to be confronted from the very beginning. Is educational disparity a problem at all - or, positively formulated: is educational equality a goal?

To explore these complex matters some kind of theory is needed. The theory that is underlying this paper will be based on two pillars: a theory of ability and a theory of economic structure. Both are needed, because both are inextricably related to any theory of educational disparity, and particularly to the problem of whether educational equality is a goal or not.

2. A theory of ability.

The empirical fact, as is evident from a glance at educational statistics, is that there is educational inequality. Most people probably see this not only as unavoidable, but also as desirable. The ideology of educational justice, however, prevails and as a consequence of that many people undoubtedly would say that there should be no educational discrimination based on such external variables as the four mentioned (class, sex, nation, race and the recent concern with continuous adult education would make one add age to this list). But there should be discrimination on the basis of internal characteristics, referred to generally as "ability". More specifically, there is the ability referred to as "intelligence". Let us define it as "ability of symbolic manipulation", something which would be particularly high in mathematicians, symphony composers and for others who handle highly complex, abstract systems according to complex rules. In general, it would be thought of as something scientists could hardly do without, at least if science is conceived of as it usually is nowadays. Any society which wants to develop, hence, is entitled not only to detect the most able, but also to give them more education than is given to the rest. Hence, no educational equali-

One could now spell out a number of educational ideologies in some detail. At one extreme would be the thesis that ability in general, and intelligence in particular, is heredity-based, is constant over time for a given individual, and different between individuals - which is, roughly, the original Binet-Simon position. At the other extreme would be the thesis that ability in general and intelligence in particular is environment-based, changing over time for a given individual and potentially about the same for all or most individuals - which is, again very roughly, the present Chinese position. Between them there is room for many other educational ideologies - six if one should proceed by the simple combinatorics indicated by the three dichotomies just made use of (heredity/environment; constant/changing; different/same).

For instance, there is the idea that ability is essentially inherited, but only in the form of a potential, of an upper limit for each individual, so to speak. The manifest ability level may show great variations through time. This may or may not be combined with the idea that this potential is essentially the same for everybody.

Then there is the idea that ability may be essentially shaped by the environment, but in a way reminiscent of the role usually attributed to heredity. The idea would be that it is the first encounter with the environment that matters, from the prenatal impression in the womb to the first childhood years. The first encounter may take the form of an "imprint" that shapes all aspects of the human personality, often in an unmodifiable way - at least after the first N years of life have passed. With higher N there is obviously higher optimism when it comes to modifiability. But the idea may still be that although ability is environment-based, "environment" is such a complicated web of factors that it can never be made similar enough for individuals to turn out sufficiently similar in ability. The many "early childhood deprival" theories fall in this category.

In short, there are many views, begging the question as to which is the "correct" view. The assumption is often that an answer can be found to this question by means of an intricate empirical study based on an adequate factorial design and sophisticated analysis.[2] But that would disregard the intimate connection

between educational ideology and social ideology in general. Thus, imagine we distinguish, very roughly, between three social orders[3]: "conservative", "liberal", and "communal" - where conservative society is vertical with social position based on birth ("like father, like son"), liberal society is vertical with social postion based on some degree of achievement, and communal society is more horizontal, egalitarian. It does not take much reflection to see how educational ideology develops so as to fit social ideology in general. Thus, a conservative society where one's station in life is largely determined by birth does not have to be based on heredity of privilege; it can be based on a theory of heredity of ability. The assumption would have to be that parents high up are high on ability, that the correlation between generations is relatively strong, at least strong enough to differentiate, and that there is little change through life in ability level, or at least not in potential ability level. The most pessimistic educational ideology is ideal for conservative society.

A liberal society is based on more mobility, on "achievement", but is also vertical. Obviously, the most pessimistic educational ideology will no longer do; there has to be some leeway. The basic assumption - that individuals differ in ability has to be maintained as a rationale behind social verticality, as the basic reason why one should invest more education in some than in others (and afterwards give them more status, more income, more power). But social ideology demands that the correlation between generations is lowered. The idea of heredity setting a ceiling for the potential is useful here, especially when contrasted with the different willpower of individuals to exploit their potential. The idea of early childhood environment as a basic determinant is more dangerous, for what would happen if one succeeded in equalizing environment (including prenatal) by means of some kind of environmental engineering (assuming this to be more easy than genetical engineering)? No difference in ability any longer, hence no rationale for verticality!

This is where a communal society enters more or less saying the following: we want people to be equal, not only in what they have (the consumption side), but in what they do (the production side). In order to obtain this we accept that educational ideology that seem them as basically equal as to what they are (in terms of ability). Hence the educational ideology would

would have to be environmental, change-oriented and fundamentally similarity-oriented.

Each social form, hence, will tend to generate its own "truth", and the choice between these "truths" cannot be on the basis of social ideology. To study the link between heredity, ability, schooling and social position in a liberal society (and they are the societies that among other things also produce social science) is meaningless in an absolute sense, but highly meaningful if one wants to know what educational ideology best mirrors social reality in that type of society.

In short: if one wants an egalitarian society a certain theory of ability is useful, and one has to act so as to make the theory become not only a reflection of ideology, but of empirical reality. The simplest theory would be the one mentioned: abilities differ at a given moment, between people, but are essentially and potentially the same. Hence make environment not only similar but stimulating, so as to give all a chance to develop, and about the same chance. The assumption, then, would be that differences wash out relative to the growth potential of everybody. There is an enormous relative difference between two individuals who have utilized 1% and 2% respectively of same potential - that difference disappears when they both utilize 10% more of that potential. The general idea would be that any ability develops by being used, and particularly by being used together with others, in an ongoing word and action dialogue with others and with nature, and that the major factor in developing the ability would be the degree of challenge, stimulus that the person is exposed to. In other words, as distinct from the heredity theory there is not only an environment theory but more explicitly what could be called a queen bee theory[4], the idea that any "ordinary" bee, when properly stimulated, can develop extraordinary capacities. More or less, this seems to be the view currently underlying educational theory and practices in the People's Republic of China.

Thus, the problem is not: are abilities the same or different, but what follows if one assumes them to be basically similar, at least potentially. Under this assumption educational equality may become meaningful as a goal. But the reason for this can only be done by trying to see education in a social context, as related to production and class allocation.

3. A theory of economic structure.

What we have to say in this section falls under the headings of the four problems indicated in Table 1:

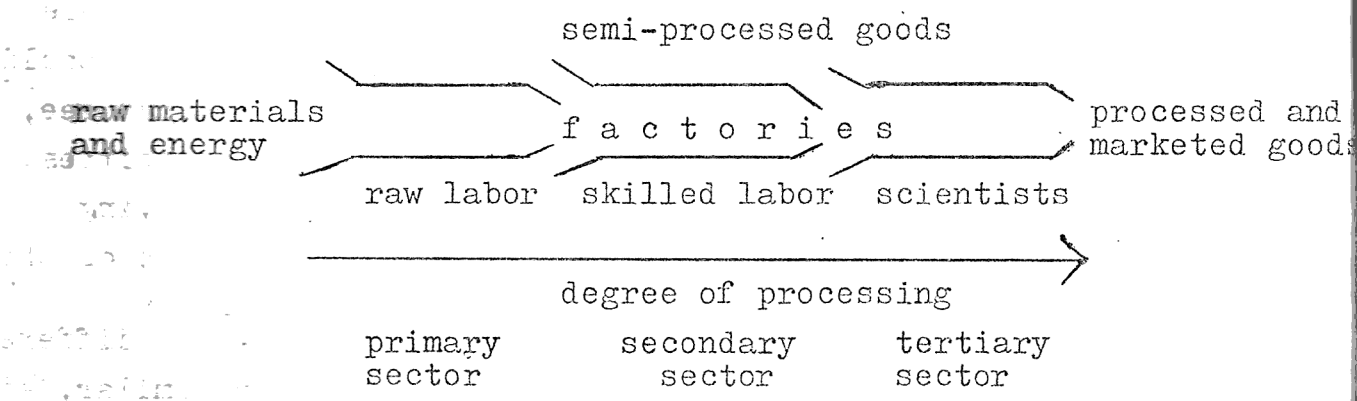
Table 1. The four fields of inquiry

	Economy	Education
Growth	A	C
Equality	B	D

Thus, there are A, B, C and D problems. They are related to each other, and we are particularly interested in exploring the social history of these problems as indicated by the arrows, starting with problems of economic growth and ending with the topic of this paper, problems of educational equality.

Economic growth has conventionally been tied to the idea of processing, i.e. of imprinting some type of cultural form on what is extracted from nature. The degree of processing and the degree of marketing, rather than degree of fundamental need satisfaction have been taken as indicative of economic growth, under the banner of industrialization and trade.[5] This has been done by moving the three classical production factors, capital (goods), (raw) materials and (raw) labor together in one place. The result is something like what is indicated in Figure 1:

Figure 1. A scheme of economic production



Three factories are coupled in series, so that the output of one can be the input of the next. In the first stage the inputs are (very) raw materials and (very) raw labor like in some very simple type of extraction industry. The output of this is then

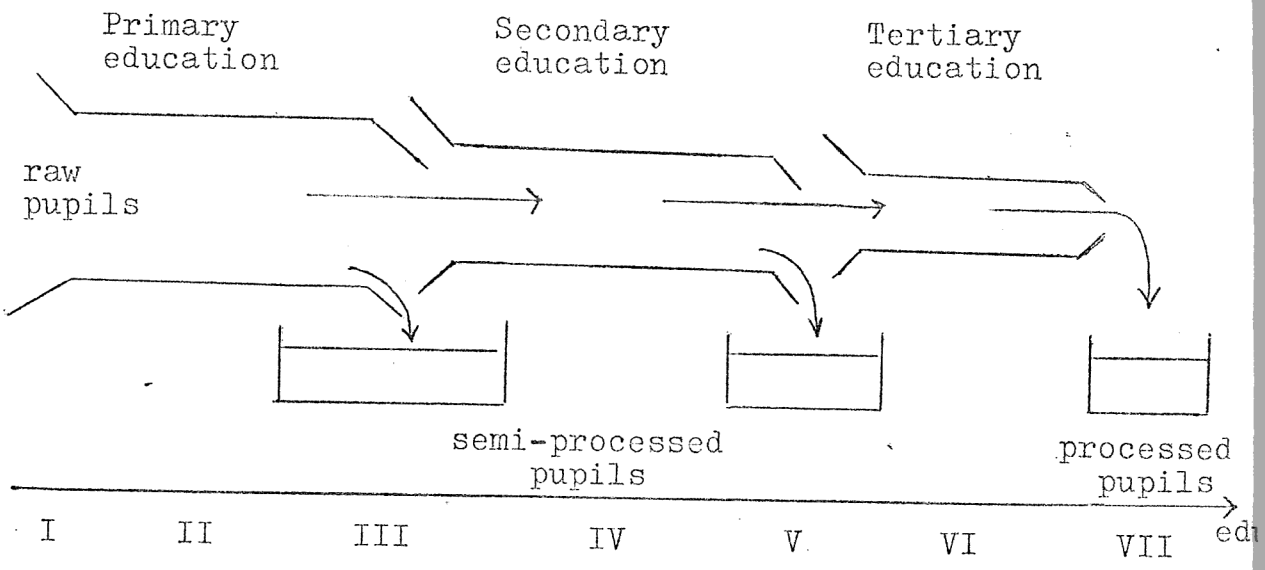
the input of the next factory, for instance a steel mill, and its output, in turn, may serve as input for a car factory. At the end the output is highly processed and marketed goods, and also highly processed labor - here also in the sense that they become increasingly skilled in the process.

The higher the level of processing, the higher the "economic growth" in some countries of the world. But this process has been accompanied by economic inequality between and within countries, highly correlated with where the country or the person stands on the division of labor as to degree of processing. Whereas economic growth takes place, goes on - economic inequality tends to persist. A-problems have been solved in some countries at the expense of creating B-problems.

In an effort to strike a balance between A-problems and B-problems one of the remedies suggested has for a long time been educational growth; the tackling of C-problems. More precisely, the idea has been that the production process itself will not generate economic equality. On the contrary, it has been argued that in order to carry out production, in the sense of processing, somebody has to do more difficult things than others do, that this requires more education, and that they have to be rewarded accordingly. With educational growth more people will have higher level of educational attainment and hence be in a position to perform the tasksin the production process that are better rewarded. If there is a limit to how much workers can earn from participation in the production process, particularly when they are unskilled, there may still be an opening for the individual to climb sufficiently high on the educational ladder.

It should now be pointed out how similar the structure of the educational institutions are to the structure of factories, a similarity reflected in the many references to schools as "factories", to the education "industry" and so on. We have tried to express it in Figure 2:

Figure 2. A scheme of education production



There is a difference between economic production and education production: in the former semi-processed goods, the output of lower stages, are very often valueless unless they they can serve as inputs for higher stages, whereas in education productio each institution has a double function. On the one hand it hands over its output as input to the next institution, but usually (except for high school?) also produces its own finished product. As a matter of fact, if the two processes in Figures 1 and 2 are coupled in parallel with each other, as they are in most societie then it is very clearly seen how they can be attuned to each othe primary education produces people who can work in the primary sector of economic activity, the secondary level people for the secondary sector, etc.

And that is the basic, if not very original point: there is an intimate correspondence between economic production and education production. If economic growth is seen in terms of processing and processing is carried out by means of division of labor involving unskilled labor, skilled labor, scientists and other"professionals", then the educational system has to turn out people roughly in the proportions induced by this division of labor. And this is, of course, where class comes into the picture, rationalized by the idea of inherited and basically unchangeable intelligence.

We mentioned above that educational growth could be seen as a way of alleviating the tensions arising out of economic inequality. But with increasing educational growth structural imbalances will result unless something is done with the economic

production system. People processed to the level of tertiary education will want to work in the tertiary sector of economic activity, or in the tertiary segments of the secondary sector. If these sectors do not expand, the result is an unemployed intelligentsia or an intelligentsia taking jobs beneath their educational attainment. In the latter case there are many possibilities: one of them is to leave one's own country and take the jobs for which one is trained in other countries where these jobs are available - that is known as "brain drain". Still another possibility is to go into the political system (instead of the economic system), for instance by engaging in revolutionary activities.

Since most or all of these consequences will be unwanted by the designers of economic and educational systems in a country, efforts will be made to change the economic system so as to balance it better with a new educational system. This can only be done by making the production process less labor intensive, more capital intensive and research intensive. And this, in turn, raises the important question: what happens to all thetasks that cannot (at least up till now) be automated - who will do the menial tasks, who will carry out the extraction from nature, for instance? Answer: move in workers from new peripheries to the places where these processes take place, or move the processes themselves to the workers in these peripheries. Whether one has foreign workers from poor countries doing simple work in factories in rich countries, or have workers in poor countries doing the same jobs in foreign-owned factories in their own countries does not make much of a difference from this point of view. In either case one's own population is permitted to move up on the educational ladder, leaving the simpler tasks to others.

Ultimately one might end up with the world divided into three types of countries: at the bottom countries with primary education doing extraction work, in the middle countries up to the level of secondary education (vocational schools included) doing some simple processing, and at the third and top level countries where everybody is a university graduate and working in highly research intensive industries.

At this point it becomes obvious that it is meaningless to study educational growth in isolation, one country at a time.

There is an international division of labor just as there is a division of labor inside a factory, and this international division of labor has both as its cause and as its consequence fundamental disparities in educational attainment between nations Since all experience after the war by and large seems to indicate that the international division of labor is strengthened, even increased (in the sense that the difference in degree of processing between top and bottom countries is increasing) one would off-hand predict that the average educational levels between top and bottom countries would be diverging. The rich countries need more specialists, but they need them in their own countries - not in the poor countries. If the poor countries "industrialize" that does not mean that they catch up with the rich countries, only that they move into positions rich countries held one or two centuries ago, and enter into a division of labor permitting the rich countries to move into even more research intensive types of economic activity. The net result would be that as the poor country expands its secondary education, the rich country will be exploring quarternary education; the post-doctoral, life long training of eminences. In fact, the only way in which the rich countries in the world can continue increasing the gap when raw materials, including energy sources are increasingly in the hands of poor countries is to go in for educational processing. And that is what makes the problem of educational disparity between nations a crucial one in world politics today.

