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METHODS OF EVALUATING ECONOMIC POTENTIAL FOR WAR

10 March 1947

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METHODS OF EVALUATING ECONOMIC POTENTIAL FOR WAR

10 March 1947

MR. MASSELMAN:

Gentlemen, as you know, we are starting on a new course that has to do with the evaluation of economic war potential. I would like to say something about the need for knowing the economic war potential of nations. I imagine all of you are aware that it is important that we know how strong we are, how strong our friends are, and how strong our potential enemy is or may be, and his friends. Assistant Secretary of State Benton made a statement a little while ago in which he said, "Had the Germans known in the latter part of the thirties just how strong we were, the chances are there would not have been any war." I am inclined to agree with him in that respect.

Another indication of the importance of war potential is that practically every government agency in town is working on it-not always pulling in the same direction but they know that it is an important issue. I agree with them too. In addition, the study of economic war potential is part of the mission of The Industrial College.

This is not the first lecture that you are going to hear on war potential. There was one which I believe all of you sat in on upstairs in the National War College. I tried to refresh my memory on what Professor Kent had said about economic war potential at that time. I couldn't do so because he had taken his lecture back and was rewriting it. I think this is commendable. We must be flexible about this thing. I want to be flexible about it too, even when I present you with what I think is the proper method of evaluating it. After I have given you my answer to this problem you will see at a glance that it is a very flexible formula.

When Professor Kent was talking about economic war potential he started off by saying, "I am going to talk about capabilities." That opens up an angle that I would like to elaborate on a little bit, that is, the terminology used.

You have already noticed that I am talking about "war potential," whereas the project that you are to work on, even the title of this lecture, is called "Economic Potential for War." There may or may not be any difference between those two terms, but I don't think we should concern ourselves too much with terms at this stage of the game. This is, after all, a very new science, a new approach. The whole study of it is not more than half a dozen years old. Consequently we cannot afford to say at this time, "This is what we call A, and that is what we call B." I believe that we have to explain our terms as we go along.

By doing so we will avoid such arguments as whether we are talking about "strategy" or "high strategy," or as in this case, "economic war potential" or "capabilities." I intend, as I go along, to explain my terms. I am not at all sure that those terms are going to be final. They may be modified as time goes on.

I feel that the difference in terminology had something to do with the different approaches to this problem. There are a good many people who have given serious thought to the measurement of war potential, but there are not very many who completely agree with one another as to the method to be used. I will give you what I think are the reasons for that divergent approach.

I was struck by the fact that nuclear physicists do not seem to have that problem. They all seem to be very much in accord as to what they are doing. I spoke to a friend of mine about that situation-"Why is it that they all agree?" He said, "Why shouldn't we agree? We know exactly what we are working with. We know that we can measure the mass and we have the velocity of light. Those two give us the figure for energy. We also know the structure of the atom. If we break that structure down, we know exactly how much energy is released. We knew it right along. "But, he continued, your economics--I wouldn't touch it with a ten-foot pole. There are too many variables." Obviously, he has got something there. Nevertheless, we will have to work with it.

Now, in approaching this problem it is not too difficult to figure out which factors in a national economy contribute most to a nation's strength. I put some of them down on this chart for you. (Chart 1.) They are shown on the left-hand side. That list is by no means complete. The curriculum for the study of war potential at West Point shows something like a hundred or a hundred and fifty different topics. It was realized that these were entirely too many factors to work with, and so the list was narrowed down generally to the three more important factors; namely, manpower, heavy industry, and minerals production. Those are the three factors that are being used most frequently.

It is obvious however, that other factors also contribute; but it is impossible, as you can see, to take some of those factors such as geography, and reduce them to dollars and cents, or any other kind of a measure.

That is what I call the "static" approach--using each individual factor, trying to measure it; and then, after that, trying to determine how much that factor contributes to the war potential of a nation.

I prefer to use a different technique. I call it the "dynamic" approach. By this method we are not too concerned with the value of each of those factors. What we are concerned with is what these factors do-to what extent they contribute to the strength of a nation.

I have tried to put that down graphically, to show you that the output, or effect, of all these factors in the end comes down to the total productivity of a nation. (Chart 1.)

There are certain people who produce foodstuffs; their productivity goes into box 1. There are others in industry; theirs goes into box 2. Third, there are services. That is where you and I belong. We don't produce real goods; we produce services.

If you look at it that way, you have something which gives you a measure of the total economic potential of a nation because all factors contribute their share. Note that I leave out the word "war." So far I am talking about the total economy, the total potential, the total economic productivity of a nation.

Now, what is economic war potential? There again I believe that in the past the system was used of taking each individual factor, trying to determine how much it adds to the economic war potential of a nation. That is, I think, very laborious and difficult, and very often impossible, as in trying to measure geography. However, the sum total of those factors was called economic war potential.

A better definition of economic war potential in my opinion, is: <u>That share of the total productivity of a country that can be used for the pursuit of war</u>. With that definition all we have to do is to measure this total and determine how much of it can be used for war. I will come to that later. The most important part is to determine the total productivity of a nation.

This total productivity we call national income. Here again it is a matter of terminology. Some of you may say, "You mean gross national product, don't you?" Perhaps I mean gross national product, but it doesn't make any difference, as long as we use the same method for all countries in order to insure comparability.

In brief, national income for our purpose consists of the normal production per worker per year multiplied by the number of people normally employed. If you have that for all three categories, all you have to do is add them together and you get the national income. (Chart 1.)

