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CHAPTER 2

The National Product and Its Composition

As suggested in the preceding chapter, the size and composition of the national product will have an important bearing on the economic sacrifices the American people will unavoidably make during the war. More specifically, these sacrifices will tend to vary inversely with the volume of the particular goods and services available for civilian consumption after military requirements have been satisfied.

In this chapter we first give some estimates of the gross national product as a whole, discussing both the near-term probabilities and the approximate maximum level that can reasonably be expected. We then analyze the volume of the goods and services likely to be available for civilian consumption under the exigencies of war and at the expected levels of the gross national product. Finally, we indicate the kinds and amounts of the particular goods and services which will probably have to be diverted from civilian use in order to provide adequate resources for our military needs.

1 OUTLOOK FOR THE NATIONAL PRODUCT

A significant fact, from the standpoint of estimating the probable future level of the gross national product, is that previous increases in it, in constant dollars, reflected roughly proportionate gains in the number employed. Thus, during the most recent period of rising income, 1933–40, the addition of one million workers to the total employed accompanied a rise in the gross national product of about $3.9 billion

on the average,[1] while during 1938–40 the increment per million workers added was $5 billion.

As already pointed out, the gross national product rose rapidly during the early stages of the defense program. For the year ended December 31, 1941, it approximated $113.5 billion, a gain of $20 billion over the twelve months ended June 30, 1940. Accompanying an average gain in employment of about 4 million workers, it amounted to an increment of $5 billion per million workers added, or about 25 per cent above the average relationship for 1933–40, $3.9 billion per million workers, and exactly equal to the relationship shown for the shorter period, 1938–40.

As long as we can continue to employ additional workers, we can hope for further gains in the national product. Except for the possibilities of increasing total output by improving industrial efficiency and lengthening the work week, the maximum level of the national product during the war will have been reached when our total labor force is employed. This maximum level may be estimated by ascertaining, first, the total additional labor force available for employment during 1942 and 1943, and second, the probable rate of increase in the national product as these additional workers are absorbed into industry.

In estimating the additional labor force that may be absorbed during the war, we must recognize at the outset that data on unemployment are notoriously bad. For example, in the spring of 1940, just before the defense program was launched, estimates ranged from 8 million to 11.5 million.[2] Careful study leads us to believe that the total unemployed at the start of the defense program may reasonably be placed at 8.5 million.

From June 1940 through December 1941 approximately 4.5 million workers went into industry and about 1.5 million into the armed forces. Offsetting this drain on our labor supply of about 6 million, 900 thousand were added from the natural growth of population and approximately 600

thousand were drawn from self-employment and home employment. Making these additions and subtractions, we estimate unemployment at about 4 million in January 1942.[3]

Before we can arrive at a figure for the labor force that may be absorbed during 1942 and 1943, further additions and subtractions must be made. In the first place, we believe that the present total of unemployed includes at least one million persons who should be classified as unemployable. This figure, however, will be approximately offset by the normal increment from the growth of population which may be estimated with reasonable accuracy for the two years at something over one million. Second, the armed forces are likely to absorb an additional 4 million.[4] This amounts to assuming that additions to the armed forces will fully equal the total unemployed. Net additions to the labor force during the next two years will have to come from other sources.

The number likely to be drawn into employment from the great reservoir of women not heretofore gainfully occupied, and from youths in school and on farms, is difficult to estimate. According to the 1940 Census, the total population in the United States between the ages of 16 and 65 was 87.2 million. Subtracting those classified in these age groups as unable to work, as well as the inmates of institutions, leaves 84.1 million persons of both sexes. This figure might be called the maximum *potential* labor force of the nation and compares with the Census figure of 50.5 million as the *actual* labor force within these age limits. Of the difference, some 33.5 million, 26 million were accounted for by women doing their own housework, and slightly more than 5 million by youths in school.[5]