Will the current education system also have a tendency to produce educational disparities within countries? It is likely to do so, for what has just been said about international division of labor between various sectors of economic activities also applies intranationally: the most advanced processing takes place in the center of the country, the extraction takes place in the periphery. But it is not inconceivable that we enter a period in international economic life where most of the differences will be located between countries and relatively little within them, at least within countries at the top of the world. The reason for this would simply be the high level of fluidity in the means of communication, transportation, and education in the richest countries, permitting a degree of mobility, even homogenization within countries unattainable at present in the world at large. Everybody will move to the places of higher learning. Geographical borders between rich and poor countries may there-

fore be increasingly associated with steep economic gradients, and highly compatible with strict international division of labor. The emphasis here is on international; if there are exceptionally educated people in the periphery nations they may be eased upwards, upon the invitation of the rich nations, on their own initiative, or both. Thus, the system has sorting mechanisms for the more refined sorting not already built into the educational systems.

However, even though nations on the top of the world theoretically speaking may tend towards educational equality and at a high level, in empirical reality they are certainly not likely to do so in the near future. The simple reason for this is that a country like, say, Norway does not need two million engineers and scientists. She may need more than she has today, but the productivity of one is so high that given some ceiling on anybody's imagination where production is concerned - for instance the ceiling imposed by ecological constraints - there will be a limit to the number of engineers and scientists even in a completely automated, research intensive economy. And what would then happen to the rest of the population? Would they pursue higher studies simply for their own cultural benefit - or would they rest contented with primary and secondary levels of education? This is for the future to see. Today's expectations would be that rich nations would strive forward to educate higher numbers of people far beyond traditional tertiary education, caring less about what happens to others. And the net result of that would be to produce an education distribution with more difference between, say, quarternary education and lower secondary education than what was found formerly between lower tertiary education and primary education or before that between secondary education and no education at all. Net result: with educational growth there will also be increasing disparity within countries - C-problems lead to D-problems.

In short, we would expect a general tendency right now to be increasing disparity within and increasing disparity between countries where education is concerned. The rich, industrialized nations will do their best to produce extremely well-qualified elites to be at the top not only of their own systems for the production of economic goods and political decisions, but also at the top of global institutions for similar activities - such

as multinational corporations and international organizations.

By now it will have become much more clear why we see educational equality as a goal, even an important goal: it is simply because educational disparity is an important element in the social and economic inequalities between countries, within countries, even within factories for that matter. The thesis is not only that we have an economic system, engaged in processing and based on division of labor (where processing is concerned) between countries, within countries - and within factories, and that we have an educational system geared to this reality. It is also that because we have this educational system and this reality of educational disparity, economic division of labor becomes a necessity in order to employ the right quantities of the right qualities of labor. The systems of economic and educational production are geared to each other. Anyone concerned with decreasing gap in one should also be concerned with decreasing gap in the other, for although the economic system is dominant, there is also a causal arrow in the other direction - or so we assume.

4. Methodology

The empirical work is based on data collected by UNESCO, Statistical Division, not with this particular project in mind, but as part of UNESCO's general data store. Much of it is published in UNESCO Statistical Yearbook, 1971 (Table 1.4); some of the data are not yet published. The following limitations have to be taken into account:

- the data are only from nations that are members of UNESCO.
- from some nations we got insufficient or inadequate information, which weaken the general quality of the data. At times this makes direct comparison between countries impossible. Data from the 1970 census have generally not been available, which is a major shortcoming of the study.
- we have only analysed countries with a population above 100.000.

With these limitations in mind we ended up with 86 countries, distributed as follows:

Europe:	18
Africa:	16
North and central America:	16
South America:	11
Asia:	23
Soviet Union:	1
Australia:	1
Total	86

Some of the tables do not include the complete sample because the data are too old or inadequate. The gaps have not been filled in with other countries.

Generally speaking, the data from each country show the percentage for a given age group (sometimes also broken down by sex and racial/ethnic belongingness) having attained a certain educational level, for some relatively recent point in time. This leads us to three general methodological questions:

(1) What is the quality of the data?
(2) What is meant by educational levels?
(3) What kind of parameters should be used to measure educational level and educational dispersion?

(1) The quality of the data.

The quality of the data varies since UNESCO's member nations have varying levels of statistical sophistication and use various criteria to determine what should be reported in what way to UNESCO offices. Little has been done to criticize or elaborate the data. Some comparison with other sources has been carried out, but has not led to any change in the main features of our analyses and theoretical development. Thus, as far as we can see, the quality of the data are sufficient for our use. When submitted to tests of sensitivity by which the data can be experimentally altered, the results indicated that marginal errors and even systematic errors would not change the main tendencies in our findings.

(2) Educational level.

At the beginning we planned to use number of years of formal education as a measure of educational attainment, because of its simplicity and its mathematical attractiveness. But this measure does not take into account drop-outs at different levels. Second, we also found it unacceptable to equalize one year of education out of a total of three with one year of education out of a total of twenty. Moreover, the use of such terms as "primary", "secondary", and "tertiary" levels of education seem now to be so universal that we found it convenient to tie educational attainment to a scale that expresses level rather than years. Thus, we regard "completed primary education" as the same, regardless of number of years.

The following scale of educational attainment has been chose following the UNESCO tradition:

I No education
II Incomplete primary education
III Complete primary education
IV Incomplete 1. cycle, secondary level education
V Incomplete 2. cycle, secondary level education
VI Post secondary education

It should be noted that no schooling at all is counted as one step. This means nothing statistically, but is has a deeper meaning: it serves to dispel the illusion that "no schooling" is the same as "no education". Obviously, people can educate themselves learn from the environment and particularly from others, making "education" a much broader category than "schooling".

If the variable defined by the Roman figures above is thought of in numbers of "steps" then it also makes some sense to treat it as an interval scale variable. And the basic question in our analysis, then, becomes: how many steps are there between the top a% of a specified population and the bottom b%, and what happens to this number of steps over time?

Then there is the question of what population this measure should be applied to. At a given time, for instance when a census

is taken, it should not be too difficult to place almost everybody in a country on this scale. The distribution this yields is important in the sense that it tells us something about the amount of "educational investment" in the country at that point in time, and it tells us something about the educational environment for any person living in the country. But it does not tell us much about the structure of the educational production, for it is obvious that this can only be understood by looking at the distribution of the products of the educational system, and children have not yet been through the machinery.

One simple idea in that connection would be to look at the population age 25 and above: almost all of them have been through the formal education they will get during their lifetime, at least that part of the system that is reflected in this type of thinking, and this will tell us something about the workings of the machinery. But this machinery is rapidly changing for which reason one should also focus on the more recent products of the educational system. Hence, we also chose the cohort 25-34 years, since the bulk of the countries had sufficient data for that interval. There are good arguments in favour of either procedure, however, so we make use of both of them.

(3) Choice of parameters.

Obviously the problem of measuring "educational growth" reduces to the problem of finding a measure of the central tendency of the distribution of the population aged 25+ or the cohort 25-34 on the level of education, and the problem of "educational disparity" becomes the problem of finding a measure of dispersion for that distribution. There are many such parameters, and we have to have some guidelines for the choice. One set of guidelines would be as follows: the two parameters should be of the same parameter family; they should be simple; they should not go beyond the mathematical nature of the variable (number of educational steps), and they should have a relatively clear interpretation.

One idea was to use the Gini index (GI) as a measure of educational disparity, even though it is problematic when the variable, as here, is less than interval level. By using the GI, however, one gets a measure that explains the dispersion relative

to the total quantity of formal education in a country at a given point of time. When comparing different GIs the result will be a comparison between the relative distribution of the total educational quantity in the paired countries. This is something else than to measure disparity in education with reference to a common, absolute scale of educational attainment. For the Gini Index the scale does not matter, everything is converted into percentages.[6a]

Taking all this into consideration we decided to make use of percentiles, and more particularly of P_{50}, the median, as a measure of educational growth, and $P_{100-a}-P_b$, the percentile difference, as a measure of educational disparity between the top a% and bottom b%. This means that the median would be a number from 1 to 6, indicating the midpoint of the educational distribution in terms of number of steps, in other words the point with 50% of that age group in the population below and 50% above. Similarly, the percentile difference would be an interval along this scale, indicating how many steps separate the top a% from the bottom b% of the population. The only question is: how do we pick a and b?

Tentatively, we started with the traditional interquartile range, Q_3-Q_1; using $P_{75}-P_{25}$ as a measure of disparity. But why should we have a=b? This lead us to explore $P_{95}-P_{50}$ and $P_{95}-P_{10}$, as these measures may be much more meaningful in social terms. Thus, $P_{95}-P_{50}$ gives us an indication of the difference between the top elite and the bulk of the population, and $P_{95}-P_{10}$ a corresponding impression of the difference between those on the top and those at the bottom of the educational ladder. ($P_{95}-P_5$ might also be used.) Our results are expressed in terms of these three measures of disparity. Since there is no commanding reason to prefer one to the other, any hypothesis should be confirmed for all three of them - the validity should be independent of a wide range of variation in a and b.[6b]

When calculating these percentile differences for the population groups 25+ and the cohorts 25-34 we found it fruitful to explore in more detail the educational dispersion structures in the countries under study. Behind any disparity there is a selection process - some continue and some do not - and it is important to find out at what level the bulk of the selection process takes

place. Is it, in general, from primary level to secondary level, or from secondary to tertiary level? The numbers are expressed in %, calculated from the total amount of that particular age group for which the educational level has been set up. Since vocational training at the second level is registered as normal secondary level, and because some countries show overlap between different levels, we at times get numbers above 100%. But the general measures used are simple enough: Level 1 - Level 2 and Level 2 - Level 3.

5. Results.

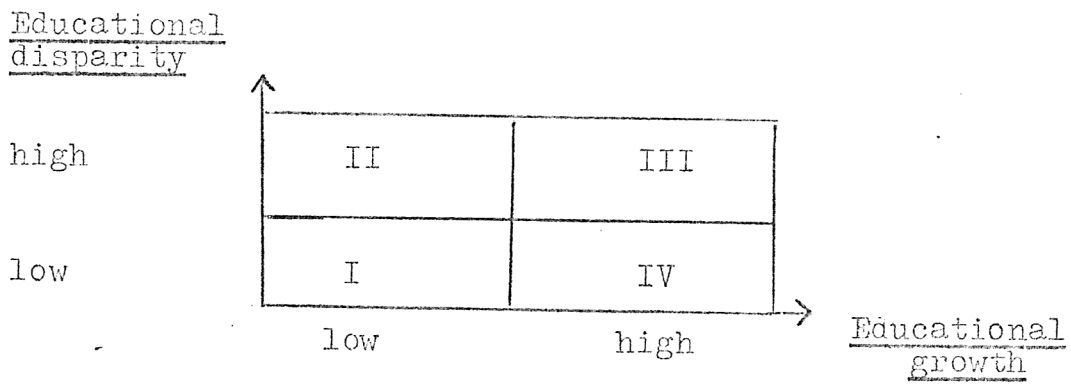
The information revealed by our data will be best seen in graphical presentation.

In Graphs 1, 2, and 3 the countries are placed according to educational growth and educational disparity for the population above 25 years. We have three graphs because we have used three different measures of educational disparity: $P_{75}-P_{25}$ in Graph 1, $P_{95}-P_{50}$ in Graph 2, and $P_{95}-P_{10}$ in Graph 3. P_{50} - the median - is used as a measure of educational growth in all three graphs. In Graph 1, for some countries, we have data from two different points in time; the tendencies over time are marked with arrows. In Graphs 4, 5, and 6 the same variables are used, but now for the cohort 25-34. Thus, our hypotheses are explored in six different ways.

The most obvious conclusion we can draw from these graphs is their similarity. They all basically amount to the same: the higher the educational growth, the higher the disparity. Countries with high educational growth show high educational disparity, and countries with low educational growth show low educational disparity - to some extent because they have illiteracy. This conclusion holds for all three measures of disparity, and is not affected by switching from one age group within the population to another. In other words: educational growth as it is known in the world today does not lead to educational equality. Efforts to tackle C-problems lead to D-problems - as in the economic field.

This gives rise to the following typology:

Table 2. A typology of educational systems.



Roughly speaking, the nations divide as follows:

Type I: Developing countries in Asia and Africa.
Type II: Nations in South America, and as an extreme case: South Africa.
Type III: More developed countries, headed by U.S.A, Canada, Soviet Union, Israel and Japan - high on both growth and disparity.
Type IV: No nations observed in this group.

The question now is: to what extent do these data confirm our hypotheses to the effect that there is increasing disparity in educational attainment between developed and developing nations; increasing disparity in educational attainment within developed nations and increasing disparity in educational attainment within developing nations?

These hypotheses are all of a dynamic character, postulating increasing disparity in education in all the countries under study, and also between certain groups of countries. Consequently the hypotheses should ideally be tested at a diachronic level, but up to now our analyses have been carried out at a bivariate, synchronic level only. But our data nevertheless seem to support the hypotheses, for

(1) to the extent that we have arrows indicating the developmental direction the main tendency is an increasing disparity over time, thus supporting hypotheses 2 and 3 (the arrows point upward).

(2) the data show that high educational attainment is related to high educational disparity, with no exception (thus, type IV above is empty).

Let us then look at how the selection process takes place. In Graph 7 the countries are placed according to the relation between drop-outs from primary level to secondary and from secondary level to tertiary level. The obvious conclusion from this graph is that Type I nations, low on educational growth and on educational disparity as well, have the main part of their selections on the primary level. Moreover, for some nations this selection takes place even before any formal education starts: if you have made it to primary school, then you are on the way to the top.

In Type III countries, high on educational growth and disparity, the main part of the selection is found on the secondary level. This explains to a certain degree the variation found with different measures of disparity.

Another important matter is how the relation between educational disparity and growth is reflected in the frequency distributions of educational attainment. Graphs presenting these distributions give a relatively clear pattern, from which it is natural to group the nations in 6 categories, as presented in Graph 8.

Representative countries for each type are:

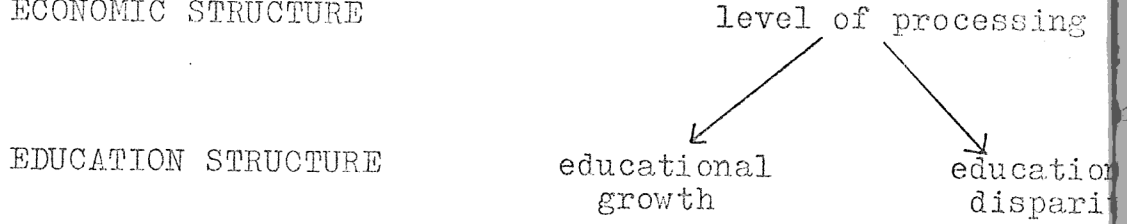
(A) The poorest nations in Africa and Asia.
(B) Developing nations in Africa and Asia.
(C) Rich developed nations in Asia and South America.
(D) South America, Southern Europe.
(E) Eastern and Western Europe, Soviet Union.
(F) USA, Canada, Japan.

If we compare these 6 types with the 4 types mentioned above, there is a clear correspondence. Frequency types (A) and (B) include countries low on both educational growth and disparity, frequency types (E) and (F) include countries high on both variables. Thus, it seems reasonable to conclude that types A-F constitute sequences in a development over time of educational attainment - as the educational process is currently implemented, and with the consequence of passing through types I, II and III

Thus, there seems little doubt that at present there is a pronounced correlation between educational attainment and educational disparity. But that is merely a correlation, what brings it about? In the theory outlined in section 3 above a relation to the economic structure is indicated. More precisely, the idea is very simple:

- -the higher the level of processing of raw materials, the higher the proportion of the working force with higher levels of education
- -the higher the proportion of the working force with higher levels of education
  - (1) the higher the average level of education
  - (2) the higher the educational disparity

Stated like this it is so obvious that findings confirming the hypotheses would certainly not come as a surprise - findings disconfirming them would. Our model is simply this:



Thus, higher level of processing forces higher levels of educational attainment, or vice versa, these higher levels may, under certain conditions of economic autonomy, facilitate a higher level of processing. As education creeps up the educational ladder, so to speak, the distance between top and bottom increases, producing educational disparity. The latter however, is not necessarily true, as will be discussed in the next section: the population might move up the ladder together (as would be the case in a country where the level of processi was increased all over, in agriculture and industry, at the sa time). And the former is not necessarily true either: a highe level of processing might be brought in from the outside according to ready-made blue-prints, replete with standard operating procedures requiring only a minimal education from the local people operating the plant. Since this is a far fr infrequent pattern in the world today we would not expect too high correlations between level of processing and educational

parameters - but we would expect some.

