ARAB REPUBLIC OF EGYPT

THE INSTITUTE OF NATIONAL PLANNING

التخطيط القومي

Memo. No. 1190

AN APPROACH TO THE THEORY
OF ECONOMICS OF DEFENSE

BY

Dr. Alexander MULLER

FEB. 1977

CAIRO
SALAH SALEM St.-NASR CITY

CamScanner المسوحة ضوئيا بـ

AN APPROACH TO THE THEORY OF ECONOMICS OF DEFENSE

By

HAB. DR E.S. ALEKSANDER MULLER
ASOCC. PROF. IN CENTRAL SCHOOL
OF PLANNING AND STATISTICS
WARSAW - POLAND.

1. THE SHORT HISTORY OF THE ECONOMICS OF DEFENSE.

The history of the mankind is strictly compaund with the history of war. Since ever the wars have begun, the military power of the states was a result of two factors: the political situation of the state connected with the international alliances, as well as, the level and structure of the national economy.

In the permanent process of socio-economic development of the humanity, the growth of production's capacity has determined the possibilities of defense or aggresion. Therefore the economists were everyway interested in the problems of the relations and connections between the economic development and the war.

The first known work written up about the relations between war and the economy was the tractate of ancient Chinese author Sun-Tsy(VI-V century before Christ). The problems of war-economy have been of great importance during the period of the devlopment of political economy.

We can find the problems of war and the economy in economic papers of the Midlle-Ages Canonists as well as, in the works of the Mercantilists. The Mercantilists have recommended the idea that the military power of the country was conditioned by the resources of the gold money collected in the hands of the state. The first of the the Mercantilists who has expressed a different concept than the others was English economist Thomas Mun(XVII century), who stated that not only gold resources but also the possibilities of home production were a very important factors of military power of the country.

In works of William Petty, who was called by Marx "the Father of the English classical political economy" the problems of war economy are of great importance. Petty was the first who worked upon the problems of the supply of army and the war balance. In his works we can also find the problem of direct and indirect war wastes, particulary in the quantity of people and in the agricultural production. In XVIII-th and XIX-th centuries the English classical political economy was developed. Two famous economists of that epoch-Adam Smith and David Ricardo have paid a particular attention to the problems of war economy. In Smith's "Wealth of Nations" there is an very important idea included, that the possibilities to conduct war are conditioned not by the resources of gold, but first of all by the level of the national income and the capacities of consumers goods production.

David Ricardo has been also very interested in the economic changes in the war-time. He has lived in the epoch of Napoleonic Wars and therefore he has the care of the influence of war on economy of England at that time. In his works we find, that he has observed such economic phenomena like: war inflation, devastation of the economy of several countries and limitation of consumption of the people resulting from the necessity of production arms, weapons and war materials instead the consumers goods.

In XIX-th century the Marxian economy was borne. Marx and Engels researched after the relations between the socio-economic level of countries and their possibilities to carry it away for war. Particulary Engels under the experiences of wars conducted in XIX century has explained the reasons and consequences of them. In one of his works he has stated that "there is nothing more depended upon the economy than the army and the navy". Marxian economy researched a great deal of war-economic problems: the influence of industry on the level of armament of army and navy, the role of the common education for increase the quality of the man power(it was

Engels conclusion under the experiences of the French-Prussian war in 1870), the role of transport, both-railways and maritime- in the modern war and further more problems.

Very intersting works upon the war economy were written by Lenin. First of all there were the works about the policy of war-communism realized in Soviet Russia during the period of 1918-1921. The main problems of that time were: to supply to the people and to the army food, to produce arms and weapons in conditions of destroyed economy, to collect food from the peasant farms, to break the black-market. Particulary interesting, from the theoretical point of view, was the problem of the restriction of free commerce, realized by the means of compulsory requisitions of food in the agriculture and direct supply to the non-rural population carried in to effect under the supervision of the socialist government.