There is no rational method of estimating how large a proportion of this vast labor reserve might be called forth should the war crisis become very grave, but we can be sure that the total will tend to vary directly with the intensity of the crisis. British and Russian experience in 1940 and 1941 shows what can happen under the pressure of threatened or actual

invasion. In the absence of such emergencies, however, the number called forth is likely to be a relatively small proportion of the total reserve, and will tend to be limited by the speed and efficiency with which industrial facilities and material supplies are expanded to meet military demands. After weighing these factors, and assuming no serious deterioration of our strategic position, we estimate that some 3 million workers are likely to be added to the labor force from this reserve during the next two years, and we accept this as our estimate of the total additional labor force likely to be drawn into employment between the beginning of 1942 and the end of 1943. Accordingly, although the potential labor reserve is much greater, the reasonable probabilities indicate that the total employed labor force in 1943 may exceed the total for 1941 by about 3 million.

If this additional labor force could be employed with concomitant gains to the gross national product of the same average magnitude as that experienced in 1938–41, $5 billion per million additional workers employed, some $15 billion would accrue to the $113.5 billion of gross national product in 1941, giving a total of approximately $128 billion. This figure would assume a continuation of the same average relationship as existed when ample time made an orderly absorption of workers possible, and when shortages of skilled labor, plant, materials, and transportation were not factors.

Under the stresses of war, a somewhat less favorable relationship is possible, although the reduction or elimination of seasonal and certain other let-downs in the rate of industrial operations will work in the opposite direction. Allowing for these conflicting tendencies, we believe that a level of gross national product of about $125 billion may reasonably be expected if the estimated supply of additional workers is completely absorbed into industry. We believe, also, that a higher level of approximately $130 billion is attainable during the war, but only under conditions sufficiently favorable to offset declining efficiency as we approach full utilization,

conditions such as a longer work week for a large part of the labor force, considerable expansion of plant facilities in strategic lines, such as steel, rubber, and aluminum, and the high morale that may be expected in connection with an all-out military effort.[6]

These estimates of $125–130 billion of gross national product, expressed as they are in dollars of 1940 purchasing power, will be equivalent to proportionately larger amounts in current dollars to the extent of any general rise in prices from the 1940 level. Thus, if prices average in a subsequent year 20 per cent above those of 1940, the gross national product in current dollars would have to be $150 billion to be equivalent to the above estimate of $125 billion in 1940 dollars, and $156 billion to be equivalent to our estimate of $130 billion.[7]

How soon may we expect to attain the maximum levels of output indicated above? Chapter 1 pointed out that time is of the essence for an expansion of national product. It also made clear that, by autumn 1941, we had already passed beyond the stage of rapid and easy expansion, and that further advance was likely to be progressively slower as material and labor shortages forced the curtailment of civilian production in order that military output might be stepped up.

Since our formal entry into the war, and the consequent intensification of our military effort, this tendency has become even more pronounced. Paradoxically, the more we intensify our war effort from this point on, the slower is likely to be the rise in the national product. The reason is that a rapid expansion of military output can now be achieved only at the expense of reducing civilian production, and the greater the pressure for speed in this direction the more serious will become the frictions and losses in the transition process.

On the whole, we believe that the gross national product, in 1940 dollars, for 1942 will show a considerable rise over the level of 1941, and will probably reach about $125 bil-

lion, despite great difficulties and frictions of transition during the first half of this period. We believe also that further gains may be expected in 1943, but we feel that they are likely to be small, chiefly because of the limitations to further expansion of output imposed by our capacity to produce such essential materials as steel, copper, and aluminum. In fact, during the fiscal year ending June 30, 1943 the maximum level of gross national product, estimated above at between $125 and $130 billion, may be reached.

If the war should last beyond 1943, we may have to cope with such factors as human exhaustion and declining industrial efficiency from the undermaintenance of plant and equipment. In other words, we cannot confidently expect that the national output will remain at its maximum level for any considerable period. The strains and inefficiencies involved when the economy is operating at such a pitch are likely to cause a gradual decline in the national product after a time.