What is necessary for us to know before we can determine that total national productivity or national income of nations and use it for purposes of comparison? Three things. Our first requirement is that we must be able to measure it. In other words, we have to give it a value. So far most work on national income has been limited to this field. You see, the study of national income is comparatively recent. Just as a man usually doesn't start to count his money until he begins to run short, so we, in the hey day of our existence, were not concerned with our national income. We didn't really begin to study national income in the United States to any considerable extent until the depression in the early thirties. Other countries followed suit, particularly those which felt the need for economic planning.

By now, most countries publish national income figures, but the trouble is that their concept of national income often differs. This makes it necessary to apply corrections in order to arrive at comparable figures.

For this reason the second requirement--comparability--is more difficult I assure you, very little work has so far been done in this direction. I am constantly canvassing the country to find people who are making such studies. One such study was made by the Department of Commerce, for the purpose of determining the amount of subscription that each country should make to the International Fund. Admittedly, these figures make no claim for true comparability.

Just this morning I received another study. It was made by the Federal Reserve System, but only deals with a relatively small number of nations. The best study to date, and the one I prefer to use, was done by an Englishman, Colin Clark. Incidentally, the one I received this morning borrows freely from Colin Clark.

Now, how are you going to compare national income between countries on a really comparable basis? You can't do it in the currency of the country; but, obviously, you have to do it in some manner. The Department of Commerce used the system of applying rates of exchange. That is not the right way to do it because for long periods, particularly during the thirties, exchange rates were often arbitrarily fixed and did not really reflect the actual purchasing power of the currency.

The best method, obviously, is one which expresses the productive capacity per worker by something which is the same in all countries. We call this the International Unit. It represents the amount of goods and services which one dollar could buy in the United States in the period from 1925 to 1934. That period was taken because it covers almost a complete business cycle--a boom and a slump.

However, that is only part of the story, because it is not easy to compare productivity between one country and another in terms of an international value. What it roughly amounts to is that a pound of rice produced in China is the same as a pound of rice produced in Louisiana, even though the cost of production differs greatly. This same precept is carried through for all agricultural products. In that field it is not too difficult.

But how are you going to compare the real value of manufactured goods? Another Englishman, Professor Pigou of Cambridge, developed a very interesting formula by which he makes such a comparison possible, not only between countries, but also between different periods. We can't go into this very deeply at this stage, but that formula is generally accepted. In addition, the League of Nations, compiled an index of the tariffs prevailing between different countries. It can be assumed that those tariffs represent approximately the difference in cost of production of a particular item in various countries.

Now I want you to look over here (Chart 1. a.) because you might say at this point: "Since we have all of the productivity factors of these categories of workers combined why go further? Why not use national income alone and be done with it?"

Well, here are two countries that have about the same national income, the United Kingdom and China. As you can see they both have a national income of approximately 28 billion I.U's. However, the United Kingdom employs only 18 million workers, and China 200 million workers. Here is the average productivity per worker -- 1555 in the U.K. and 140 in China. It is obvious that China does not have the same economic war potential as the United Kingdom. The difference has to be found, and can be found, in the division of productivity into these three categories -- for China, agriculture 62 precent, industry 8 percent, services 30 percent; for the United Kingdom the percentages are respectively, 3, 40, and 57. This "Services" category has been found to influence the standard of living in a country, the average income per worker. The greater the percentage of people in these services, the greater will be the per capita income of a nation. I would like you to bear that in mind, because we have to remember this great difference in division of labor between the U.K. and China to show that national income alone is not sufficient for the purpose of evaluating economic war potential.

There is still a third requirement: The projection of national income into the future. Now we are really pretty much on our own, because there is only one person who has done any work in this field so far, and that is Colin Clark. Why is it that this all important aspect of economic war potential has been so much neglected? The answer is simple--there has been no demand for it. There are thousands of statisticians in this country trying to determine what the stock market is going to do tomorrow. Granted that this is important certainly, not more than half ever hit it right--it is the same as tossing a coin. Because at this the opinion prevails that, if it is so difficult to project on a short-term basis, it must be still harder to do it on a long-term basis. Nothing could be further from the truth.

I have here the trend of national income of various countries over a long period of time (Chart 2.). I have taken out the dips, as you see, to make smooth lines. There you have the average over a long period.

See how gradual those lines are, how some of them level off; how others go up more steeply and then have a tendency to taper off. The dotted line represents the working population. The working population tapers off before the national income does. You can see that particularly here, for the United Kingdom and France.

Why do we need a projection of national income into the future, that is, a projection of productive capacity? Well, that is obvious. The United Kingdom, even France, did not actually decline; nevertheless, when we talk of those countries as World powers we now often use the past tense. But that is not because their productivity declined.

As a matter of fact it is still going up, but it has declined in relation to that of the United States and the USSR. So we need that projection of national income into the future.

How can it be done? Again it is a matter which is complex and difficult, but not too difficult. You have two things to consider. In the first place, you have population trend. That can be determined. Life insurance companies spend a great deal of money doing it right along. They determine the rate of growth of the population, the death rate, the fertility rate, and so forth. There is very little question now among students of population that such projections are quite correct. Consequently we know pretty well how many people there are going to be in a country ten, twenty, thirty, or more years from now.

One problem which will have to be refined is that of immigration and emigration. Some calculations have taken that into account. It is something which will have to be refined as we go along and see the trend. We can't anticipate that Russia is going to allow her previous quantity of emigration to go on, neither can we expect that the United States is going to permit the same amount of immigration as before.

The second item is the future productivity per worker. It is something which can also be established--how much can you expect people to earn or produce as time goes on? Such studies are still in an embryonic stage but we do know that it is closely tied up with the shift of workers from agriculture into industry and into services. Such shifts have been calculated over long periods of time, and there is a pattern there which can be used. At any rate, up to 1930 these lines are actual; from 1930 to 1960 they are projected.