To test the hypotheses some indicators of the economic structure is needed. More particularly, we need indicators of the extent to which the economic structure has grown out of the primary production pattern. There are several ways of doing this. One would be to use the percentage of the labor-force within the country engaged in non-primary activities, N. Another would be to focus more on the relations between countries and study the composition of import and export of the country. One suggestion here is the trade composition index, the TCI, which measures the extent to which the country imports raw materials and exports manufactured goods (a country with that trade pattern would score +1 on the index, a country with the opposite trade pattern would score -1).[8]

The results are as follows:

Table 3. Relations between economic structure and education structure.

	Rank Correlations	
	Percentage in non-primary sector	Trade Composition Index
Educational attainment, P_{50}	0.67	0.54
Educational disparity, $P_{75}-P_{25}$	0.63	0.53
Educational disparity, $P_{95}-P_{10}$	0.58	0.43
Educational disparity, $P_{95}-P_{50}$	0.31	0.21

First, there is the high correlation between the structure of the economy and the educational attainment. This is well-known - "developed countries" are "developed countries". It is less trivial that there also is a positive relation between economic structure and educational disparity. And yet, the

tendencies are clear and in line with the hypotheses, although some of the correlations are weak. As for the relation between educational growth and educational disparity it is quite clear that $P_{75}-P_{25}$ - the traditional interquartile range - best captures the relationship we are looking for. This is perhaps not so strange, for many countries today have a little 5% educational elite at a distance from the rest, whereas only relatively few can muster as much as 25% elite of that kind. On the other hand, a 25% (or more) bottom group is found everywhere - although the nature of the bottom group differs from one country to the other.

Another aspect of the Table, worth pointing to, is the fa that the correlations obtained for the trade composition index are consistently lower than those obtained for the non-primary activity level. But this is not strange. The educational structure and the extent to which the country is removed from reliance on primary activity only both reflect the domestic situation, whereas the trade composition index reflects the international "division of labor". A country may have a production structure with a high level of processing and yet impo much manufactured goods and even export some raw material - as is the case with the United States and even more with the Soviet Union - both of them well ahead in educational growth and educational disparity. Conversely: the country may have a small industry for export only - even owned by a multination corporation and located there for reasons of convenience - dependent on raw materials from the outside. Needless to say, the educational level may remain extremely low in this type of country.

But such comments, necessary though they are, do not conc the major tendency: the countries tend to separate into those that have a higher level of processing built into their econom combined with educational growth and educational disparity, an those that have a lower level of processing in their economies combined with much less educational growth, but also with less educational disparity. This is the major finding and it can b summarized in one sentence: "economic growth" has not only bee accompanied by economic inequality (sometimes more, sometimes

usually about constant), but also by educational growth and educational inequality - and the latter seems at present to be increasing both within and between countries.

Let us now turn to a discussion of this.

6. Discussion

If one looks at Graph 1 some kind of visual image of the educational process that has taken place during the last centuries can be formed. Clearly, the bulk of the countries is still found down in the bottom left, in what above was referred to as Type I. It is as if they are in some kind of bottle, with a pent-up energy and out of this bottle explodes the educational spirit, like a cloud, dispersing in space and time.

This cloud has a structure, however, and it is also rather clear which parts of the world are left behind in the bottle. That this is the old distinction between "more developed countries" and "less developed countries" will surprise nobody. What is more significant is that there is hardly any mechanism at present that can counteract this dispersion of the cloud. Of course, one could imagine that there is a corresponding "bottle" in the upper right hand corner of the graph where all of them eventually come together, high on educational attainment and high on dispersion. But if this should happen it will obviously take much time, probably several centuries, and the net result would still be tremendous educational disparity, if no longer between countries, at least within them.

What happens right now seems rather to be that the countries left behind by and large are "trailing behind at snail's pace", along the same track where at the moment the two super-powers, the United States and the Soviet Union are in leading positions (together with some others). For every move the bottom countries make (for instance by making primary education obligatory in practice, not only in theory; by having some small expansion at the secondary and tertiary levels) the top countries would move even more, into concepts of life-long education, practically speaking obligatory secondary education, tertiary education for more than half of the cohort, and quarternary education for a sizeable fraction of the population. As we have argued in the first three sections this stands in a significant, if obvious, dialectical relationship with levels of processing in the production systems.

The point here is that not only does participation in international division of labor at a high level presuppose a corres-

ponding high level of education; this also holds vice versa. As educational growth takes place, within all countries, elites will emerge for whom only the higher levels of processing in the production system will be relevant, and it will be in their interest to keep a certain percentage of national and international populations relatively uneducated so that they can occupy lower positions in the same division of labor. Thus these two systems feed into each other and constitute a vicious circle built around the verticality of our present world system.

One could, however, imagine that this total system now runs into such difficulties that there will be a fallout from the cloud, a "precipitation" so to speak, down into the lower right hand corner of the graph - the missing Type IV. Thus, there are consistent reports from the most developed countries to the effect that there is a certain fatigue, not only in connection with economic growth, but also in connection with educational growth for economic purposes.[9] One could imagine that increasing numbers will drop out of colleges and universities, particularly of professional schools, and declare that "enough is enough". One could also imagine that the idea of education would not be given up, but would take other forms than schooling - and schooling is the aspect of education that our data and our analysis capture, not the much broader phenomenon of education as such, including self-education, education with no professional purpose at all, education for self-expansion, for self-enrichment.

At the same time one could also imagine that underprivileged groups, educationally speaking, in the population will catch up and that some type of stabilization will take place at a much lower level of disparity than at present - causing the general trend, the cloud, to dip downward - forced down by its own heaviness.

If this should happen, what would then happen to the countries still left behind in the bottom left, and those on the upward slope of the curve? For some of them the Chinese approach to education, the idea that nobody can, shall, will grow unless everybody grows, may be applicable. In other words, there will be a general, slow but simultaneous uplift of everybody, keeping disparity low, bringing about higher educational attainment - but

this will not be on a curve that first goes up and then dips down, but on a line more parallel to the growth axis; like a tunnel dug through the invisible mountain in the lower right hand corner of Graphs 1-6.

* * *

In this paper reference has been made to the People's Republic of China. Being a recent member of the UNESCO her appro to the problems of educational growth and educational disparity a not reflected in the data reported in UNESCO statistical yearbook Nor are they easily obtainable in Peking, it seems, but the Chine system can be studied in detail on the spot, with visits to sever schools, with extensive discussions, but impressions are based on one such study tour, with no claims as to validity for China as a whole. The educational strategies chosen by the Chinese after the Cultural Revolution are, however, generally known, so what is reported here are merely the impressions of two more observers.[10]

There is no doubt that the goal is to reduce educational disparity. Educational growth should take place in such a way that this benefit is not obtained at the cost of increasing disparity. Obviously, this can only be done by having people in general grow together rather than educating very well a small eli The Chinese, however, do not merely initiate some educational strategies designed to obtain this, such as heavy emphasis on pre school, primary school, also on secondary schools - but not so mu on tertiary education. They also needed a theory of ability, and a theory - indeed with practice - of economic structure.

As to the theory of ability some excerpts from an extensi interview with leading members of the Revolutionary Committee of a middle school in Peking might serve as an example of thinking:

> "Of course, people differ in ability. But a student who is weak in one field may be strong in another field. And these abilities are not something innate and unchanging. Abilities grow when they are made use of, through practic Practice is not only a way of testing and developing theo but a way of developing ability. Practice arises out of the challenge of a contradiction, and the important thing is that everybody should have access to challenge and practice - and grow accordingly.
>
> * * * * * *
>
> As abilities grow by being used they are not constant, an it does not make sense to say that a given individual has so and so much ability. Hence we do not have final exami ations and diplomas with grades on them in our school. R

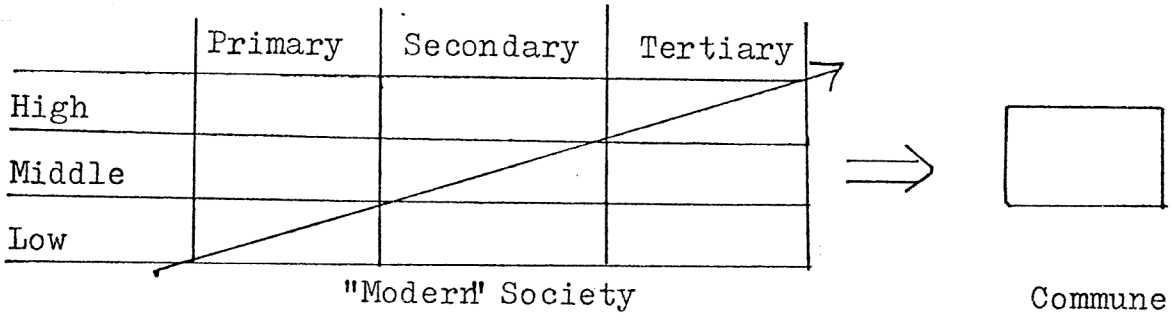
> we do make use of examinations during the school year, as a pedagogical method, as a check on students and teachers. Many of these examinations are collective, group examinations as the purpose is not to pass judgement on individuals. When students leave school they get a certificate of attendance, almost all of them get this, so that they leave as equals. They are not graded."

Underlying this seems to be the idea that whatever genetic differences there may be these are small relative to how much abilities can grow by being challenged - in other words, they will "wash out" in a society that (1) gives sufficient challenge to the members and (2) gives this challenge in relatively equal amounts to all its members. Either of these two conditions is of little significance without the other.

And that brings one straight to the theory/practice of economic structure. The important point seems to be the extent to which challenge is equalized. There are several ways in which this is done in present-day China, and one way of expressing it may be as follows.

In the societies known in the West, from the United States to the Soviet Union, it makes good sense to divide the population horizontally according to sector of economic activity and vertically according to such indicators as salary, power, prestige and also degree of challenge built into the job (although these indicators are by no means perfectly correlated). Thus, one gets a society that looks something like this:

Table 4. Two social models



The differentiation into nine cells is particularly pronounced in societies that still retain a landholding structure with big land owners. In general, however, it seems valid to assert that the

diagonal drawn in the left part of the figure is heavily correla with educational attainment, with the most educated working at t top of the tertiary sector and the least educated tilling the so Thus, there is tremendous discrepancy, not necessarily so much i objective challenge as in the "Spielraum" given to the individua when it comes to converting challenge into a practice that transcends given circumstances.

The Chinese have turned their backs to this type of society, partly by rotating individuals between what might remai of the cells, partly by reconstructing the entire system of production in such a way that the whole scheme becomes meaningless. Thus, a People's Commune also has factories and everybody seems to work all places, including administration. A factory worker also works in a commune. An engineer works as a worker, some da a week, one week a month, two months a year or some such formula a worker can get a one year theoretical course to become more lik an engineer -- till they both meet as worker-engineers. At the same time there seems to be considerable flexibility in society, decentralization and delegation of authority downwards (if that term is still meaningful) so as to leave to individuals and group chances of converting challenges into practice. In short, change are being undertaken in the economic structure, and have already proceeded very far, of such a kind that traditional division of labor between those who solve problems (the managers, the professionals) and those who implement the solution (functionaries, workers) is if not totally obliterated at least blurred, less sharp, less full of implications for differential growth.

With this theory of ability and this theory/practice of economic structure the major Chinese educational strategies become meaningful.

By and large these strategies seem relatively clear:
(1) Very much emphasis on universal kindergarten, pre-school and elementary school (5 years), possibly also on the middle school (5 years).
(2) In all schools heavy emphasis on challenge, on practice, on group work.

(3) No emphasis on sorting of individuals according to assumed ability, hence no exit examinations.

(4) Little emphasis on universities; low number of students (Peking University has only 5.000), short duration of study (3 years).

(5) Much emphasis on schooling for adults so that they are not left behind, e.g. courses for workers (1 year duration) at universities.

(6) Very much is done to tear down walls between schools and society in general,

- by having pupils work in factories or People's Communes two months every year - using factories as school
- by having factories inside the school, e.g. to make transistors - using schools as factories
- by having "outsiders", e.g. local workers' organizations represented on the Revolutionary Committee of a school,
- by having "outsiders" come in to teach

(7) Very much emphasis on generally available educational efforts, e.g. posters everywhere with detailed descriptions of production, of past history etc., apparently studied by everybody. In short, by making society more like a school, available for all.

However, it should be strongly emphasized that all these educational measures, where the general idea is that of "growing up together", have their counterpart in the economic structure with the corresponding idea of reducing, as far as possible, any division of labor between those who solve problems and those whose task it is to implement solutions. The entire Chinese theory and practice today, after the Cultural Revolution, are very conscious negations of the structure depicted in the figures in section 3 above. And this raises the very important problem of whether it is meaningful at all to change the educational structure without also changing the production structure. We shall not develop this theme here, except to make one little point: we simply do not know. The burden of proof - in theory and/or in practice - rests on the person whose answer is a clear yes or clear no. Our own answer would be "perhaps" - depending on the circumstances.

7. Conclusion.

There are three types of conclusions one might want to draw from this exercise: in clearly political terms, in theoretical terms - and more oriented towards methodology and future research in the field.

The field is understudied, of that there is no doubt. A search of the literature reveals practically speaking nothing abo educational inequality. In fact, the field is so understudied th even specialists tend to confuse the problems of inequality and injustice (and inequality of opportunity), and tend to regard the latter as the real problem and the former as a non-problem. In a sense this is easily understood: the entire Western theory and practice of education are centered on the twin ideas of individual and differential abilities, with the implication that the educati invested in an individual should be somehow proportionate to the individual ability, if for no other reason because it should be proportionate to the capacity to absorb. "Ability" is seen as an individual property, not as something that develops in a social setting. The individual is the target of education, not the collectivity. Hence, to question these twin assumptions comes close to questioning not only Western social structure, but even Western culture.

And yet it has to be done, because of the rapidly decreasing disparities made possible in a world where - after all - increasi proportions of the productive surplus are allocated to individuall targeted education. Anyone interested, even concerned with the problem of the increasing gaps will have to direct some of the co in the direction of education, and start questioning the whole pattern so clearly depicted in Graph 1. It gives additional food for thought to consider the circumstance that two big societies often considered not only different but antithetical - the United States and the Soviet Union - here come out very much in the same position - heading the race towards growth with increasing dis- parity. To challenge this system, hence, is to also challenge both superpowers.

Theoretically studies of this kind should make us understand

better the nature of post-industrial, neo-modern societies. They seem to be based on the concurrence between differentiated education and economic division of labor, on a strong alliance between two forms of verticality. Gradually the educational aspect seems to become more pronounced, possibly even to the point of becoming a causal factor of some significance. And that problem would, of course, be a major focus of interest for future studies.

But we are not quite there yet. There is a need for many more studies of a more exploratory character. Just to indicate some of the problems that could already today be studied profitably:

(1) Replication of the present type of study, but with better - above all more up-to-date - data. It would be of particular interest to repeat the study when a sufficient amount of data from 1970-71 census have entered the UNESCO data store.

(2) More diachronic studies, trying to analyze the trajectories of some countries over time, using as basic variables educational growth and educational disparity. Thus, it would be of some interest to know how the relative growth rates vary through time - what grows fastest, attainment or disparity?