2 COMPOSITION OF THE NATIONAL PRODUCT

In and of itself a projected increase in total output is not especially significant for our problem. It is equally important that we know as much as possible about the composition, the types and amounts of goods and services which make up this total, and the shifts in the composition likely under the impact of the war. For example, it will be of great interest, from the standpoint of civilian consumption, to know what we may expect during the next few years in such lines as housing, automobiles, wearing apparel, and foodstuffs; and, from the standpoint of the army and the navy, what part of the rising output is to consist of tanks, planes, guns, and battleships.

Abundant evidence suggests that during 1941 all types of goods and services were forthcoming in larger volumes. That is, military output went hand in hand with substantial increases in practically all lines of production for civilian

use. Between July 1940 and June 1941, production of aircraft rose 127 per cent, shipbuilding more than 130 per cent. The draft army was clothed, housed, and equipped with small arms while substantial progress was made in starting the production of heavy armaments. Reflecting increased civilian consumption, department store sales rose 11 per cent. For the first four months of 1941 passenger automobile sales were 35 per cent and electric refrigerator sales 22 per cent higher than in the same period of 1940. For the first five months of 1941 the construction of private residential houses was 22 per cent above the same period of 1940.

Our ability to meet civilian demand at the same time that we were greatly enlarging military production was due primarily to the fact that we began our defense effort with idle men who could be put to work in idle plants. While the composition of the national product was somewhat altered, no serious obstruction appeared to the flow of consumer goods in response to new demands. As already indicated, this situation began to change in the autumn of 1941 as the defense program got into high gear. Competition between defense and civilian needs for strategic materials, skilled labor, plant facilities, and transportation had clearly reached a point where our military output could not be rapidly expanded further unless scarce resources were diverted to the armament industries. Curtailment programs affecting consumer durable goods, such as automobiles, refrigerators, and washing machines, soon brought this fact home to the consumer.

Before attempting to forecast the probable shifts in the composition of the national product, we need to understand its composition during the immediate pre-defense period. As a benchmark for this purpose, Tables 3-5 give estimates of the major components in 1939 and 1940. Since the average level of prices in 1940 was only about 1.5 per cent above that of 1939, we are justified in regarding these figures as practically equivalent to figures in 1940 dollars. Before the

defense crisis the great bulk of the gross national product was made up of consumer goods and services (Table 3). In 1939, they constituted 70 per cent, but declined in 1940 to

TABLE 3

Estimated Composition of the National Product, 1939–1940
(billions of current dollars)

CALENDAR YEAR	CONSUMER GOODS & SERVICES	PRIVATE GROSS CAPITAL FORMATION	TOTAL PURCHASES OF GOODS & SERVICES OF ALL GOVERNMENTS	GROSS NATIONAL PRODUCT	DEPRECIATION & DEPLETION & ALL BUSINESS TAXES	NET NATIONAL INCOME
1939	62.0	11.0	15.1	88.1	17.3	70.8
1940	66.2	14.6	16.3	97.1	19.8	77.3

SOURCE: Preliminary Estimates of Gross National Product, 1929–41, by Milton Gilbert and R. B. Bangs; *Survey of Current Business,* May 1942, p. 12, Tables 1 and 2.

The column for capital formation pertains only to private capital goods. The column for total government expenditures introduces an element of expenditure for government capital goods, but the amount is difficult to determine even in peacetime, and is especially so in wartime. Similarly, the appropriate estimate of depreciation on government capital goods is difficult to determine, and Table 5 omits all figures on government capital goods, both the gross and the net figures (after deduction of depreciation).