Now we come to the economic war potential. We have to determine how much of those national incomes can be used for war. In order to do that we should consider what happens when a country moves from a peacetime into a war economy. Well, that is obvious. People who worked six hours a day work a little longer. People who never worked are pulled in. Machines, instead of working one shift a day, may be working two or two and a half shifts a day. By means of rationing you reduce the civilian economy. Those are the things that happen when a country moves from a peacetime economy into a war economy.

Presumably you can figure that out theoretically. Colonel Sanders, who spoke here about a week ago, mentioned the fact that he had worked it out theoretically for manpower. If this can be done for manpower, it can also be done for industrial productive capacity, although that might be a rather laborious job.

In determining the amount by which you can reduce the civilian economy the War Production Board used figures based on the depression in 1930 to 1932. They used the average consumption during those years as an indication of how the civilian economy could be reduced. That is a theoretical approach. Fortunately, we have also another way of doing it. We have our experience in the last war. It is fortunate that we also have such figures for the USSR.

This is what happened in World War II (Chart 3.): First let me explain to you that these straight lines you see here are simply the tail ends of the national income lines that you saw on Chart 2. for the United States and Russia. In other words, these lines have been computed theoretically as to what, under more or less normal conditions, the progress of the national income is going to be in the United States and in the USSR.

The solid jagged lines are actual national income figures, and the dotted lines show the consumption by the civilian economy. I am not going to ask you to make a detailed comparison between the two countries, because that doesn't fall within the scope of this lecture. What concerns us is the excess production that was acquired during wartime over and above the normal national income, and the amount by which the civilian economy was depressed below the straight line. That is what matters. The difference between the dotted line and the solid jagged line is your economic war potential. You will notice that there is quite a difference between what was accomplished in the United States and in Russia.

Why this difference? Not only is it a matter of difference in actual amount--that is understandable--but there is also a marked difference in the excess productivity of both countries if it is expressed in a percentage of their normal national income. In the United States we managed to increase our production by between 50 and 60 percent over our normal national income. In Russia it was only between 15 and 18 percent.

There is also a difference in the percentage by which the civilian economy was reduced--I don't like the word "reduced" particularly. Again it is a matter of terminology. Perhaps it should be "compressed"; at any rate it is the extent to which you can compress the civilian economy during wartime. That was possible in the United States to the extent of about 10 percent. Consequently we managed between 50 and 60 percent excess production, say 55 percent, and 10 percent compressibility of the civilian requirements. The total is 65 percent of the normal national income which, as I explained to you, can be made available for the pursuit of war.

In Russia the excess productivity was between 15 and 18 percent. The extent to which the civilian economy was reduced is hard to determine, because of the occupation by Germany of a large part of Russia. But, if you take it prior to the occupation the reduction is about 3 or 4 percent. This gives you an economic war potential for Russia of about 20 percent of her normal national income.

There is a ratio there between the two countries. The problem is to determine why that ratio exists, and if we can establish how it ties up with certain facts we do know, then we have the making of a logical approach for the measurement of the economic war potential of nations.

It is obvious, if you remember those two identical national income figures for the United Kingdom and China, that we need something additional. We need a conditioning factor. I am tempted to tell you a story to illustrate that point.

I was traveling on a transcontinental train once, and noticed a man looking at me constantly, almost as if he were measuring me. I wondered what it was all about. Finally he sat down next to me and said, "Do you mind if I feel your arm?"

I said, "What's up?"

"Well, I live in an apartment house in Los Angeles owned by Jack Dempsey and I am wondering how you would stack up in the ring. I know just about how much you weigh.

He gave me his card so I could go to a boxing club for a try-out. I had a beautiful national income as far as he was concerned. It was a good many years ago. But I didn't go, because I knew something about myself he didn't know. All he could see was my "national income," but I didn't have a punch. That is what you need.

What is that punch in war potential? Now we are going to get down to brass tacks. It is that conditioning factor. Fortunately we don't have to look very far for it. Industrial capacity is one. Steel production could be used, or another measure of heavy industry. (Chart 4.)

If we can accept the experience of the United States during World War II as sound, then we can say that the United States had something which made it possible for her to produce 65 percent of her normal national income for the purposes of war. That figure is not final. I remember that Colonel Sanders said that perhaps the productivity of the United States could have been increased by 15 percent. Mr. Nelson even mentioned 30 percent. Obviously such figures have to be checked, but I don't think we will be very far wrong if we say that we did the best we could during the war and that the same can be said for all other countries.

If we accept this we have an economic war potential for the United States of 65 percent based on a certain "Index of industrial output," which is the conditioning factor. If it is steel that determines it, then a country that has no steel production has for our calculation no economic war potential. She can fight only to the extent that other nations provide her with equipment. This means that the economic war potential lines start at zero. This pertains to countries which have an index of zero for industrial output, no matter what their national income may be. This makes it possible to plot the lines of economic war potential, both above and below the line of normal national income.

Now, we also happen to know from the previous chart (Chart 3.) where the USSR fits in. I can say that these are actual points. Based on her experience in World War II she had a production excess of about 17 percent, and a reduction of the civilian economy of about 3 percent. That gives her a conditioning factor of between 25 and 30 if we give the United States an index of 100. The question is now; what did we have in the measure of 100 what Russia had in the measure of between 25 and 30?

It was found that per capita indices of industrial production in Russia, just before the war, such as steel production, energy consumed, and industrial output, all ranged between 20 and 30. That is close enough to prove that there is some reality to these lines.