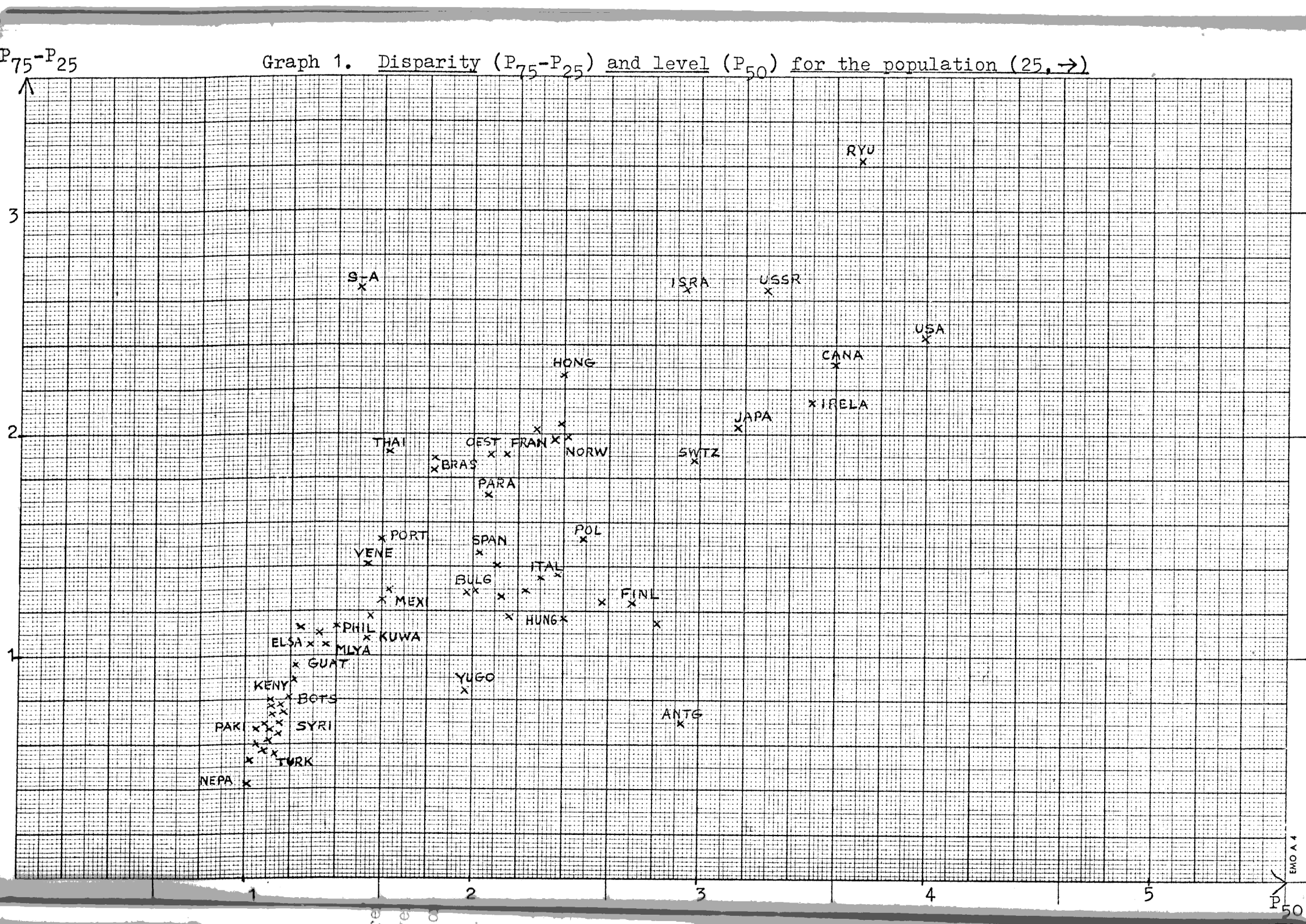
(3) More variation in the methodology of the study. Thus, there is the problem of the parameters and the variables chosen. Using the Gini index the picture changes, and although we feel there are important arguments against the Gini index there are also some arguments in favor. The same applies to the measure of attainment: should it be by level of education attained? by number of years of schooling? should there by some type of correction to standardize the measures? and so on.

(4) More particularly: in addition to studying the distribution of schooling in the population 25+ and/or in cohorts one could also study the school structure, simply looking at the number of positions (as student/pupil) available at the various levels at a given point in time. In other words, one could study the machinery rather than the product, and in that connection also look at plans, intentions, educational ideologies etc.

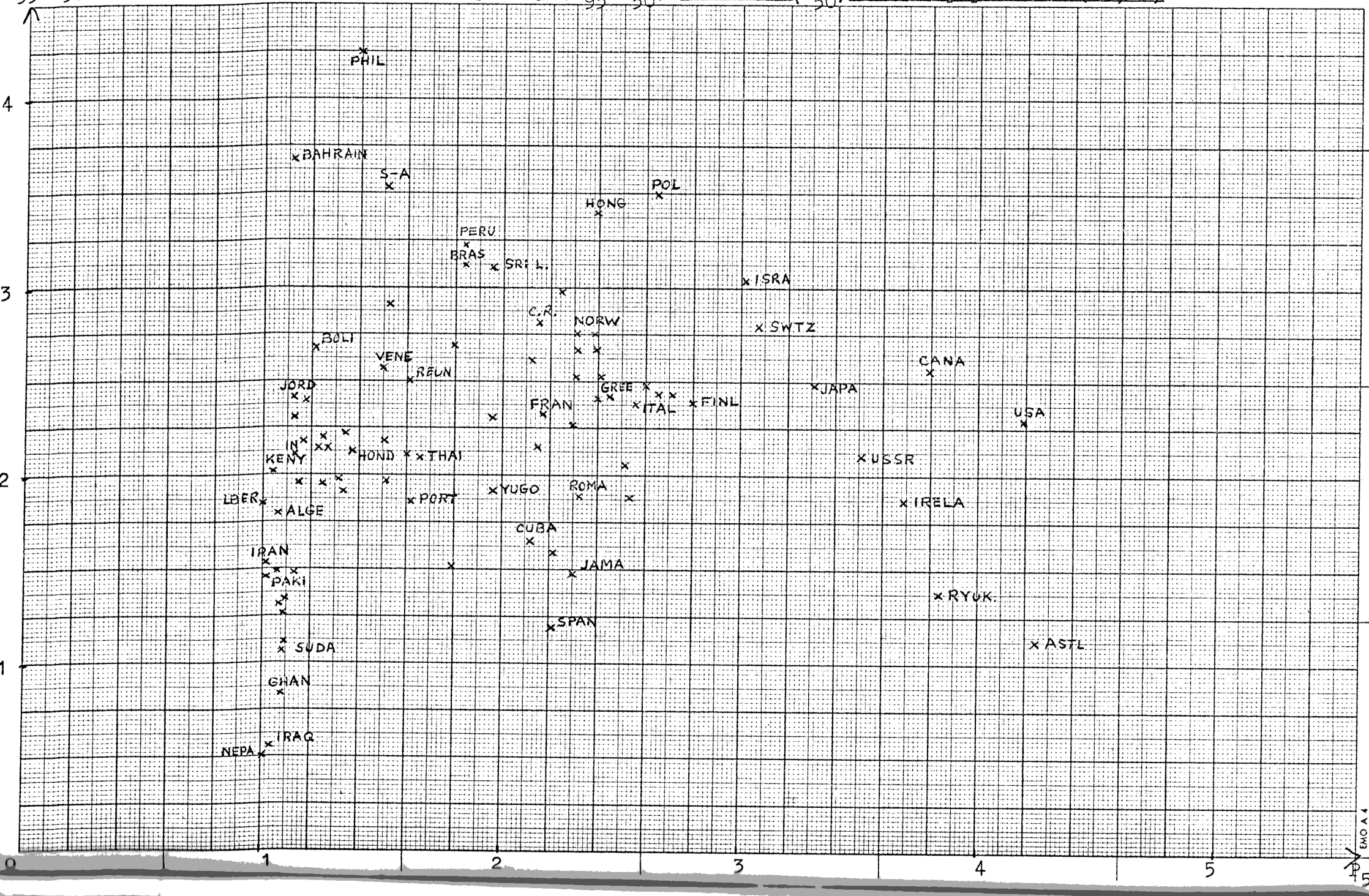
(5) Very important in this connection would be further studies of the relationship between education and the economy. There are many ways of doing this, and one way would be to go more deeply into the problems of division of labor and particularly to what extent learning is instrumental, and to what extent it merely serves to sort and separate pupils and students so as to serve as a pretext for verticality.

(6) Last but not least: as the only country significantly differe from the general trend is the People's Republic of China it is ve much to be hoped that in-depth studies of how this system functi might be carried out - by the Chinese themselves, in cooperation with researchers from other parts of the world.

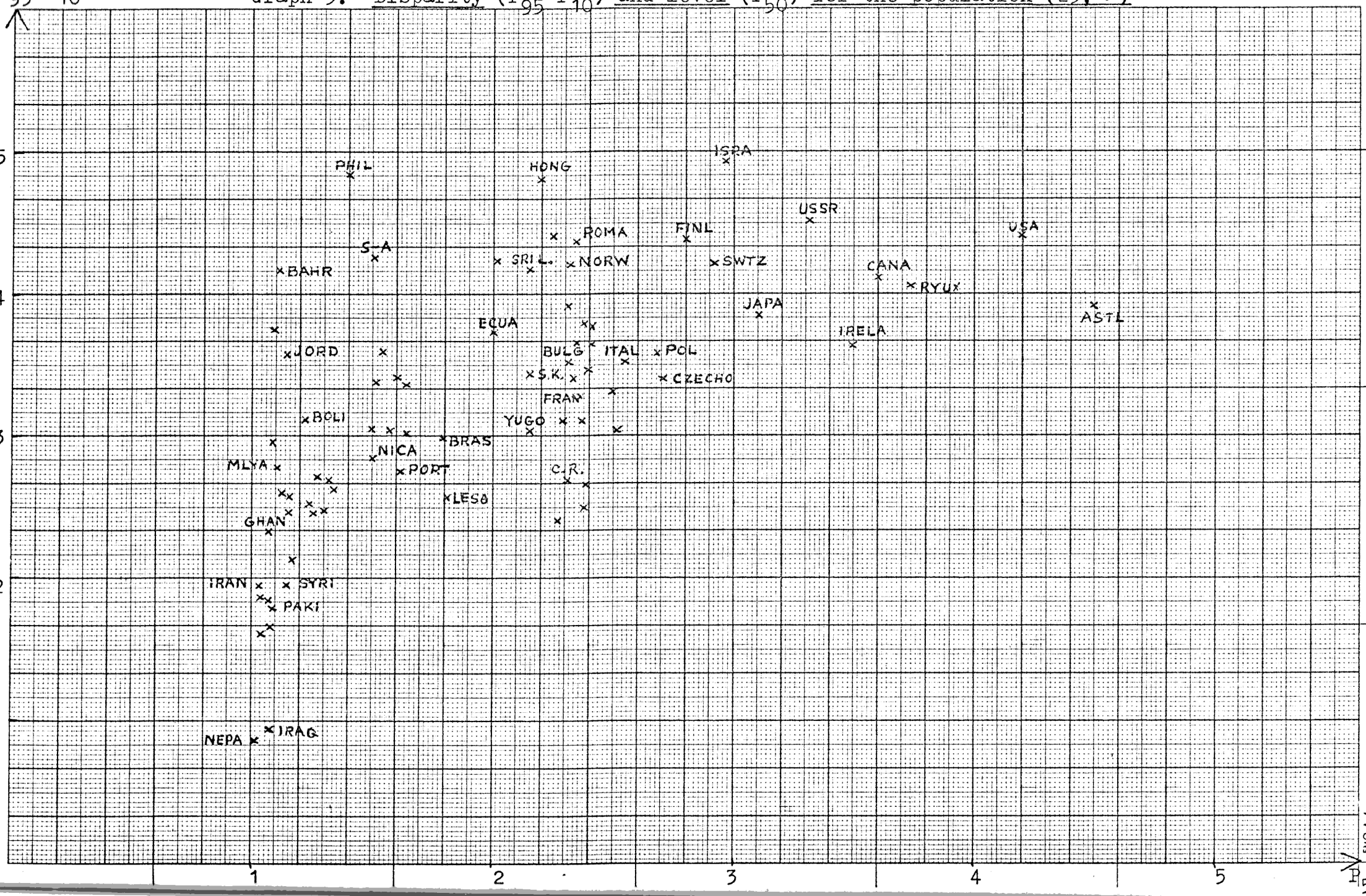
Graph 1. Disparity ($P_{75}-P_{25}$) and level (P_{50}) for the population (25, →)



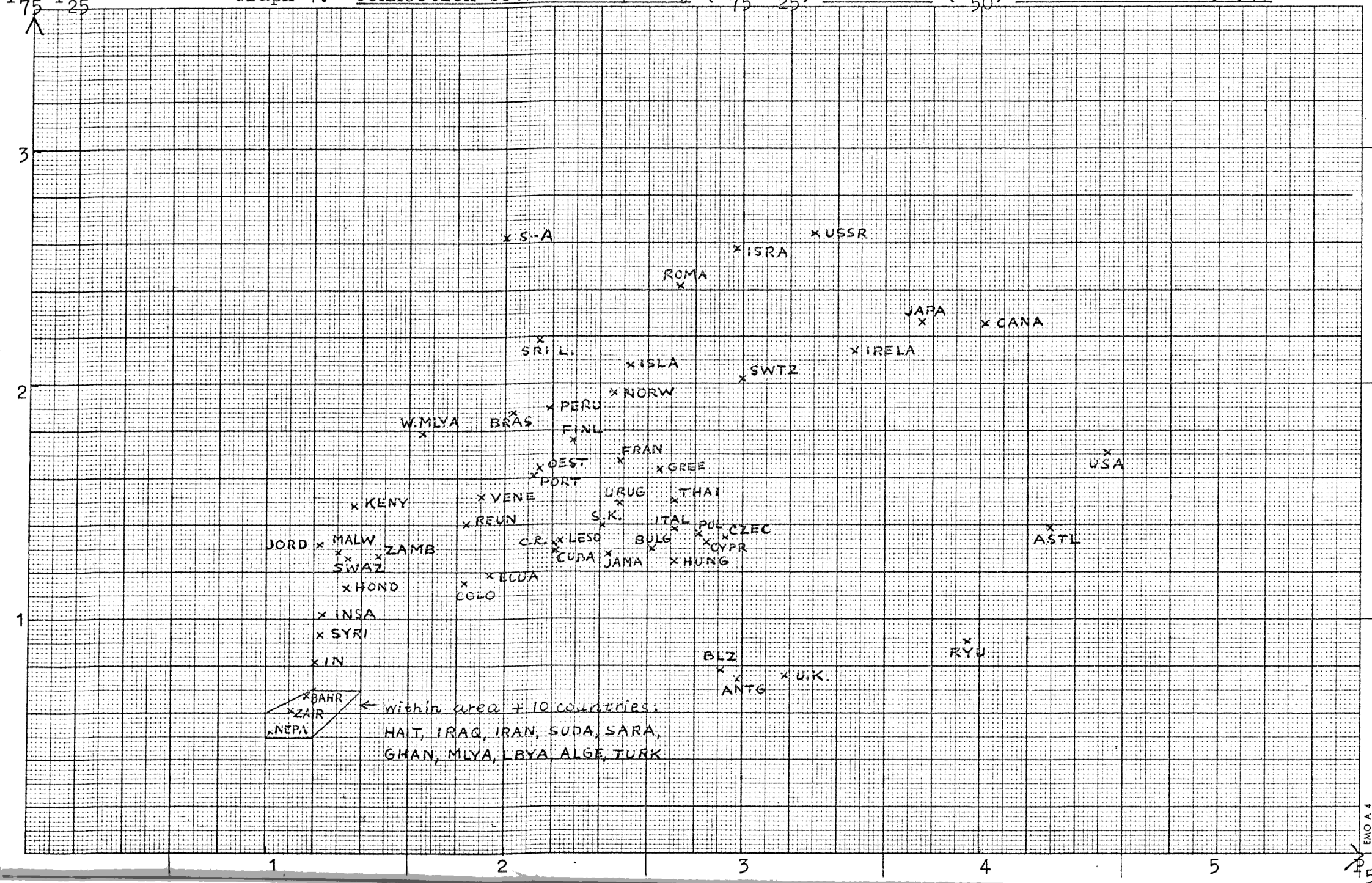
Graph 2. Disparity ($P_{95}-P_{50}$) and level (P_{50}) for the population (25, →)