In the period of the World War I(1914-1918) the influence of economy on the war possibilities was evidently greater than before. In fact, this war has been not only the war between armies of struggling powers, but first of all, this has been the war between the industries of fighting countries. Under the experiences of the World War there was published in England in 1915 a book by the title of "Political Economy of War" written by the English author Hirst. In 1921, just after the World War the famous English economist A.C. Pigou, published a book by the same title: "The Political Economy of War". These two books may be accredited as the first works in the new branch of the economic sciences- i.e. of the Economics of Defense. During the period since 1921 to these days the Economics of Defense has developed into selfexistent branch of science.

In contemporary world there are many research centres, where the studies upon the war-economy are conducted. In many universities in the United States of America, in Grat Britain, Sweden, West Germany, in the Soviet Union and Yugoslavia, there are carried studies upon all problems connected with the relations between the economy and the war. Even in Norway, in University of Oslo, there is scientifical centre for research the war-economy, specialy for NATO countries.

In Poland there are two research centres of Economics of Defense. The first one is in Military Political Academy, the other one just organized in the Central School of Planning and Statistics in Warsaw.

In Polish economic literature there are interesting books, written about the problems of war economy, economic war preparations, and about the war-economic potential of several countries. Most known Polish economist carring studies upon these problems is Professor W. Stankiewicz-habilitated doctor of economic sciences, author of many books among them "The War Economics" is very important one.

Since 1973 in all Economic Faculties the lectures on Economics of Defense were introduced, and in 1976 the handbook for students, by the title of Ekonomika Obrony(Economics of Defence) was published.

2. THE CHANGES IN NATIONAL ECONOMY UNDER THE PRESSURE OF WAR-TENSION.

Economic development is strictly compound with the level of the national income, and with its division, as well. But the necessity of defensive preparations causes to the important changes in the economy. The first one, it is depression of the share of consumption in the national income. This consequence relates in fact, not to all countries, but is especialy important in the socialist and developing countries,as well.

There are a simple models formulated to explain the main stages of economic changes going on under pressure of the war-tension. The first model it is the peace-economy; the second one is the model of war-preparations or, in other words, the model of the war-alert economy(when the economy is kept on the alert). The third model, which is the most important one it is the war-economy model. And the fourth is past-war demobilization model. We can use three main criteria to define these models. The first one- is the aim criterion. At every stage of the economic development there is the main aim of the economic system. This main aim is strictly combined with the production's relations, it means, with the ownership of the means of production at the given level of development. The main aim of the capitalist system consists in maximazation of profits, as a result of private ownership. In socialism the main aim of the system, conditioned by the social ownership of means of production, is an improvement in the living conditions of the population.

The second criterion it is the share of military expenditures in the national income(or in the GNP); we can definite this coeffitient as $\frac{M}{Y}$. The third criterion under review it is the system of management in national economy, which may be centralized or decentralized one.

These criteria under presentation do not exhaust all factors which could be used for characterization of the economy, but they are essential enough to expose the main changes going on in economy under the war-tension. Collecting these criteria we can present several models (or phases) of the national economy transpositions at the given situations.

Table 1.

Model (the phase of transpositions) of the economy.	The main aim of the economic system.	The share of military expenditures in the national income ($\frac{M}{Y}$ in percentage)	The changes in the management system.
The peaceful economy in capitalist system in socialist system	maximization of profits improvement, in the living conditions of the population	Bellow than 10% bellow than 10%	decentralized, an influence of the market on economy. mostly decentralized, mikroeconomic decisions in the hands of the enterprises.
The phase of warpreparations; war-alert economy.	realization of the main aim partly restricted, the conversion of production starts up	10 - 12% even more	increasing of the state's interventionism, partly centralized, compulsory delivers are going on.
War-economy (may exist in the war-time or in the time of war-tension).	maximization of the war - production, full conversion of production to the military goals.	more than 20%	strongly centralized, strong restrictions on the market, limited rations of consumer goods.
The post - war demobilization economy	partly return to realization of the main aim of the system, reconstruction of the economy, reconversion of the war-production.	about 10-12%	partly decentralized, rationing of the consumer, goods still held on, compulsory delivers possible.

CamScanner المسوحة ضوئيا بـ

3. the level and the structure of productive capacities,
4. the transport system.