From here on the whole problem becomes a simple equation, because we have established a relationship between a country's economic war potential, expressed in percentage of its normal national income, and its index of industrial output per capita. Consequently, the percentage of the normal national income of a nation that can be used for the pursuit of war is the tangent of angle a, multiplied by the index of her industrial production per capita. This can be expressed by the formula: $P = \tan a \times I$. Therefore the Economic War Potential becomes: pN, in which N is the normal national income of a country at a given year.

As you can see it is a very flexible formula and much work still has to be done.

The national income is still something which will have to be refined--the measurement, the comparability, and the projection into the future--all that work will have to continue. We can't expect the Government to rely on the figures of one man or even of one government department. If indices of war potential are ever going to be used whole groups of people should be working on them.

The industrial index does not necessarily have to be steel or an index of heavy industry. Conceivably it could be atomic energy. If the extent to which a country is in a position to produce atomic bombs is going to determine her military strength, then what you have to do is to provide an index figure for the ability of that country to produce atomic bombs.

The relationship between the lines of economic war potential and national income is something which also needs constant refinement. That, gentlemen, is the measurement of economic war potential as I see it. I thank you.

I am on the block, gentlemen, if you have any questions.

A STUDENT: You mentioned that the percentage of population engaged in services is a criterion of national income. Will you give us a comparative figure between the United States and China? What will services run in this country?

MR. MASSELMAN:

I don't know that by heart. I believe the services in our country run over 50 percent, with about 15 in agriculture and 25 percent in industry.

A STUDENT:

In the comparison between the United States and Russia what allowance should be made for the fact that Russia was invaded and we were not?

MR. MASSELMAN:

You will notice that my figures are before Russia was invaded. It was in 1941 that Russia was invaded and the figures which I used were before that time.

A STUDENT:

What effect does the standard of living have on your national income? I previously saw some study on this--that was in 1933--in which they came out with about the same figure for the relation between Russia and the United States. At that time they said we could support eleven million men in the Armed Forces, but that Russia could not possibly support more than seven million in her armed forces due to her comparatively low standard of productivity.

MR. MASSELMAN:

Why, yes.

A STUDENT:

But if you take the point that one of our agricultural people can produce twice as much as one in Russia and balance it with the fact that a person in Russia eats only half the value of what one of our people eats, there is no difference in the productivity.

MR. MASSELMAN:

I don't think it works exactly on that ratio. What it amounts to is that the fewer people you need in agriculture to supply the foodstuffs that the nation requires, the more people you make available for industry. That has been one of Russia's major problems--to raise the productivity per person in order to release people from the farms for industry. If Russi as you say, can support only 40 or 50 percent of what we can in the armed forces, the answer must be found in the limitation of her industrial capacity.

A STUDENT:

How will you compare the economic war potential of a small country like Holland, with her colonies, with that of Switzerland, with no colonies?

MR. MASSELMAN:

Neither one of them has any economic war potential in the sense that we are talking about here. There is another angle to that, which I sort of hoped we could save for tomorrow, when we are going to have a seminar on this. That is the contribution that such countries might make to other countries which do have an economic war potential.

For instance, how are you going to compare steel production in Belgium with that in another country? Belgium produced 6 million tons of steel normally before the war, but was consuming only 2 million. Obviously her steel production was not an index of her war potential. It is the amount of steel that she consumed herself.

Take Japan. Japan had a steel consumption which was two or three times greater than her production of iron ore and coal, which she had to import. Consequently she had to rely on other countries for help. It is in that way that weak nations could contribute to the economic war potential of other nations.

A STUDENT:

In establishing the figures here on the present civilian economy on this chart and applying them to the one you substituted on the subject of steel, where do you wind up when you say a country exports a considerable production of steel and apply that to how much you could depress the civilian economy? At that juncture you divert everything from its customary course to the manufacture of munitions. So how do you relate that?

MR. MASSELMAN:

These are things which are going on all the time. I don't think a small country that was geared to the use of two million tons of steel could automatically shift over to the utilization of six million tons of steel.

A STUDENT:

I don't think I have made my position clear. Is the depression of your civilian economy directly related to the item which you are studying, or is it an over-all figure?

MR. MASSELMAN:

No. That is an over-all figure. But bear in mind that what is most important is the material which can be used for war effort. The United States was a good example of that. During the war the United States did not reduce its civilian economy except for two types of goods. One was durable consumer goods, like refrigerators--all things which require a great deal of metal. The other one was transportation--automobiles. In the one we reduced our civilian economy by something like 60 percent, and the other by about 45 to 50 percent. So, consequently, all that was saved could be directly utilized for the war effort.

If you compare those figures with the United Kingdom, you find that on a percentage basis the civilian economy line would dip far below the line of normal national income. Then you would find that their food consumption was reduced considerably and their use of textiles and shoes.

It is one of the very difficult angles to study, because of the lack of complete data that we have on this and the lack of people who are willing and able to make a comparative study of those things to see how they worked out in all those countries during the war.

A STUDENT:

Do you refine the services section of the national income to give any value to a particular service? It is my impression that transportation, for instance, means more than any of the other services.

MR. MASSELMAN:

That has not been done. As I told you, there are at the present time so few people who have given any thought to this matter at all that there has been no opportunity to go into that particular aspect of it.

But you are absolutely correct. There are hidden in these services a good many things which perhaps may be more important than others. It would be found, particularly in this field here if you make an analysis, which I would like to see done, that is, to make a comparable analysis on the theoretical approach, that you could divert productive capacity and manpower into the war effort. You could also use the actual figures from World War II and find out where these things stand. You will find that as far as transportation is concerned you can't afford to shift over any of it. You have got to keep it all going. There will be a lot of people employed in services which can be shifted over. But that is something which still needs to be studied.