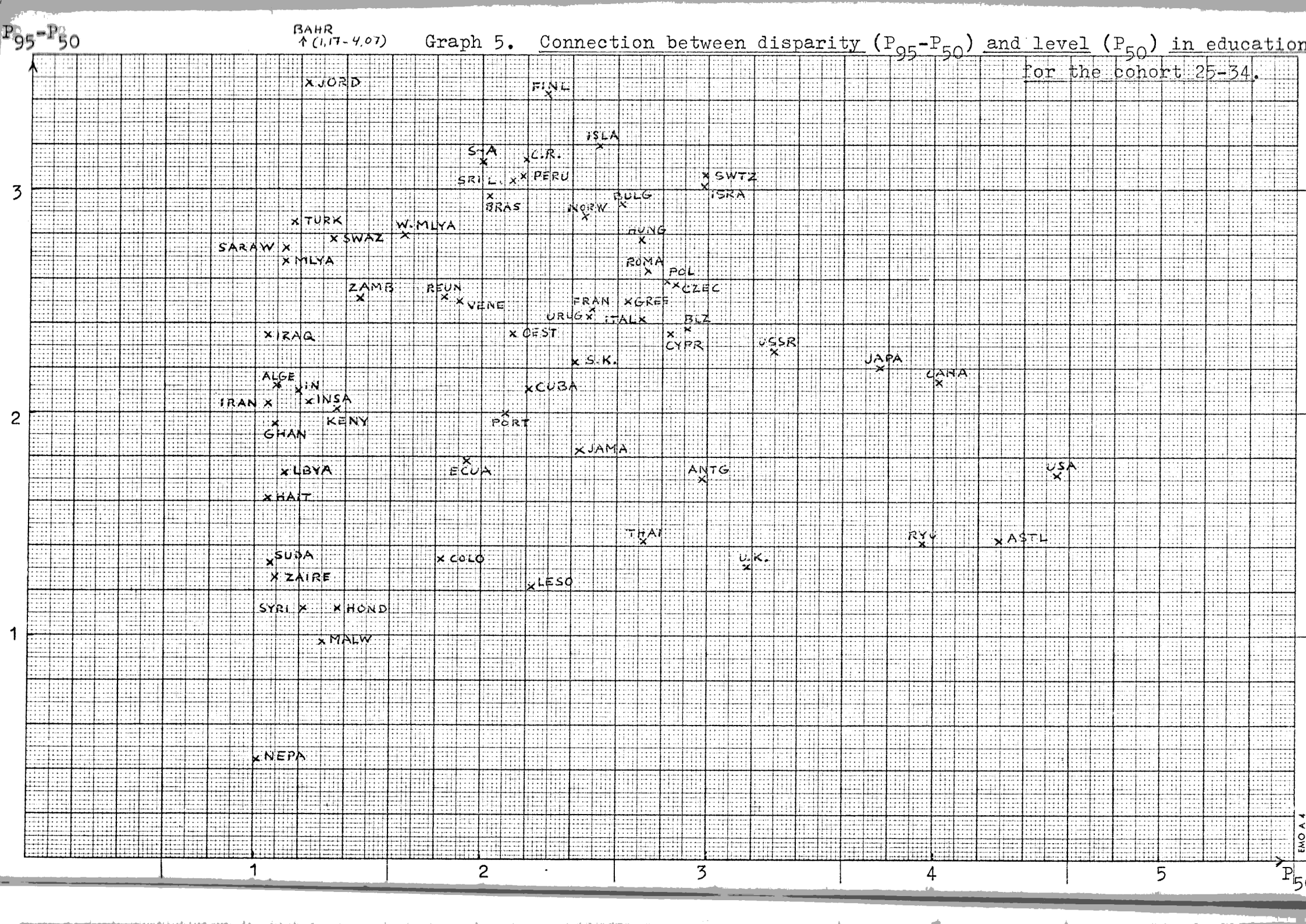


Graph 3. Disparity ($P_{95}-P_{10}$) and level (P_{50}) for the population (25,→)



Graph 4. Connection between disparity ($P_{75}-P_{25}$) and level (P_{50}) for the cohort 25-34.




$P_{95}-P_{50}$
BAHR
↑ (1,17 - 4,07)
Graph 5. Connection between disparity ($P_{95}-P_{50}$) and level (P_{50}) in education for the cohort 25-34.
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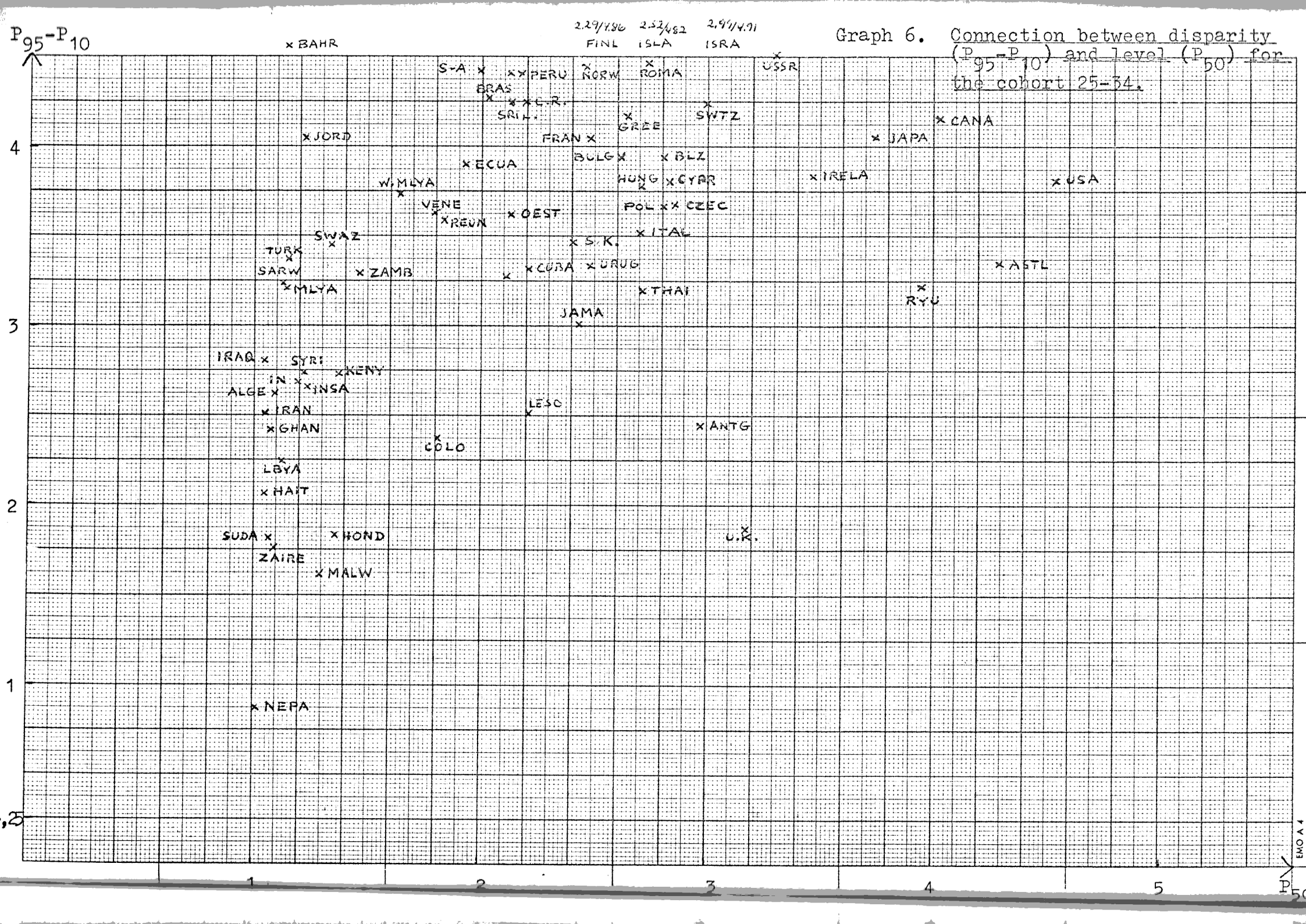
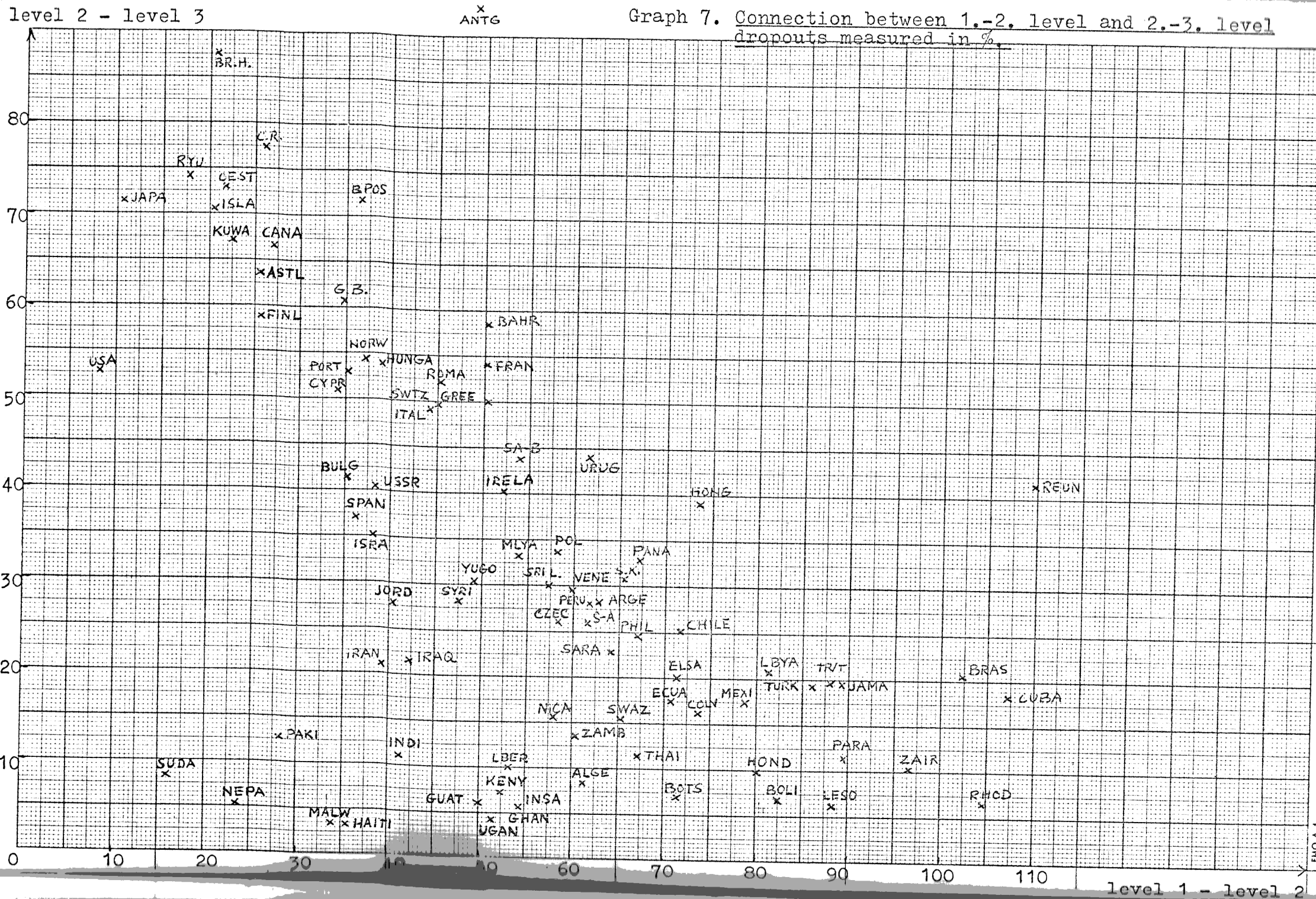


Graph 6. Connection between disparity ($P_{95}-P_{10}$) and level (P_{50}) for the cohort 25-34.

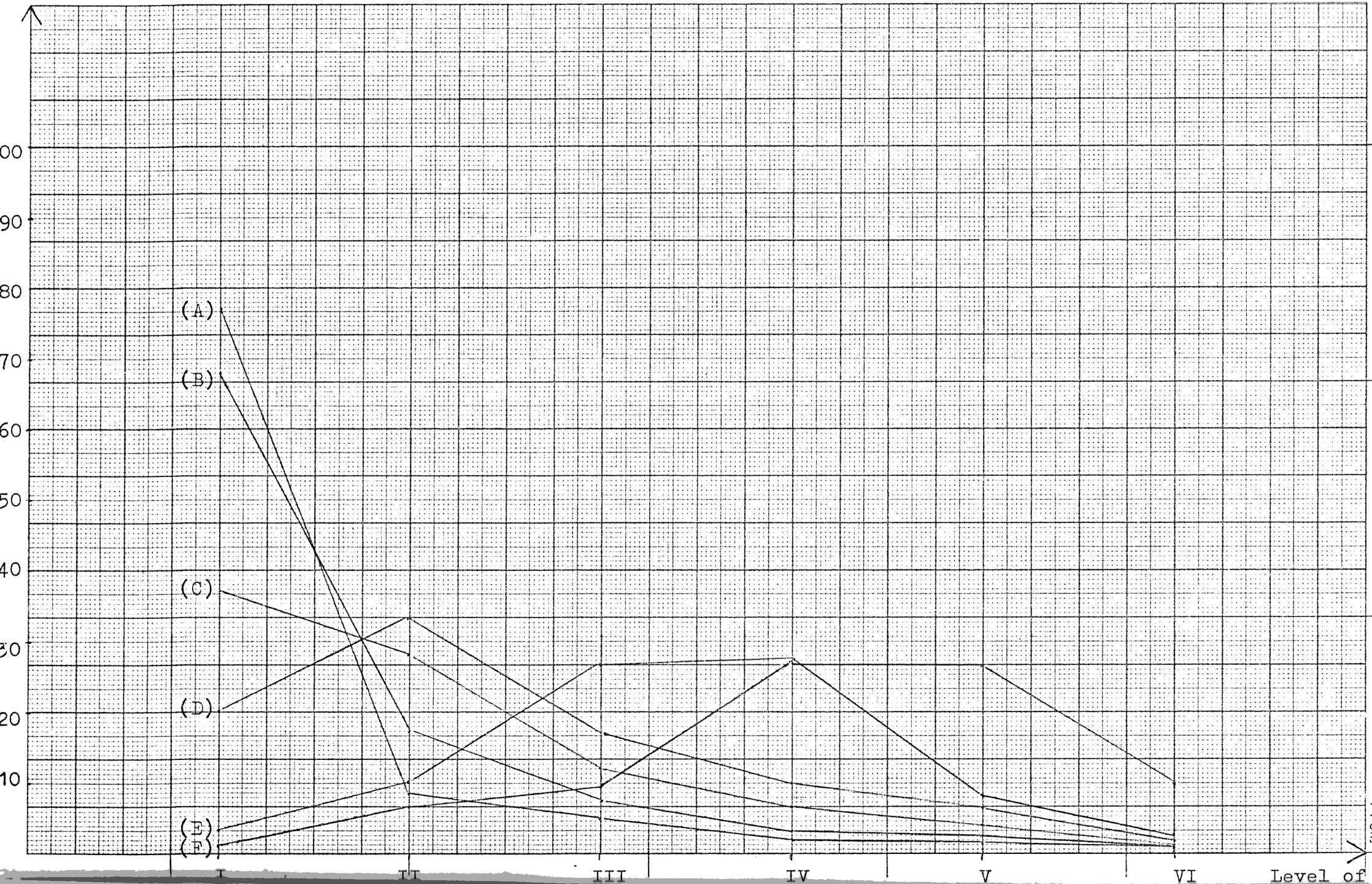
level 2 - level 3

Graph 7. Connection between 1.-2. level and 2.-3. level dropouts measured in %.