The human resources are of the great importance as the factor which determined the possibilities of the country from the viewpoints both of the armed forces and of the economy. It is necessary to research the human resources from two sides. First one is the problem of the quantity of the population, the second one - the **quality** of the human resources. Up till to the World War I the quantum of the population was a factor of the great importance, because it determined the armed forces of the strenght of soldiers. Under the experiences of the world wars this opinion changed. The strenght of the armed forces is determined both by the quantity and the **quality** of the man power. The qualitative factor is also very important for consideration of the economic possibilities of the country.

The qualities of the human resources are conditioned by several factors: the level and spread of the common education, the level of economic development and as a result of it - the stage of civilization, the number of skilled workers, as well as the number of engineers and scientific men of all branches of techniques and sciences, the efficiency of the mass media of communication and information, the level of political and ideological activity of the people, and many others.

Besides, the objective factors are of great importance; first of all -the structure of age and sex of the population, and the share of full age man in it.

<u>Strategic raw-materials resources</u> are the next important component of the war-economic potential especialy the resources of oil, iron ore, coal and several metals as manganese, chromium, copper, antimony, aluminium and others, are of great importance.

Besides, the food products must be treated as the strategic materials, because they determined to keep the population alive. The country, even high developed, for lack of strategic resources, may be not treated as a strong one from the point of view it's war-production capacities.

So, it is possible that industrialized country may produce synthetic raw-materials as the substitutes of the natural resources. This problem must be kept under studies by economists in the research programme upon the increaseing of the war-economic potential.

In the wartime the limitation of import is expected. As the result of it, all branches of industry based upon the importation of raw-materials, must be supplied with these materials just before the war. This fact determines the necessity of preparations the strategic materials reservations in the peaceful economy.

CamScanner الممسوحة ضوئيا بـ

<u>The productivity capacities</u> are the next very important component of the war-economy potential. This component conists of the level of techniques and of the structure of technical equipment. The first one of these factors determined general possibilities of production; the other one - possibilities of conversion of the economy to the war production and the expectant share of war - production in the national income.

The structure of technical equipment determined , in fact, the assortment of war-production, as well as speed of the couversion process from the peacefull economy to the war-economy.

The most important factor determining the productivity capacities as a component of the war-economy potential is the industrial production, both - the level and the structure of it.
We should split the differnces between two kinds of the industry: the armaments industry and the war-industry.
The armaments industry it is the branch of industry which produces arms, weapons, ammunition and military equipment in the peaceful economy, as well as in the wartime.
It is composed of two parts: the basic armaments industry which is built in the peaceful economy and producing of all weapons necessary for armed fores and the second one it is this part of industry converted from the civilian

industry into armaments industry for production arms, weapons, ammunition and military equipment.
The war-industry is an widespread notion; it consists:
1. the armaments industry - both, the basic and the transposed from the civilian one;
2. all branches of industry supplying the armaments industry with means for production;
3. all branches of industry supplying the armaments industry with raw-materials, fuel, energy and other materials;
4. these industries which may produce in the same time dual production, both for military and civilian use.

Very important indicator of war-industry is the share of machinetools in all quantity of machines and engines working in industry as a whole.

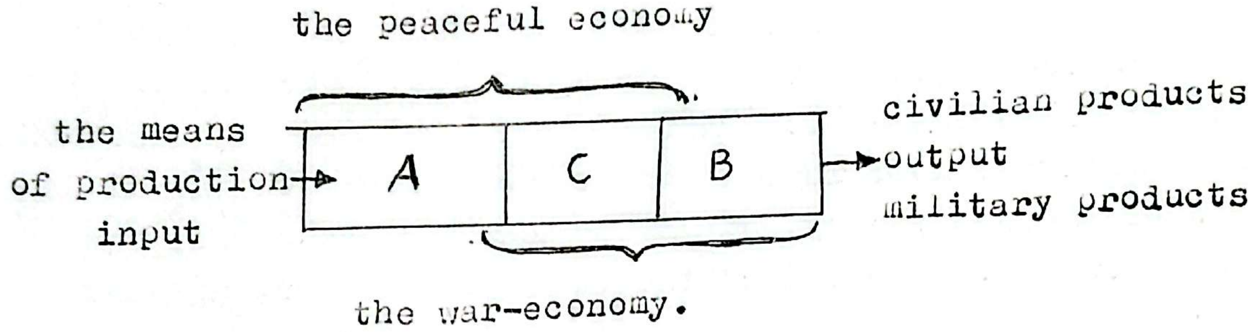
There is a very important tendency observed in contemporary economies of the developed countries:
it is the limitation of basic amaments industry.
Instead of this branch of industry there is the dual-production industry developing.
In many plants there is three-Sector machine equipment created:
- the first one consisted machines, engines and other means for civilion production (A) ;
- the second one consited technical equipment for military production- i.e. arms, weapons, ammunition(B);
- the third one consisted machines, engines et cetera for