A STUDENT:

When you project your national income based on your practical method, as you call it, from past experience, you have to assume that your future will have the same set of circumstances that the present has. For example, you have to assume that you will have large unemployment before you get into a war. How do you take those factors into account in your future projection

MR. MASSELMAN:

You are talking about unemployment. That gives you the dips, doesn't it? That is your short-term cycle. That has in reality nothing to do with the computation of the productive capacity of a nation, because the minute those people are put back into work, up you come with your normal production

That is why this is done on a normal basis. There are indices as to the percentage of people in each category. For instance, the minute the standard of living in a country goes up, you will find almost immediately that your age group between ten and fifteen is taken out of the labor market Of your age group between fifteen and nineteen perhaps 80 to 90 percent are taken out of the labor market.

That is why these are normal projections. I want you to get that, to see how closely the jagged lines follow the trend and why. But I don't want to make any short-term projections. That is not my theory.

A STUDENT:

In the formula which you have developed here you finally wound up with the statement that the economic war potential equals p. times N, which goes back to A plus B times N. How do you fix that angle? Do you use a fixed angle for all computations?

MR. MASSELMAN:

I could have drawn that, but it would have meant that I would have to redraw the chart, putting both lines above the horizontal line, so it would be more clear. But it is just this angle a, and at the present time it is a fixed angle.

A STUDENT:

In other words, you assume the same angle for all countries?

MR. MASSELMAN:

Yes. Based on the fact that we know the potential for the United States and Russia and that with an index of industrial output per capita, of zero there can be no war potential. But this angle is definitely subject to modification.

A STUDENT:

Then that angle only gives you a method of figuring out your A and your B?

MR. MASSELMAN:

That is right. This is your war potential, which is your excess productivity plus the extent to which you can reduce the civilian economy.

MR. MAGNUSSON:

Did you check your formula at all by working this out for World War I? It sounds as if you are saying--and I don't think you mean to say it--that you have to have a war before you can project this formula of the economic war potential.

MR. MASSELMAN:

I didn't say that you actually needed a war. I said there were two ways of doing it, two approaches--the theoretical and the practical-- on which work had been done by which you could approximately determine your excess productivity.

MR. MAGNUSSON:

Did you check that with World War I?

MR. MASSELMAN:

No. I worked only from World War II.

MR. MAGNUSSON:

I would like to see it done for World War I. That can be done.

MR. MASSELMAN:

I had to get all these figures on national income and industrial production and all that sort of thing.

MR. MAGNUSSON:

There is only one thing about Colin Clark's figures--if you will turn back to the second chart--on the working population in 1960. You show that for the United States as around 40 million.

MR. MASSELMAN:

Between 50 and 60 million.

MR. MAGNUSSON:

Is that the working population of the United States?

MR. MASSELMAN:

Yes.

MR. MAGNUSSON:

The reason I asked that question is that we have now over 60 million.

MR. MASSELMAN:

Of course, because the war used more of them. At least, there are more now.

MR. MAGNUSSON:

My point is that that can't possibly be true, because we have 60 million now and we know our population is going to increase. It couldn't be anything but a guess.

MR. MASSELMAN:

If you look at this chart here (Chart 3.) you will find that at the present time we are way above normal productivity. We are today employing more people than we normally do. That is the only answer I can give you to that.

MR. MAGNUSSON:

I checked the index of labor potential in the United States for 45 years and it was only three or four percent over the normal.

MR. MASSELMAN:

During the past three months I have canvassed every learned society in the United States to get a detailed analysis of Colin Clark's projections. Everyone is using Colin Clark's projections and some people are criticizing them. But no one has really gone out to verify those figures or to prove that his projections are wrong. It is something that will have to be done. If what you say is true, that his projections are wrong, then we will have to modify our figures.

MR. MAGNUSSON:

You don't need this for your index, I take it. You know what you are talking about. You are talking about the experience of World War II. You don't need Colin Clark.

MR. MASSELMAN:

No, but I like to have my statements verified. I don't want to go off on one angle.

A VISITOR:

I would like to ask a further question on the comparison of the national income of the USA and the excess war potential on the chart for World War II. If you take 18 percent for World War II, do you consider that the USSR prior to the invasion of western Europe is going to be comparable to the USA in 1940 and 1941, when we would not have had that 65 percent?

MR. MASSELMAN:

Obviously not. The point is, we have to do it on a comparable time period, that is, a period during which one country goes through some experience of war or preparing itself for war.

A VISITOR:

Then how could that USSR figure be projected forward to 1945? How could you compare that at least to your normal national income line, if not the dotted line below it?

MR. MASSELMAN:

The only way I can see to do that is to follow simply the normal national income line, because the jagged line means the actual figures. I don't want to confuse myself with having two hypothetical projections to work with.

A VISITOR:

To what do you compare the USA in 1942?

MR. MASSELMAN:

Those two countries were under different conditions. Your excess productivity is obtained because a country deliberately gears itself to war. At this point here, when the USSR had reached that excess productivity, we were not gearing ourselves to war. Life was pretty much as usual. That is the reason for the difference.

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(27 March 1947--350)E

FACTORS OF ECONOMIC POTENTIAL

CHART 1.