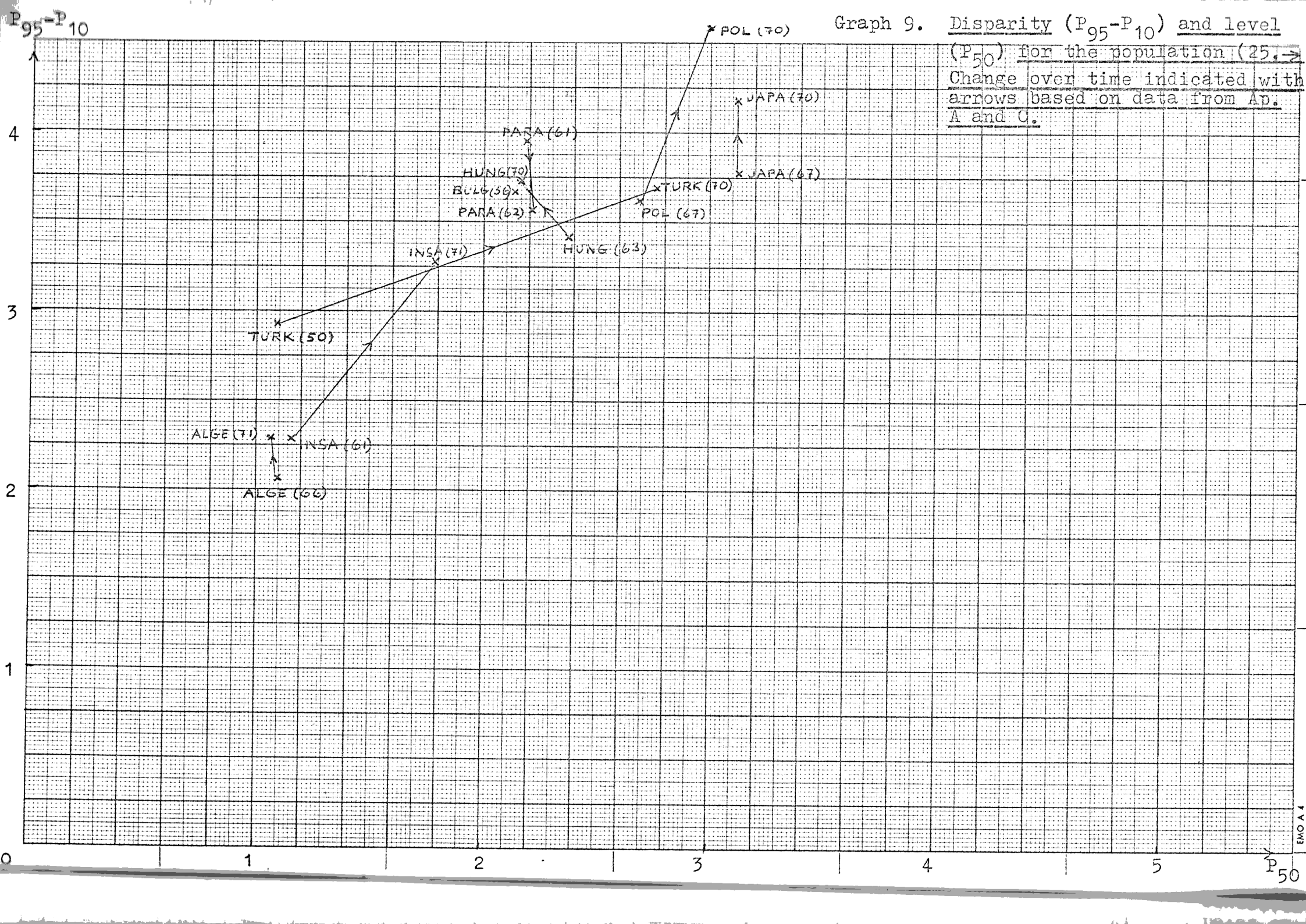


% of population

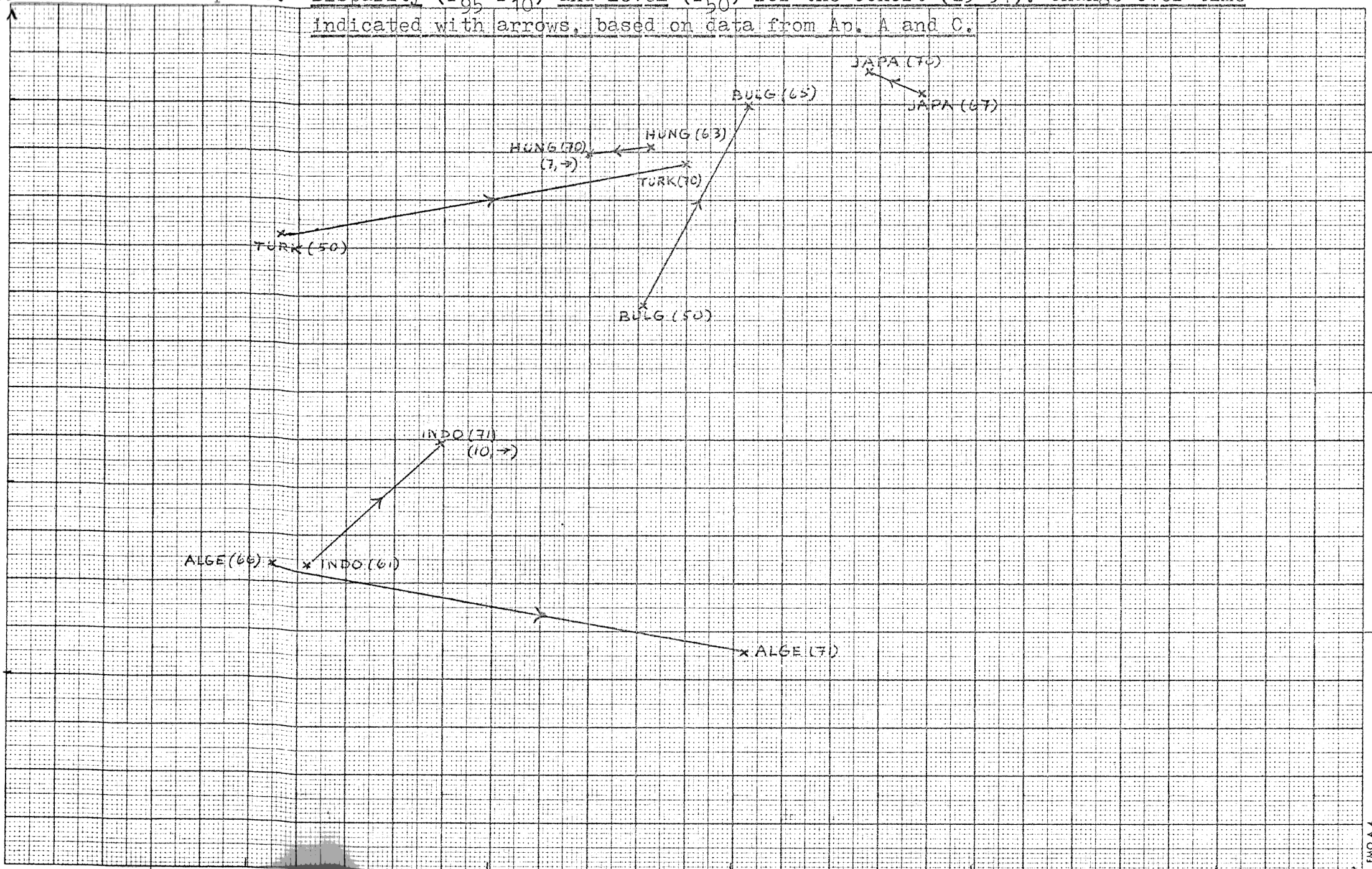
Graph 8. Six Types of Frequency Distributions of Educational Attainment



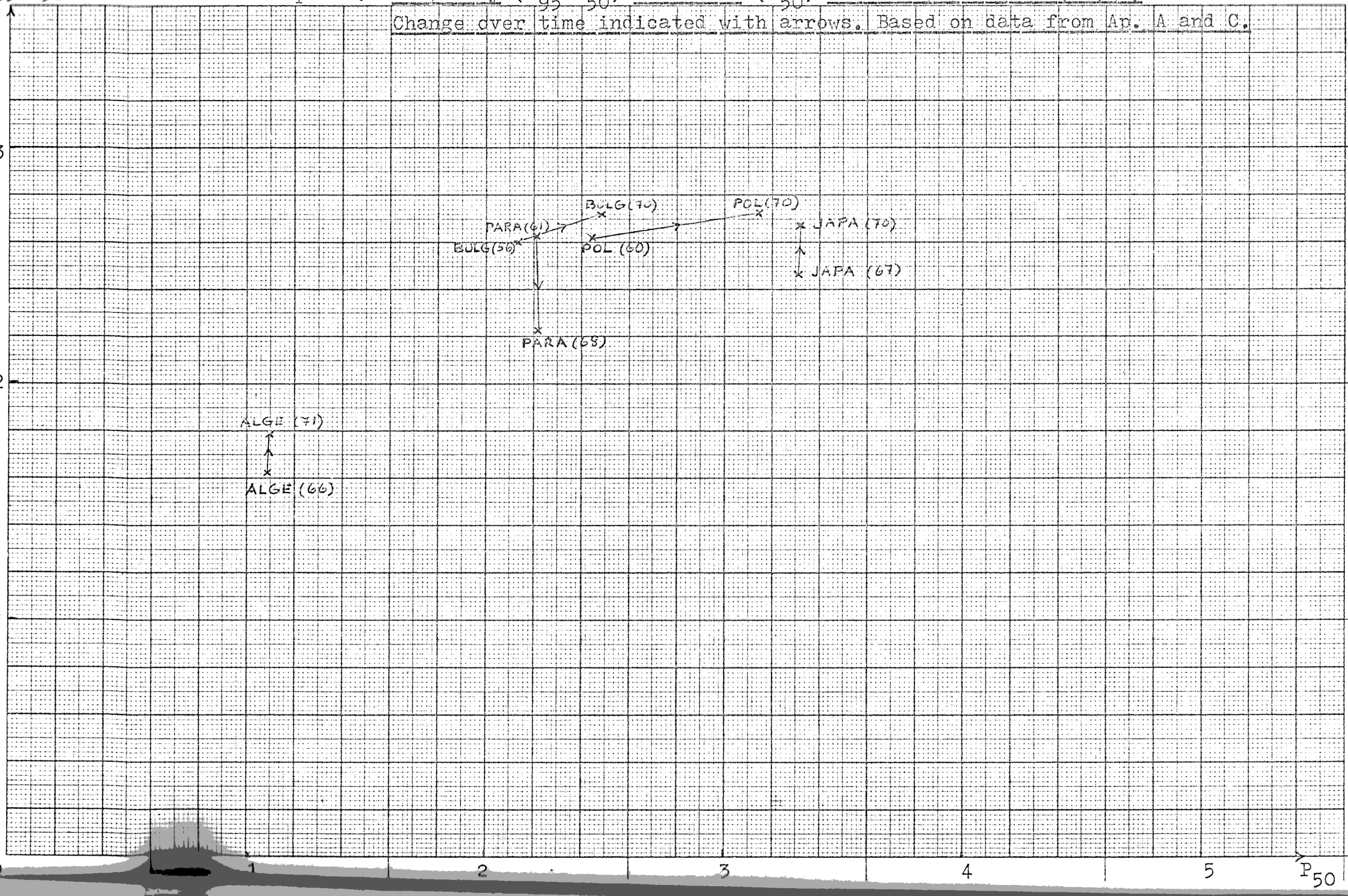
Graph 9. Disparity ($P_{95}-P_{10}$) and level (P_{50}) for the population (25.→ Change over time indicated with arrows based on data from Ap. A and C.



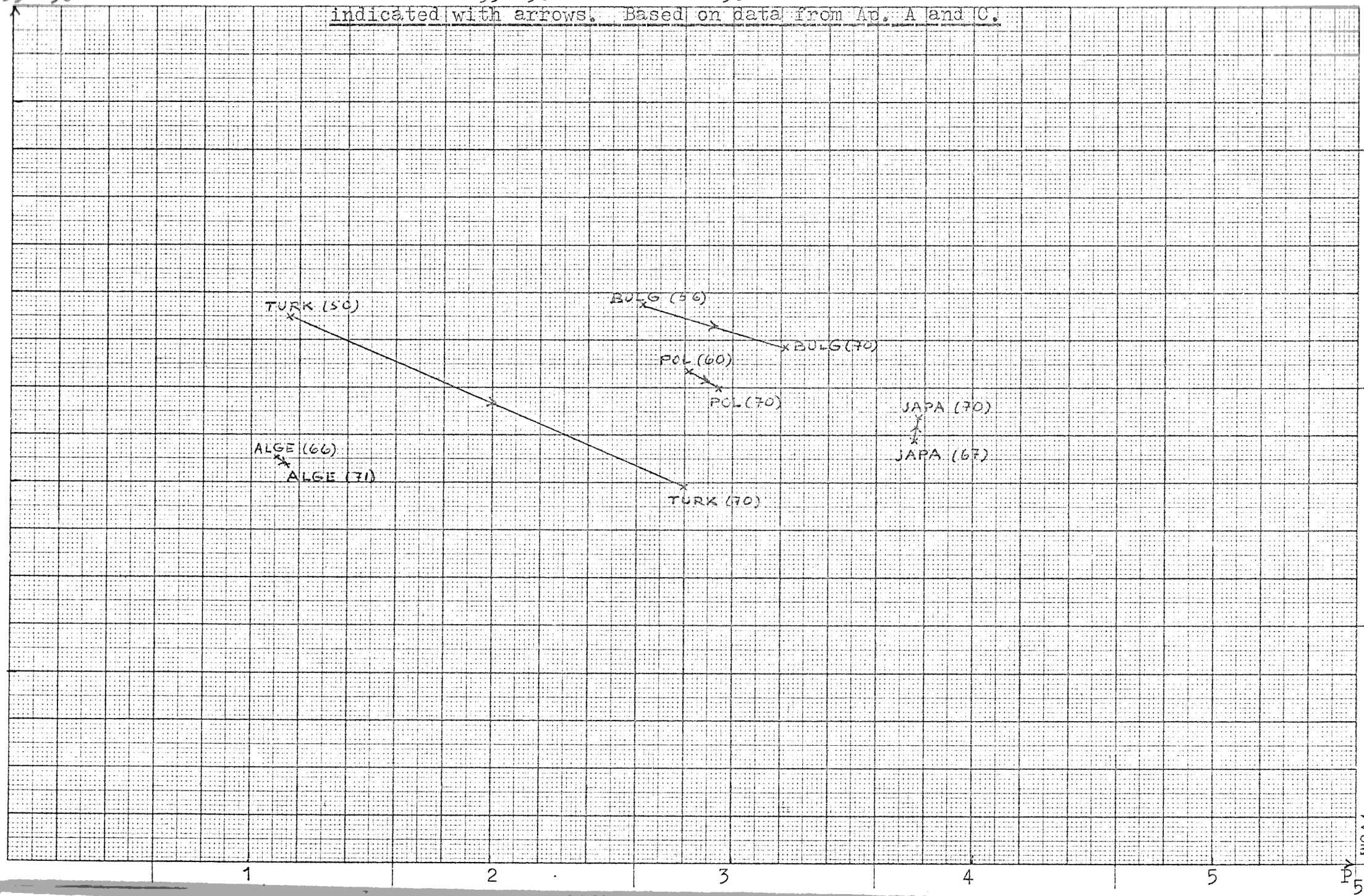
Graph 10. Disparity ($P_{95}-P_{10}$) and level (P_{50}) for the cohort (25-34). Change over time indicated with arrows, based on data from Ap. A and C.