universal use-i.e. for production of both civilian and militory products (C).

In the peaceful economy mostly the sectors A and C are under operation and in the war-economy, especialy in the wartime sectors B and C are under operation.
This situation is presented on the diagramI.

Diagram I.

Operations of sectors in the three - sectors plant



The transport system is the fourth component of war-economic potentiol.
It compound all branches and means of transport i.e. - the land transport (both railways and motor-car transport), the maritime shipping, the inland navigation, the air-transport and the pipe-line transport.

The main task of the transport system is transfer of goods, materials and persons.
In the war-economy the goals of the transport activity may be

presented as follows:

1. the transfer of goods, raw-materials, fuel and other products within the war-economy system;

2. the integration of the war-economy system with the armed forces;

3. the transportation services for the armed forces (i.e. transportation of military units and military equipment by the normal means of transport).

According with the great importance of transport system in contemporary war there are essential changes to improve the organization of armed forces. For example in the armed forces of the United States the new organization is introduced now; instead the former, conventional division on the army, navy, air force and marines corps, the armed forces, divested of the former structure, divided into three parts:

1. General Purpose Forces,
2. Strategic Nuclear Forces,
3. Strategic Transport Forces,

The Strategic Transport Forces consists of both, the military transport units of air transport and maritime transport, as well as, of the means of transport which should be mobilized in the civilian sector.

In mobilizations plans of the United States armed forces it is assumed, that during the war-alert economy period several air crafts from the civilian aviation should be included into Strategic Transport Forces. Besides the aeroplanes all the barge-carriers should be mobilized for maritime transport service. The barge-carriers these are the most modern ships characterized the possibilities of handling their load without using the ports. These ships are equiped in their own very efficient and speedy working loading instalations (as the board cranes or lifts or the self-docking instalations), and they may be used as transport ships for armed forces, as well as the landing crafts.

For that reason the American government subsidizes the shipping companies introduceing the barge - carriers on the list of their ships. American government pays one half of the price of these ships, when they are bougth by the private shipping companies.

For secure the best conditions for activity of transport systems governments of particular countries organise and invest in main branches of transport. It results to secure the surefooted interlink in the war-economy as a whole, and to secure the integration between the economy and the armed forces as well.

4. THE INFLUENCE OF THE MILITARY EXPENDITURES ON THE ECONOMIC SYSTEM.

The increaseing military expenditures are realizeing in many countries of the world. Most of these expenditures (more than 80% of all is spent by several countries: the United States of America, Great Britain, France, West Germany, Canada and from the other side - the Soviet Union and People's Republic of China.

The influence of the military expenditures on the economy is quite different in particular economic systems.
First of all we will observe the results of military expenditures in the economy of highly developed countries.

There is one very important characteristic of the highly developed countries, that the productive capacities are not fully utilized and there is a great possibility to increase the level of output by way of the more intensive exploitation of existing productive potential. It depends upon the demand for goods - both the means of production, as well as the consumer goods.
The decrease of demand contributes the decline of production, and as a result of it, the lower level of utilization of productive capacities.

On the contrary, the increasing demand evokes the growth of production by way of full utilization of the productive forces.
The economic mechanism under presentationx is based on assumption, that the main aim of highly developed

capitalist economy is the maximization of profit in long - run period.