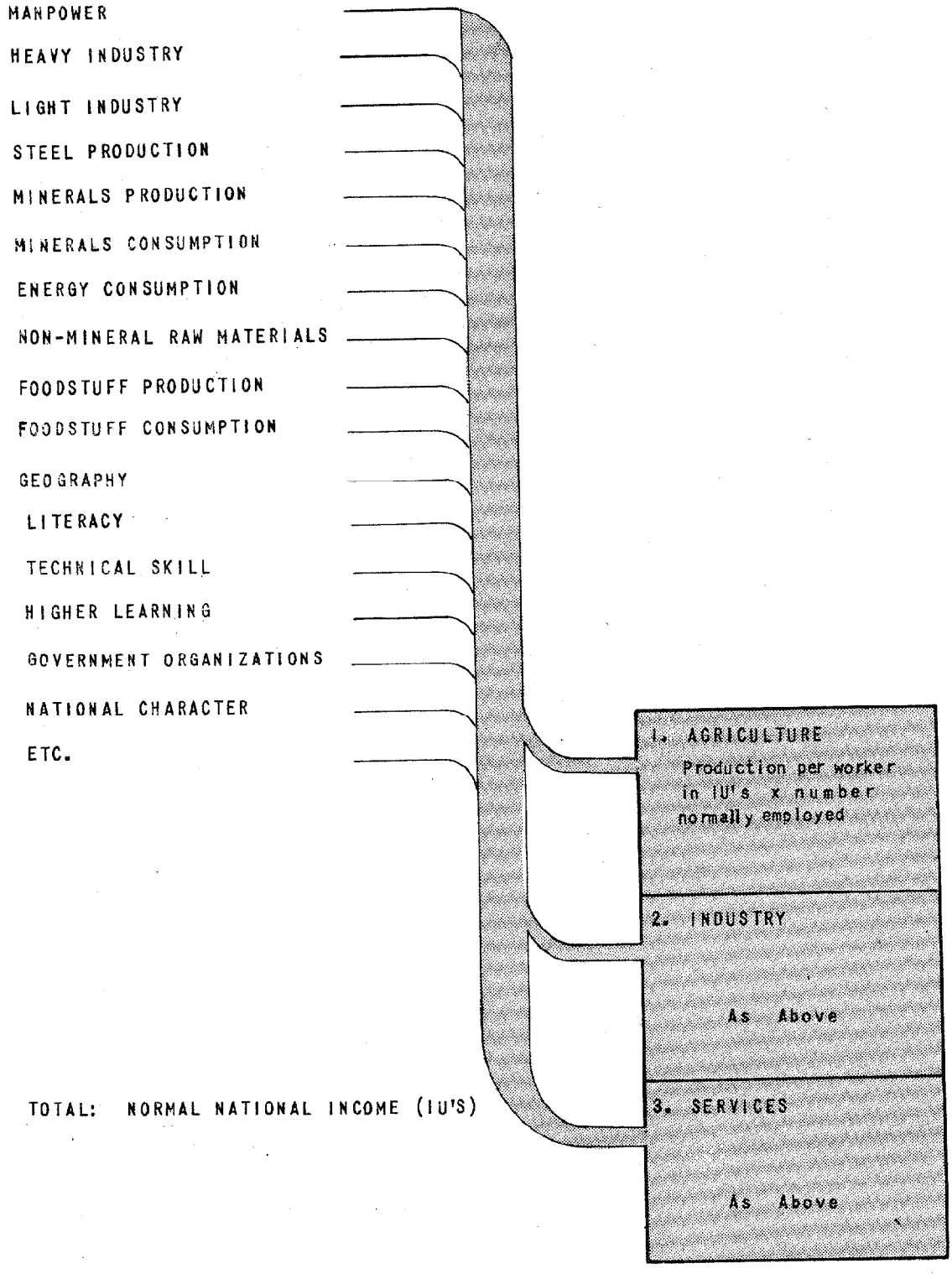
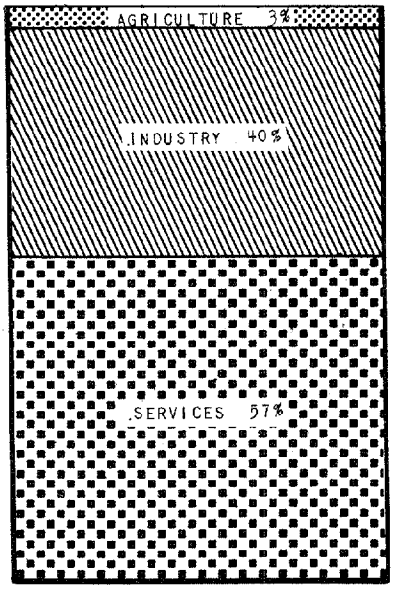
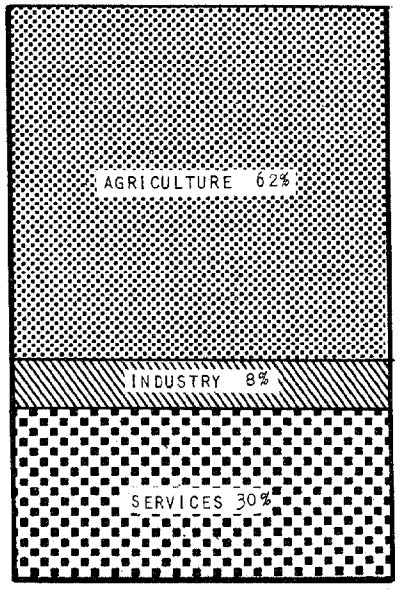


CHART 1a.