Graph 11. Disparity ($P_{95}-P_{50}$) and level (P_{50}) for the population (25,→).
Change over time indicated with arrows. Based on data from Ap. A and C.



Graph 12. Disparity ($P_{95}-P_{50}$) and level (P_{50}) for the cohort (25, ⇒). Change over time indicated with arrows. Based on data from Ap. A and C.



N O T E S

* This project was carried out in 1973 under a contract with the UNESCO, Division of Statistics on Education, Office of Statistics, Communication Sector. We are deeply indebted to Leo Goldstone of that Division for encouraging us to undertake the study, for helpfulness in making data available, and for the useful comments from him as well as from his colleagues. The responsibility for data analysis and interpretation, however, rests with the authors alone.

1. For a more complete presentation of such goals, and particularly the difference between equality and justice, see Johan Galtung, The True Worlds: A Transnational Perspective, chapter 2.2, forthcoming.

2. This type of debate seems to be particularly prominent in US and English intellectual debates. Important recent publications are Inequality, by Christopher Jenks and others and IQ in the Meritocracy by Richard Herrnstein (both published in Britain by Allen Lane, The Penguin Press). Then there is The Inequality of Man, by Hans Eysenck (published by Temple Smith). Excellent reveiws of the books are found in The Times, 8 November 1973 and The Sunday Times, 11 November 1973.

3. For more details on this, see Johan Galtung, "Structural Pluralism and the Future of Human Society", Second International Futures Research Conferences, Kodansha Publishing House, Tokyo, 1971.

4. We are indebted to Fumiko Nishimura for this metaphor. That degree of challenge and stimulation should have something to do with ability growth seems rather like a truism; it would be surprising if it could be proved to be otherwise. For that reason the following little report in TIME Magazine (26 February 1973) has a ring of the naive:

> "Kangas found an unexpected variation between IQ changes in men and women: among men those with the highest IQs as children showed the greatest increase in IQ scores as adults. But among women, those who were brightest as youngsters made the smallest gains in adulthood. Most of the female subjects were housewives or held undemanding jobs, while all of the males had stimulating careers. For this reason, Kangas attributes the male-female IQ differences to his subjects' jobs - or lack of them. Though he admits that he cannot prove it, he theorizes that performing menial tasks may not only bore some women, but may even hold them back intellectually".

It should be added that an hypothesis of this kind cannot be tested in any society. It can only be effectively tested in a society where the social structure is organized in such a way that challenge is sufficiently evenly distributed, e.g. among men and women.

5. For some elaboration of this, see Johan Galtung, "A Structural Theory of Imperialism", Journal of Peace Research, 1971, pp. 81-117 and Johan Galtung, Economics and Peace Research, mimeo, 1973.

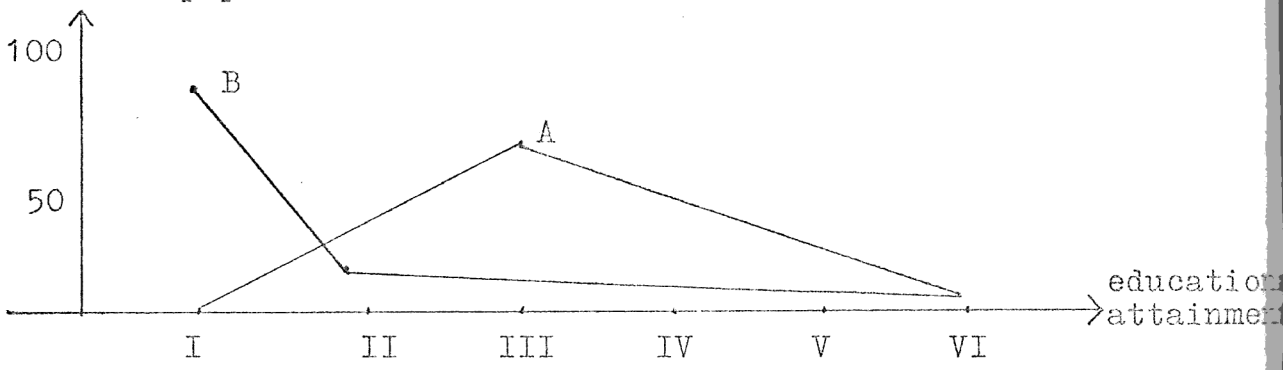
6a. The problem with the GINI index is that it does not reflect the absolute distance between high and low in society. It tells us something about what percent of the population has what percent of the total amount of education found in society, but would yield exactly the same measure of the scale of education was multiplied by ten, running from a difference of three years from minimum to maximum, to a difference of ten years. But we want a measure that reflects the distance between the upper and lower levels, not only the percentage distribution - although the latter may also be of interest.

An example might make this more clear. Imagine two countries A and B, with the same population, but A has 200 and B 1000 units of education, distributed as follows on the population:

Level	% of the population	Units of education (years)	
		A	B
High	10	200	100
Medium	30	400	60
Low	60	400	40
Total	100	1000	200

This will give: GIa less than GIb (0.22 - 0.41). That means more educational inequality in B than in A; A has "better distribution" when measured this way.

If, however, we use a frequency distribution expressing educational attainment of the two countries with reference to the same scale, this could give something like this:



All absolute measures of dispersion, such as percentiles, differences between percentiles, standard deviations, and the like, would yield larger educational disparity in A than in B.

Educational disparity	A	B
$P_{95} - P_{10}$	17	9.9
$P_{95} - P_{50}$	12	9
$P_{75} - P_{25}$	8.5	5.7

And it seems to be more valid to interpret educational disparity in the latter way for it tells us more about the distance within the society. Besides, GI gives too much emphasis to the extreme values, thus weakening further its adequacy when comparing countries with different quantity of education.

6b. This is the methodological strategy of replication. For the strategy to be of any value there has to be some correlation between the indicators (here dispersion measures); high enough to warrant the conclusion that they reflect some of the same property, low enough to warrant the conclusion that if a hypothesis is confirmed "across the board", then this is not a trivial result. When correlating the three measures of disparity we get:

Population 25+	Cohort 25-34
$r_{P_{95}-P_{10},\ P_{75}-P_{25}} = 0,78$	$r_{P_{95}-P_{10},\ P_{75}-P_{25}} = 0.69$
$r_{P_{95}-P_{10},\ P_{95}-P_{50}} = 0,70$	$r_{P_{95}-P_{10},\ P_{95}-P_{50}} = 0.45$
$r_{P_{95}-P_{50},\ P_{75}-P_{25}} = 0,66$	$r_{P_{95}-P_{50},\ P_{75}-P_{25}} = 0.82$

These coefficients of correlation indicate obvious relationships between the three parameters. However, they are not so closely correlated that they cannot be said to measure somewhat different aspects of disparity. Hence a replication of our basic finding across the parameters would not be trivial.

7. Thus, four out of five arrows connecting data from the 'sixties with data from 1970 and 1971 point towards higher disparity - as measured by $P_{95}-P_{50}$, for the population 25+. But if we look at the cohort 25-34 for the same period and the same disparity measure we get a trend towards lower disparity. The data are extremely unsatisfactory, however, so we would rather not draw any conclusion at all - only venture the hypothesis that whereas disparity may be increasing in the population as a whole it may be declining within a cohort. This should definitely be explored further.

8. The data are found in the Appendix of the article "A Structural Theory of Imperialism", see footnote 5.

9. Ivan Illich's Deschooling Society is now already becoming a classic in the field.

10. From Johan Galtung and Fumiko Nishimura, Learning from the Chinese, mimeo, 1973, section on education.

Appendix A. Percentiles for the population 25+

(from UNESCO Stat. Yearbook 1971, Table 1.4)

Year	State	P_{10}	P_{25}	P_{50}	P_{75}	P_{95}	$P_{75}-P_{25}$	$P_{95}-P_{10}$	$P_{95}-$
	AFRICA								
66	Algerie	0.62	0.79	1.08	1.37	2.70	0.58	2.08	1.6
64	Botswana	0.64	0.90	1.19	1.69	3.32	0.79	2.68	2.1
60	Ghana	0.62	0.79	1.08	1.37	2.93	0.58	2.31	1.8
62	Kenya	0.63	0.83	1.15	1.48	3.24	0.65	2.61	2.0
66	Lesotho	0.74	1.11	1.81	2.69	3.32	1.58	2.58	1.5
62	Liberia	0.61	0.77	1.04	1.31	2.71	0.54	2.10	1.6
66	Malawi	0.65	0.87	1.24	1.97	3.21	1.10	2.56	1.9
64	Libya	0.62	0.80	1.09	1.39	2.33	0,59	1.71	1.2
67	Réunion	0.72	1.04	1.61	2.33	4.12	1.29	3.40	2.5
60	S.Africa	0,70	1.00	1.50	3.65	5.14	2.65	4.44	3.6
62	S.Rhodesia	0.69	0.93	1.35	1.99	3.25	1.06	2.66	1.9
56	Sudan	0.61	0.78	1.05	1.33	2.12	0.55	1.51	1.0
66	Swaziland	0.64	0.84	1.18	1.62	3.79	0.78	3.15	2.4
59	Uganda	0.64	0.78	1.06	1.34	3.34	0.56	2.02	1.2
55	Rep.of Zaire	0.61	0.78	1.06	1.34	2.15	0.56	1.54	1.0
69	Zambia	0.65	0.89	1.28	1.93	3.39	1.04	2.74	2.1
	AMERICA N								
60	Antigua	1.93	2.60	2.94	3.27	4.31	0.67	2.74	2.1
60	Barbados	1.68	1.91	2.33	3.15	5.03	1.24	3.35	2.7
60	Br.Hond.	1.20	2.20	2.86	3.28	5.04	1.08	3.84	1.1
61	Canada	2.01	2.49	3.60	4.82	6.12	2.33	4.11	2.5
63	Costa Rica	0.99	1.59	2.19	2.78	5.00	1.19	4.01	2.8
53	Cuba	0.91	1.51	2.12	2.85	3.85	1.34	2.94	1.7
61	ElSalvador	0.66	0.91	1.31	1.97	3.19	1.06	2.53	1.8
64	Guatemala	0.64	0.86	1.22	1.79	3.37	0.93	2.73	2.1
50	Haiti	0.61	0.78	1.05	1.33	2.46	0.55	1.85	1.4
61	Honduras	0.66	0.91	1.32	2.00	3.37	1.09	2.71	2.0
60	Jamaica	1.03	1.68	2.30	2.99	3.81	1.31	2.78	1.5
60	Mexico	0.72	1.04	1.60	2.27	3.75	1.23	3.03	2.1
63	Nicaragua	0.66	1.00	1.51	2.17	3.49	1.17	2.83	1.9
60	Panama	0.89	1.48	2.33	3.18	4.90	1.70	4.01	2.5
60	Trinidad & Tobago	1.40	1.88	2.59	3.25	4.50	1.37	3.10	1.9
60	U.S.A.	1.89	2.66	4.00	5.11	6.29	2.45	4.40	2.2

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ear	State	P_{10}	P_{25}	P_{50}	P_{75}	P_{95}	$P_{75}-P_{25}$	$P_{95}-P_{10}$	$P_{95}-P_{50}$
	S. AMERICA								
0	Argentina	1.33	1.77	2.42	3.09	5.15	1.32	3.82	2.73
0	Bolivia	0.63	0.86	1.21	1.74	3.80	0.88	3.17	2.69
0	Brasil	0.74	1.09	1.82	2.90	4.83	1.81	4.09	3.11
0	Chile	1.00	1.64	2.40	3.47	5.12	1.83	4.12	2.72
1	Columbia	0.73	1.07	1.66	2.28	4.10	1.08	3.37	2.44
2	Ecuador	0.76	1.16	1.80	2.43	4.50	1.27	3.74	2.70
0	Rep.of Guyana	1.27	1.83	2.50	3.14	4.63	1.31	3.36	2.13
1	Paraguay	0.88	1.45	2.22	2.99	4.86	1.54	3.98	2.64
1	Peru	0.73	1.08	1.82	2.93	5.01	1.85	4.28	3.19
3	Uruguay	1.20	1.74	2.29	3.13	4.47	1.39	3.27	2.18
1	Venezuela	0.70	1.01	1.53	2.41	4.08	1.40	3.38	2.55
	ASIA								
5	Bahrein	0.62	0.81	1.11	1.42	4.79	0.61	4.17	3.68
3	Ceylon	0.81	1.27	1.95	2.95	5.06	1.58	4.25	3.11
0	Cypros	0.85	1.37	2.42	3.18	4.95	1.81	4.10	2.53
6	Hong Kong	0.78	1.19	2.20	3.44	5.58	2.25	4.80	3.39
1	India	0.63	0.83	1.16	1.49	3.25	0.66	2.62	2.09
1	Indonesia	0.63	0.83	1.16	1.49	3.09	0.66	2.46	1.44
6	Iran	0.61	0.77	1.03	1.30	2.53	0.53	1.92	1.51
5	Irak	0.61	0.77	1.03	1.30	1.58	0.53	0.97	0.55
1	Israel	1.02	1.78	2.96	4.50	5.99	2.72	4.97	3.03
7	Japan	1.80	2.30	3.12	4.32	5.59	2.02	3.79	2.46
1	Jordan	0.63	0.82	1.13	1.45	4.23	0.63	3.60	2.43
5	Rep of Korea	0.84	1.34	1.96	2.58	4.26	1.24	3.42	2.30
1	Kuwait	0.70	1.01	1.52	2.14	3.69	1.13	2.99	2.17
0	Malaysia	0.62	0.81	1.12	1.43	3.40	0.62	2.78	2.28
0	Sarawak	0.62	0.80	1.09	1.39	3.39	0.59	3.77	1.40
7	W.Malaysia	0.67	0.93	1.35	2.00	4.27	1.07	3.60	2.91
1	Nepal	0.60	0.76	1.01	1.27	1.47	0.51	0.87	0.48
1	Pakistan	0.62	0.79	1.08	1.37	2.40	0.58	1.78	1.32
0	Philippines	0.80	0.95	1.46	2.07	5.70	1.12	4.90	4.30
0	Ruyuku Islands	1.11	1.34	3.72	4.65	5.15	3.31	4.04	1.43
0	Syria	0.64	0.83	1.15	1.48	2.60	0.65	1.96	1.45
0	Thailand	0.71	1.02	1.64	2.93	3.74	1.91	3.03	2.10
0	Turkey	0.61	0.80	1.10	1.40	3.55	0.60	2.94	2.45

Year	State	P_{10}	P_{25}	P_{50}	P_{75}	P_{95}	$P_{75}-P_{25}$	$P_{95}-P_{10}$	P_{95}	Year
	EUROPE									
61	Austria	0.82	1.31	2.14	2.98	4.28	1.67	3.46	2.1	
56	Bulgaria	1.07	1.55	2.15	2.80	4.77	1.35	3.70	2.6	
61	Tsjekkoslovak.	1.72	2.08	2.08	3.28	5.12	1.20	3.40	2.4	66
60	Finland	0.83	2.02	2.80	3.24	5.20	1.22	4.37	2.4	60
62	France	0.84	1.34	2.18	3.00	4.48	1.66	3.64	2.3	62
61	Greece	0.88	1.45	2.40	3.13	4.89	1.68	4.01	2.4	66
63	Hungary	1.67	2.01	2.60	3.18	5.12	1.17	3.45	2.5	64
60	Island	0.84	1.48	2.25	3.10	5.23	1.62	4.39	2.9	66
66	Ireland	1.76	2.49	3.49	4.66	5.40	2.15	3.64	1.9	67
61	Italy	1.38	1.88	2.55	3.25	4.94	1.37	3.56	2.3	60
60	Norway	0.86	1.39	2.32	3.21	5.06	1.82	4.26	2.7	56
60	Poland	1.54	1.96	2.66	3.45	5.12	1.49	3.58	2.4	66
60	Portugal	0.72	1.05	1.61	2.59	3.48	1.54	2.76	1.8	69
66	Romania	0.85	1.42	2.33	3.25	5.21	1.83	4.36	2.8	55
60	Spania	0.91	1.51	2.22	2.93	3.41	1.42	2.50	1.1	
60	Sveits	1.79	2.22	2.98	4.07	5.97	1.85	4.19	2.9	60
50	U.K.	2.25	2.84	3.26	3.60	4.40	0.76	2.15	1.1	60
61	Yugoslavia	0.83	1.57	1.98	2.39	3.80	0.82	2.97	1.8	61
59	U.S.S.R.	0.93	1.90	3.31	4.55	5.44	2.65	4.51	2.1	63
66	AUSTRALIA	1.55	3.59	4.36	4.98	5.49	1.39	3.94	1.1	53
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Appendix B. Percentiles for the cohort 25-34