The attention of the economists studying the problems of the capitalist economy was, during certain period, concentrated on the reasons of the over production and on the theory of economic crises.
In 1936 there was published in England the famous book of J. M. Keynes, by the title of:
"The General Theory of Employment, Interests and Money"
This book was a result of Keynes studies upon the contemporary capitalism.
The Keynesian theory is very well known, so we will look only on one aspect of it.
Keynes has discovered that in the capitalist economy, under condition that the productive capacities are not fully utilized, the mechanism of the multiplicator comes into functioning.x)
The formula of the Keynesian multiplicator assumes the following form:

$$m = \frac{\Delta Y}{\Delta I}$$

where: m-denotes the multiplicator, i.e. the relation between the increment of the national income and the increment of the investments;

x) In fact the Keynesian multiplicator of investments was presented by him in 1936. Before 1936 the multiplicator of employment was formulated by R. Khan.

Δ Y- denotes the increment of the nati onal income;
Δ I- denotes the increment of the investment, i.e. the difference betwe.n the increment of the national income and the increment et the consumption fund($\Delta I = \Delta Y - \Delta C$).

We can transpose this fornula as fouows:

$$\Delta Y = \Delta I, m$$

We can see that the increment of the national income depends upon two factors: the increment of the investments and the force of the multiplicator's activity[x].

If we assume, that the force of the multiplicator at given time is constant, the increment of the national income depends upon the increment of the investments. So, For increasing of the national income it is necessary to grow up the investments, because in given condition as the result of investments the growth of employment takes place.

The growth of employment evokes the increasing tendency of demand and as the consequence of it, the further acceleration of employment and demand will be continued,

---

x) We can present the heynesian multiplicator in different form:

$$m = \frac{\Delta Y}{\Delta Y - \Delta C} \quad \text{i.e.} \quad m = \frac{I}{1 - \frac{\Delta C}{\Delta Y}}, \text{ where}$$

$\frac{\Delta C}{\Delta Y}$ denotes the marginal Inclination for consumption.

till the productive capacities will - come into the full utilization.

The general effect of the process under presentation is the increase of production, employment and demand achived by way of full utilization the productive capacities.

Professor Keynes put two questions of great importance to his theory:

1. Who should be the prime mover of the process?
2. What hinds of the investments should be realized for initiation the employments growth?

The answers for these questions were, as follows:

1. In the first place it is necessary to mention the main aim of the capitalist system, which is the maximization of profit.

   In conditions when the rapid growth of profit wouldn' be expected; the private firms are not inclinated to realize investments inputs, So, the only moving facto which may be able to carry initial investments into effect, is a state. The state's investments are autonomous, and didn't depend upon the demand.

2. The increment of investment shouldn't give cause for increase of productive capacities, for the reason, that it would be possible to evoke the overproduction and the economic crisis.
So, the most important kind of the state's investment activity is to realize non-productive investments, which result the increase of employment and demand, without the danger of unbalanced growth of production. The non-productive investments move the mechanism of the multiplicator, and bring to the growth of national income, but they dan't increase the productive capacities.

Irrespective of the fact that in the Keynesian theory the proposal to realize the non-productive investments included preferences only for building housing substance and objects of public use, several economists accused Keynes as the propagandist of the armaments policy.

In fact, it is possible to deduce, in conclusion, that instead the henesian non-productive investments the armaments may be introduce into the economic activity. In other words, thearmaments may substitute every Kind of non-productive investments and stimulate the multiplicator to go on.

Such a way of interpretation of the Keynesian theory in several imperialistic countries took place. Particulary in Germany and in Japan the high rate of armaunents evokes the acceleration of economic growth in the pre-war period.

So, it is necessary to explain, why the armaments and military expenditures play an important role as the stimalative factor in the economy of developed countries.

1. The military expenditures are realized in the great scale; so their in fluence on economy is of great importance and stimalates the multiplicator very strongly.

2. Demand for armaments is created by the state and there fore the producers of armaments, i.e. arms, weapons, wor-materials et cetera-may by sure that their all production (supply) will be bought by the state. There is no danger that the supply may overcome the demand, evoking the overproduction.

3. The state's demand for armaments production is on the high level of completeness, Almost all branches of production can produce goods for the armed forces, and there fore the military expencditures of the states stimulate the multilateral growth of the economy as a whole.