	U. K.	CHINA
National Income	± 28 billion IU's	± 28 billion IU's
Number of Workers	18 million	200 million
Average Production per Worker	1555 IU's	140 IU's

CHART 2

NATIONAL INCOME TRENDS 1860 - 1960 (Billions I.U.s)

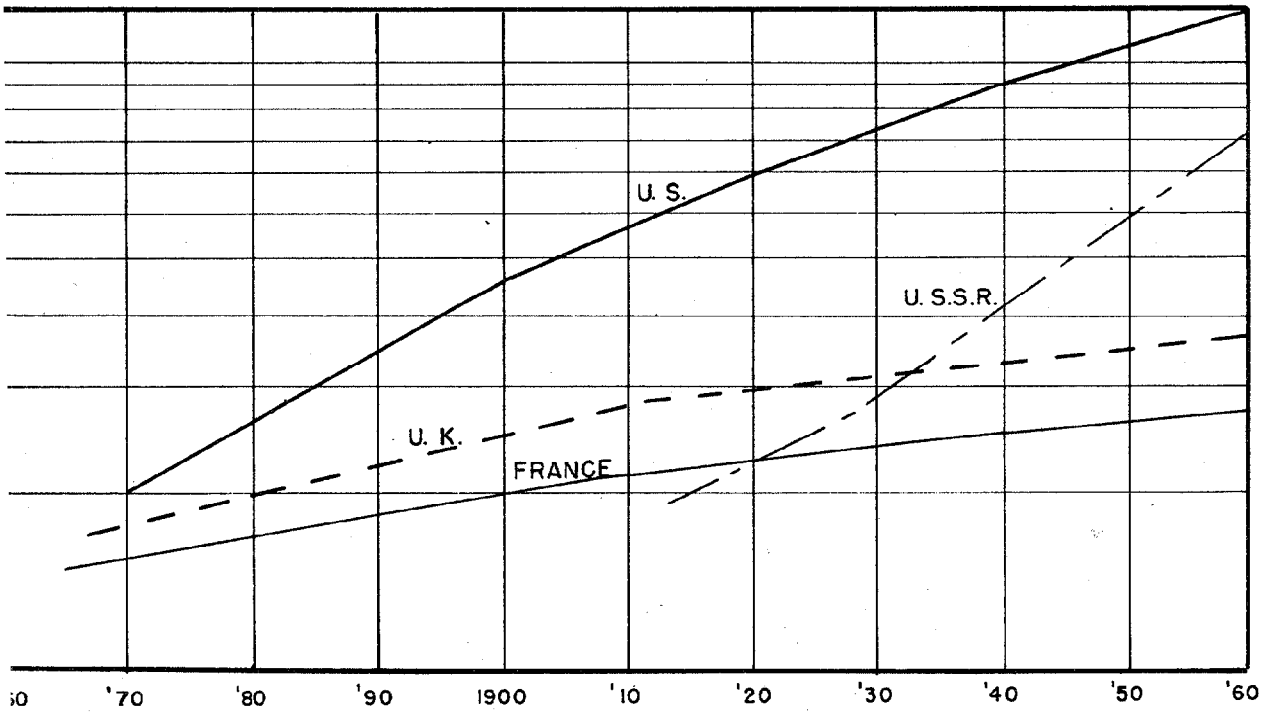
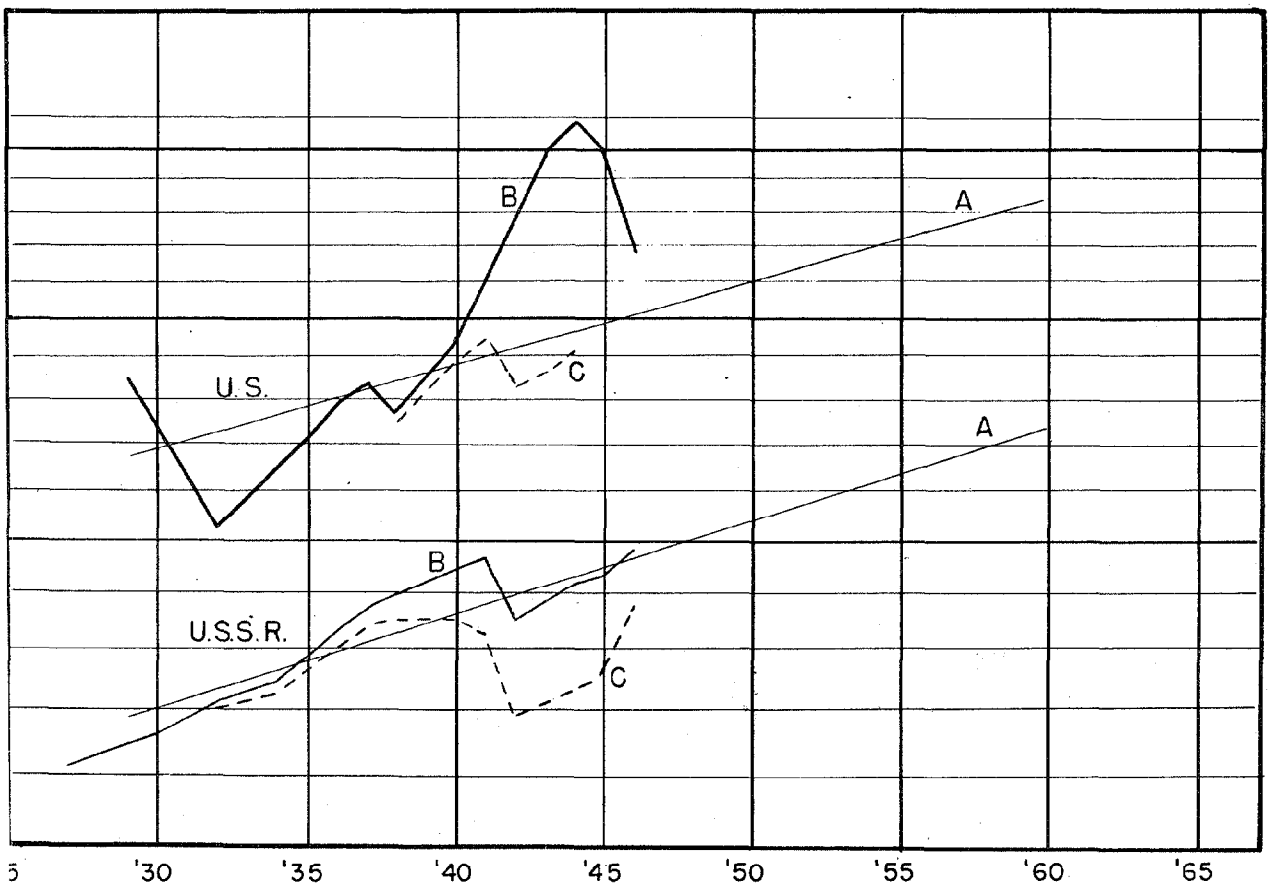