(from UNESCO Stat. Yearbook 1971, Table 1.4)

Year	State	P_{10}	P_{25}	P_{50}	P_{75}	P_{95}	$P_{75}-P_{25}$	$P_{95}-P_{10}$	$P_{95}-P_{50}$
	AFRICA								
56	Algerie	0.62	0.80	1.10	1.40	3.24	0.60	2.62	2.14
60	Ghana	0.62	0.79	1.08	1.38	3.05	0.59	2.43	1.97
62	Kenya	0.68	0.94	1.38	2.42	3.41	1.48	2.73	2.03
66	Lesotho	0.93	1.55	2.22	2.90	3.44	1.35	2.51	1.22
64	Libya	0.63	0.82	1.13	1.45	2.87	0.63	2.24	1.74
66	Malawi	0.66	0.90	1.30	2.18	2.27	1.28	1.61	0.97
67	Réunion	0.77	1.18	1.85	2.58	4.37	1.40	3.60	2.53
60	S. Africa	0.72	1.06	2.00	3.69	5.14	2.63	4.42	3.14
66	Sudan	0.61	0.79	1.07	1.36	2.40	0.57	1.79	1.33
66	Swaziland	0.67	0.92	1.37	2.15	4.13	1.23	3.46	2.79
69	Zambia	0.69	0.98	1.47	2.25	3.99	1.27	3.30	2.52
65	Zaire	0.62	0.80	1.10	1.40	2.37	0.60	1.75	1.27
	AMERICA N								
60	Antigua	2.25	2.58	2.99	3.32	4.70	0.74	2.45	1.71
60	Br.Honduras	1.34	2.52	2.91	3.30	5.29	0.78	3.95	2.37
61	Canada	2.01	2.84	4.03	5.10	6.17	2.26	4.16	2.14
63	Costa Rica	1.10	1.68	2.20	2.99	5.35	1.31	4.25	3.15
63	Cuba	1.00	1.62	2.21	2.92	4.32	1.30	3.32	2.11
63	Haiti	0.61	0.78	1.06	1.34	2.68	0.56	2.07	1.62
61	Honduras	0.68	0.94	1.37	2.07	2.50	1.13	1.82	1.13
60	Jamaica	1.27	1.80	2.44	3.07	4.28	1.27	3.01	1.84
60	U.S.A.	2.45	3.69	4.55	5.40	6.28	1.71	3.83	1.73
	AMERICA S								
70	Brasil	0.73	1.20	2.04	3.07	5.02	1.87	4.25	2.98
51	Colombia	0.79	1.21	1.82	2.36	3.18	1.15	2.38	1.36
62	Ecuador	0.82	1.30	1.93	2.49	4.72	1.19	3.80	2.79
61	Peru	0.81	1.27	2.18	3.16	5.25	1.89	4.42	3.07
63	Uruguay	1.61	1.94	2.49	3.44	4.94	1.50	3.33	2.45
61	Venezuela	0.77	1.18	3.21	1.90	2.70	1.52	3.64	2.51
	ASIA								
65	Bahrain	0.63	0.83	1.17	1.50	5.24	0.67	4.61	4.07
63	Ceylon	0.93	1.54	2.14	3.73	5.18	2.19	4.25	3.04
69									
60	Malaysia	0.62	0.82	1.14	1.46	3.83	0.64	3.21	2.69
60	Sarawak	0.63	0.81	1.13	1.44	3.86	0.63	3.23	2.73

Year	State	P_{10}	P_{25}	P_{50}	P_{75}	P_{95}	$P_{75}-P_{25}$	$P_{95}-P_{10}$	P_{95}
	(25-39)								ear
60	Cypros	1.39	2.08	2.84	3.41	5.20	1.33	3.81	2.
61	India	0.64	0.85	1.20	1.76	3.36	0.91	2.67	2. 97(
61	Indonesia	0.65	0.86	1.24	1.87	3.30	1.01	2.65	2.
56	Iran	0.61	0.78	1.06	1.34	3.11	0.56	2.50	2. 96
65	Irak	0.61	0.78	1.05	1.33	3.14	0.55	2.80	2.
61	Israel	1.10	1.88	2.99	4.46	6.01	2.58	4.91	3. 97
67	Japan	1.92	2.57	3.77	4.84	5.98	2.27	4.08	2.
61	Jordan	0.65	0.86	1.22	2.18	4.70	1.32	4.05	3. 97
55	S.Korea	1.17	1.76	2.41	3.15	4.64	1.39	3.47	2.
60	W.Malaysia	0.71	1.03	1.64	2.82	4.44	1.79	3.73	2. 97
61	Nepal	0.60	0.75	1.02	1.26	1.46	0.51	0.84	0.
60	Ruykya Islands	2.16	3.51	3.96	4.41	5.37	0.90	3.21	1. 97
60	Syria	0.64	0.86	1.22	1.80	3.35	0.94	2.71	1. 97
60	Thailand	0.95	1.67	2.72	3.17	4.15	1.50	3.20	1.
50	Tyrkia	0.63	0.83	1.16	1.50	4.01	0.67	3.38	2. 97
66	AUSTRALIA	2.37	3.59	4.30	4.98	5.72	1.39	3.35	1.
	EUROPE								19
61	Austria	0.83	1.32	2.14	2.96	4.51	1.64	3.68	2.
50	Bulgaria	1.62	2.00	2.62	3.15	5.56	1.15	3.94	2.
61	Tsjeck.	1.76	2.16	2.86	3.50	5.44	1.34	3.68	2. 19
60	Finland	0.85	1.38	2.29	3.14	5.71	1.76	4.86	3.
62	France	0.90	1.50	2.49	3.17	4.95	1.67	4.05	2.
61	Greece	0.96	1.64	2.65	3.26	5.16	1.62	4.18	2. 19
63	Hungary	1.71	2.08	2.71	3.33	5.50	1.25	3.79	2.
66	Iceland	0.90	1.51	2.51	3.59	5.72	2.08	4.82	3. 19
61	Italy	1.61	2.02	2.71	3.40	5.13	1.38	3.52	2.
60	Norway (25-49)	0.90	1.48	2.46	3.44	5.35	1.96	4.45	2. 19
60	Poland	1.73	2.14	2.82	3.50	5.41	1.36	3.68	2. 19
60	Portugal	0.83	1.33	2.12	2.94	4.12	1.61	3.29	2.
66	Romania	0.95	1.62	2.74	4.04	5.38	2.42	4.43	2. 19
60	Schweitz	1.81	2.25	3.00	4.27	6.05	2.02	4.25	3.
50	U.K.	2.63	2.84	3.18	3.60	4.49	0.76	1.86	1.
59	U.S.S.R.	1.06	1.90	3.31	4.55	5.59	2.65	4.53	2.
66	Ireland	1.90	2.49	3.48	4.64	5.75	2.15	3.85	2.

Appendix C. Some recent percentile data

(UNESCO unpublished data)

State	P_{10}	P_{25}	P_{50}	P_{95}	P_{75}	$P_{75}-P_{25}$	$P_{95}-P_{10}$	$P_{95}-P_{10}$
Tyrkia 11 +	1.08	1.97	2.80	4.78	3.27	1.3o	3.70	1.98
Bulgaria 25-34	1.81	2.50	3.06	5.82	3.90	1.40	4.01	2.76
Ungarn 7 +	1.64	1.94	2.40	5,4	3.2	1.26	3.76	3,0
Polen 29 +	1.o	2.30	3,o	5,6	3.66	1.36	4.60	2,6
Spania 25-34	1.85	2.59	2.97	5.47	3.37	0.78	3.62	2.50
Indonesia 10 +	0.73	0,9	1,8	4,o	2.55	1.65	3.27	2,2
Hong Kong 25-34	1.32	2.26	3.26	5.72	4.72	2.46	4.40	2.46
Algeri 25-34	0.62	0,82	1.14	3,5	1.47	0.65	2.88	2.10
25 +	0.61	0.79	1.09	2.89	1.39	0.60	2.28	1.80
Japan 25-34	1.95	2.69	3.56	6.12	4.96	2.27	4.17	2.56
25 +	1.80	2,3	3.12	5.98	4.43	2.13	4.18	2.86
Kuwait 25-34	0.74	1.11	1.84	5,5	3.45	2.34	4.76	3.66
25 +	0.71	1.01	1.50	5.48	2.49	1.48	4.77	3.98
Bulgaria 25 +	1.67	1.98	2.48	5.33	2.25	1.47	3.66	2.85
Polen 25-34	2.56	2.93	3.38	5.96	4.55	1.62	3.40	2.58
Spania 25 +	1.26	2.42	2.86	5,-	3.25	0.83	3.74	2.14
Dom.Rep. 25-34	0.73	1.07	1.66	3.26	2.31	1.06	2.53	1.60
Paraguay 25 +	0.87	1.44	2.22	4.44	3.05	1.61	3.57	2.22

Appendix D: Some economic background variables
(Journal of peace research 1971)

State	% innone primary occupation	Trade composition index
Africa		
Ghana	42,0	-0,750
Liberia	19,1	-0,754
Libya	64,3	-0,871
S. Africa	70,5	-0,386
Sudan	14,2	-0,718
America N		
Canada	87,9	-0,258
Costa Rica	50,9	-0,989
El Salvador	39,7	-0,529
Honduras	33,2	-0,759
Guatemala	34,6	-0,659
Jamaica	63,9	0,480
Mexico	45,2	-0,608
Nicaragua	40,3	-0,783
Panama	53,8	-0,524
USA	95,0	-0,705
America S		
Argentina	82,2	-0,667
Brasil	48,4	-0,510
Columbia	52,8	-0,710
Ecuador	44,4	-0,766
Guyana	70,4	-0,675
Peru	50,3	-0,545
Venezuela	67,7	-0,893
Asia		
Ceylon	51,1	-0,375
India	27,1	-0,044
Iran	53,1	-0,812
Israel	88,0	-0,076
Japan	79,4	0,707
S. Korea	48,2	-0,144
Kuwait	98,9	-0,486
Pakistan	31,2	-0,337
Phillippines	47,3	-0,608

(Appendix D cont.)

State	% innone primary occupation	Trade composition index
Syria	43,0	-0,449
Thailand	18,0	-0,606
Turkey	28,8	-0,705
Europe		
Austria	79,9	0,021
Finland	64,5	-0,039
France	83,4	0,158
Ireland	69,2	-0,332
Italy	76,7	0,384
Norway	81,5	-0,207
Poland	52,3	0,037
Portugal	66,5	-0,068
Spain	67,2	-0,131
Switzerland	92,2	0,152
Yougoslavia	43,1	-0,045
Australia	90,6	-0,576

Appendix E

Gross School Enrollment Ratios for the First, Second and Third Levels of Education. (Unesco Statistical Yearbook 1971, Table 2.7)

Year/Country	1 level	2 level	3 level	1-2 level	2-3 level
		P E R C E N T			
AFRICA					
68 Algeria	70	9	0.98	61	8,02
69 Botswana	78	7	0	71	7
70 Ghana	56	5	0.65	51	4.35
68 Kenya	60	8	0.67	52	7.33
69 Lesotho	95	6	0.43	89	5.57
69 Liberia	64	11	1.23	53	9.77
69 Libyan Arab Rep.	104	23	2.43	81	20.57
68 Malawi	37	3	0.21	34	2.79
69 Réunion	153	43	1.84	110	41.16
65 South Africa	92	30	3.82	62	26.18
68 S. Rhodesia	112	7	0.24	105	6.76
69 Sudan	25	9	0.87	16	8.13
69 Swaziland	81	16	0.18	65	15.82
69 Uganda	54	4	0.18(65)	50	3.82
69 Zaire	108	11	0.68	97	10.32
69 Zambia	74	14	0.39	60	13.61
NORTH AMERICA					
63 Antigua	145	96	1.16	49	94.84
69 Barbados	112	75	3.01	37	71.99
68 Belize	110	22	0.95	88	21.05
69 Canada	120	53	25.50	67	27.50
69 Costa Rica	113	35	8.42	78	26.58
69 Cuba	130	23	4.65	107	18.35
69 El Salvador	94	23	2.96	71	20.04
69 Guatemala	59	9	3.40	50	5.60
66 Haiti	40	4	0.37	36	3.63
69 Honduras	91	11	1.63	80	9.37
69 Jamaica	110	22	2.82	88	19.18
69 Mexico	101	22	4.57	79	17.43
69 Nicaragua	78	20	4.81	58	15.19
69 Panama	106	39	6.04	67	32.96
69 Trinidad & Tob.	110	22	2.45	88	19.55
69 USA	110	101	48.06	9	52. 94

	1 level	2 level	3 level	1-2 level	2-3 level
S. AMERICA					
69 Argentina	105	42	13.99	63	28.01
69 Bolivia	96	13	6.92	83	6.08
69 Brazil	128	25	4.36	103	20.64
69 Chile	106	34	8.96	72	25.04
68 Columbia	95	21	4.98	74	16.02
69 Ecuador	95	24	6.46	71	17.54
69 Rep. of Guyana	100	46	1.81	54	44.19
69 Paraguay	105	15	3.64	90	11.36
68 Peru	101	38	10.60	63	27.40
6 Uruguay	118	56	8.89	62	47.11
69 Venezuela	98	38	8.82	60	29.18
ASIA					
69 Bahrain	110	60	1.7	50	58.30
69 Sri Lanka	89	31	1.08	58	29.92
69 Cyprus	86	52	1.05	34	50.95
69 Hong Kong	119	45	5.89	74	39.11
65 India	56	15	2.65	41	12.35
60 Indonesia	60	6	0.53	54	5.47
69 Iran	62	24	2.90	38	21.10
69 Irak	68	26	4.49	42	21.51
69 Israel	94	56	19.78	38	35.22
69 Japan	99	88	15.82	11	72.18
69 Jordan	70	30	2.21	40	27.79
69 Korea	104	38	7.19	66	30.81
69 Kuwait	92	69	1.75	23	67.27
69 Sarawak	87	23	0.43	64	22.57
69 W. Malaysia	89	35	1.89	54	33.11
69 Nepal	31	7	1.87	24	5.13
68 Pakistan	44	16	3.60	28	12.40
68 Philippines	112	45	20.19	67	24.81
70 Ryukyu Islands	104	86	11.40	18	74.60
69 Syria	83	36	7.63	47	28.37
68 Thailand	80	13	1.55	67	11.45
69 Turkey	112	26	6.74	86	19.26
EUROPE					
68 Austria	106	84	11.09	22	72.91
69 Bulgaria	101	66	14.20	35	51.80
69 Czechoslovakia	96	37	11.02	59	25.98

	1 level	2 level	3 level	1-2 level	2-3 level
EUROPE con't.					
69 Finland	98	72	12.99	26	59.01
69 France	120	70	15.93	50	54.07
69 Greece	109	60	10.98	49	49.02
69 Hungary	100	61	6.76	39	54.84
68 Iceland	101	80	9.10	21	70.90
69 Ireland	104	52	12.07	52	39.93
69 Italy	106	56	16.03	50	39.97
69 Norway	107	70	15.41	37	54.59
69 Poland	104	46	12.14	58	33.86
69 Portugal	95	60	6.80	35	53.20
69 Romania	107	62	10.14	45	51.86
69 Spain	81	45	7.75	36	37.25
69 Switzerland	103	58	8.09	45	49.91
69 Gr. Britain	106	71	9.75	35	61.25
69 Yugoslavia	94	45	14.61	49	30.39
69 Soviet Union	105	67	26.52	38	40.48
AUSTRALIA					
68 Australia	107	81	17.04	26	63.96