4. The technical progress in the armaments production accelerates the renewal of arms, weapons and other military equipment. The process of permanent renovation is going on both- in the armaments industry and as well as, in the armed forces.
It results the permanent increase of the state's demand for new systems of military equipment and evokes the continuous process of military expenditures.

5. The growing production of the armaments goods has for reaching repercussions and applications in all branches of the capitalist economy. It brings to effect high level of employment and wages, high rate of profit of the corporations almost full utilization of the productive capacities - and as a result of these acceleration of economic growth.

CamScanner الممسوحة ضوئيا بـ

6. The military expenditures are usualy approbated by the population of the highly developed countries.
The population is able to approve these expenditures appropriated to the budget of the state under the influence of the anticommunistic propaganda constrained to support the policy of the government.

On the controry, the influence of armaments production and military expenditures on the economy of socialist and developing countries restricts the consumption of the population.
The limited production of the consumer goods in the period of accelerated armaments, and neglect of the branches of economy, both in the industry and in the agriculture, produceing them, has for reaching repercussions and a direct bearing on the level of living of the population for a long time after the limitation in the current consumption are given up. For that reason the socialist and the developing countries are highly interested in restriction of the armament race.
In spite of this, these countries must realize the policy of the national defense, as the result of permanent danger of imperialistic agression.
The negative influence of militory expenditures on.

CamScanner الممسوحة ضوئيا بـ

the socialist and developing economies ispresented by very simple way on the diagram 2.
This type of countries is characterized by thelack or shortage of productive capaci..ies, so we can assume that these capacities are fully utilized. The result of this assumption is, that the national income is a data at given time, and it is not possible increase of production by way of employment of idle capacities.
The division of national income on two parts:
the accumulation and the consumption, presented on the diagram, evidently shows, that the military expenditures, as a part of accumulation are the compulsory factor debased the altitude of the consumptions fund.

Diagram 2.

The influence of military expenditure
on the level of consumption in socialist economy
and in developing countries.

A- denotes the accumulation fund

C- denotes the consumption fund

M- denotes the military expenditures

Y- denotes the national income.

The repercussions of the world armaments race are particulary negative for developing countries. The world military expenditures in 1975 were about 240 - 250 billion US dollars.

The financial aid declared by developed countires for the third World was at the same time about 10 billion US dollars

The military expenditures of the United States only, were in 1974 about 80% higher than the total investment fund of all developing countries.

The share of military expenditures in the world's GNP is from Year to Year near to 6,8 %, and in the United States about 7,5 % .

The level of military expenditures of several countries per head in 1972 was as follows:

Israel - 480 $

United States - 387 $

Sweden - 145 $

Great Britain - 130 $

Federal Republic of Germany - 132 $

France - 130 $

Czechoslovakia - 123 $

German Democratic Republic - 126 $

Poland - 70 $

Egypt - 35 $

The imost evident example of military inequality we can see in comparison of two countries engaged attention of the contemporary world in case of the Midlle - East conflict.

In 1972 the numbers of soldiers in Egyptian and Israeli armies were almost at the same level, about 250 thousands. The share of military expeditures in GNP in Israel was more than 25-26 %, in Egyptian GNP 23 %, but these expenditures accounted per heal of the population were in Israel almost fourteen times higher than in Egypt.

This situation illustrates the results of imperialistic policy not only of the lsrael, but first of all, of the United States. The military aid of the Unitedx states for israel made possible increase and equipment of the lsraeli army, which is permanently a greatest danger for Arabic countries in the Midlle-East region, Parallely, the Israel's armaments connote the necessity of defensive preparations in Arabic countries. It means, that the important part of their national income must be deveted for defensive expenditures . It is an evident factor decreaseing the rate of economic growth in developing countries in this region of the world.

The conclusions of this fact are very clear. The economic development of the developing countries is conditioned, First of all, by the possibilities of release from the war- tension, and to realize peaceful economic activity, and in the second place by the increase of the foreign contribution from the highly developed countries. The sources for this contribution are in the hands of the governments of developed countries, if they would restrict their military expenditures, and devote the saved means for the economic development of the third World.

الممسوحة ضوئيا بـ CamScanner