CHART 3



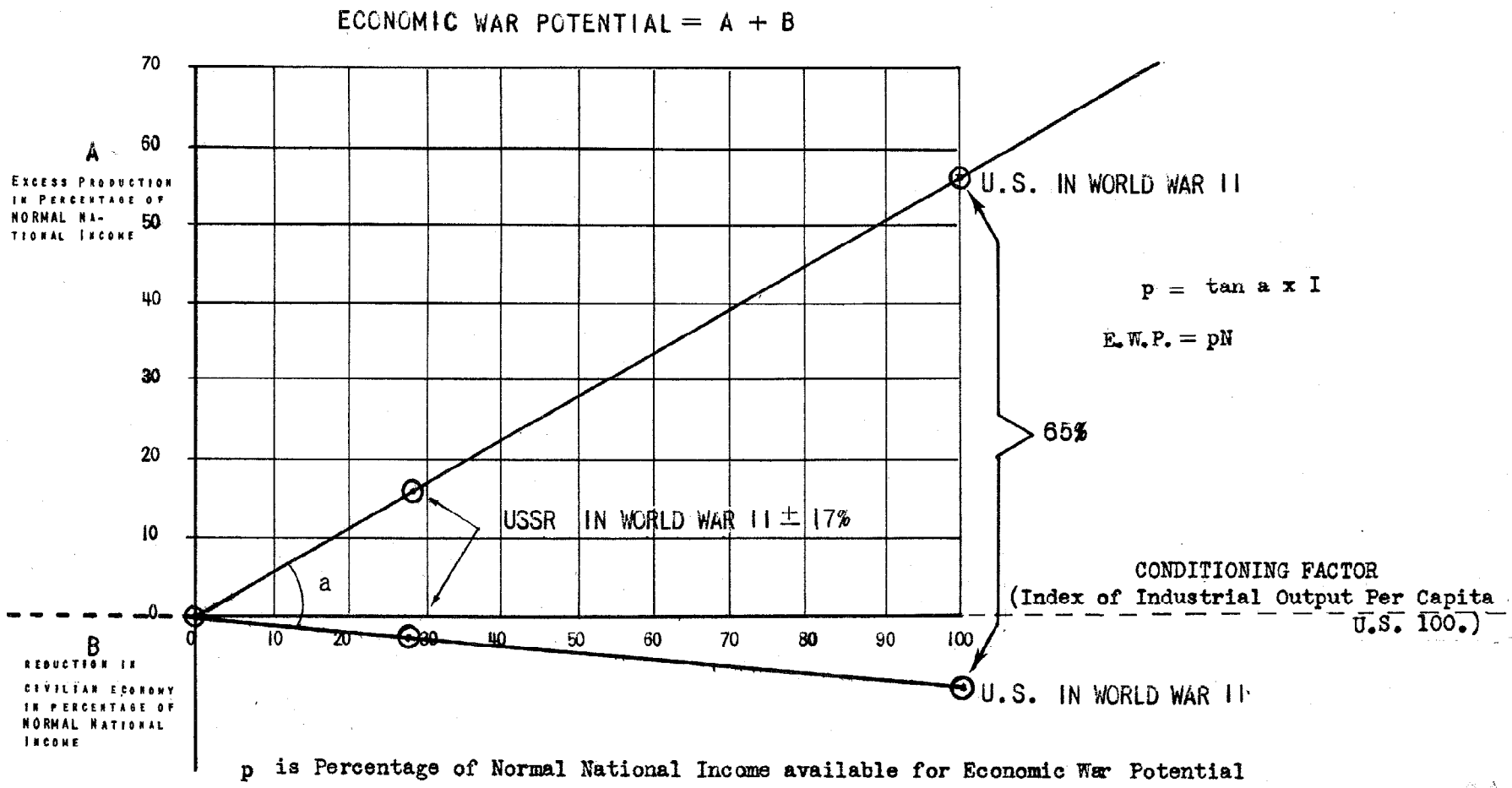
A TREND NORMAL NATIONAL INCOME (billions I.U.^{s})

B ACTUAL NATIONAL INCOME (—— " ——)

C REQUIREMENTS OF CIVILIAN ECONOMY (—— " ——)

ECONOMIC WAR POTENTIAL IS B minus C

CHART 4



p is Percentage of Normal National Income available for Economic War Potential

I is Conditioning Factor (Index of Industrial Output per Capita - US. 100)

N is Normal National Income