The figures for gross national product do not correspond to figures frequently given for gross national income, a term used to specify the national income before deduction of depreciation and depletion to secure net national income. They refer rather to a measure of national output which is gross not only in the sense that no deduction for depreciation and depletion has been made, but also in the sense that business taxes and certain other items which come out of the gross product at sales prices before computation of net national income have been left in. The reason for stating this gross figure on this basis is that especially in wartime, when government expenditures for armament assume huge proportions, the comparison of such expenditures with measures of net national income, or even of gross national income, as customarily calculated, overlooks the fact that the prices of military goods include certain elements customarily deducted in calculating net national income and even certain elements not present in gross national income as customarily defined. The column for depreciation and depletion includes also income credited to other business reserves and capital outlays charged to current expenses, and a correction for revaluation of business inventories.

68 per cent, although increasing in absolute dollar volume. Private gross capital formation, on the other hand, increased from about 12.5 per cent of the total in 1939 to approximately 15 per cent in 1940, this increase being typical of a period of rising national output.

Of goods and services produced for consumers, perishable items, largely food, account for something over 43 per cent; semidurable commodities, such as clothing, shoes, and household furnishings, for about 14 per cent; while durable goods, such as automobiles, refrigerators, and furniture, rose from 11.5 to 12.5 per cent of total consumer goods and services (Table 4). This rising proportion of durable goods is typical of a peacetime period of rising output, and the limitations on our ability to provide this type of commodity in the years ahead constitute one of our most serious problems.

TABLE 4

Composition of Consumer Goods and Services, and the Percentage each Category Constitutes of the Total, 1939–1940

CALENDAR YEAR	PERISHABLE	SEMIDURABLE	DURABLE	SERVICES	TOTAL
		Billions of current dollars			
1939	26.9	8.9	7.1	19.1	62.0
1940	28.6	9.3	8.3	20.0	66.2
		Percentages of total			
1939	43.5	14.5	11.5	30.5	
1940	43	14	12.5	30.5	

SOURCES: for all consumer goods, W. H. Shaw, The Gross Flow of Finished Commodities and New Construction, 1929–41, *Survey of Current Business*, April 1942, p. 16; and *ibid.*, May 1942, Table 2.

Consumer services, a broad category covering personal services (dressmakers, laundries, cleaning and pressing agencies, etc.), home services (residential rents, domestic service, utilities), education and religion, medical, transportation, and recreation services, represented about 30 per cent of

total goods and services in these years, and ordinarily tend to rise with output.

The private capital goods component of the gross national product must inevitably undergo substantial changes during the war. Of total private capital goods produced in 1940 (before provision for depreciation and depletion), approximately 60 per cent were accounted for by private business and 15 per cent by residential construction (Table 5).

TABLE 5

Composition of Private Capital Goods, 1939–1940
(billions of current dollars)

	CALENDAR YEAR					
	1939			*1940*		
	Gross	Depreciation & Depletion	Net	Gross	Depreciation & Depletion	Net
1) Business plant and equipment	7.0	6.4	0.6	8.7	6.5	2.2
2) Net increase in inventories	1.1		1.1	1.9		1.9
3) Residential construction	2.1	2.2	–0.1	2.3	2.5	–0.2
4) Net addition to claims against foreign countries	0.8		0.8	1.4		1.4
5) Domestic purchases of monetary metals	0.0		0.0	0.3		0.3
Total	11.0	8.6	2.4	14.6	9.0	5.6

SOURCES: *Survey of Current Business,* May 1942, p. 12; The Anatomy of Public Spending, Part II, Richard M. Bissell, Jr., *Fortune,* June 1942, p. 132.

Expected Changes in Composition

If 1942 and 1943 were to be an ordinary peacetime period of rising output, we could expect no other kinds of change in the composition of real income than have occurred in similar periods in the past. Goods and services for consumers could be expected to increase absolutely but decline as a percentage of the total, while capital goods could be expected to increase both absolutely and relatively. Such usual relationships, how-

ever, are certain to be radically altered by the impact of the total war in which we are engaged. In the ensuing pages we analyze the major shifts likely to occur during 1942 and 1943 in the composition of the national product.

a) *Perishable Goods: Foods*

On the whole, the outlook for food supplies in 1942–43 is favorable, and for 1942 at least, food production should be ample to supply both domestic and export requirements. Although moderate shortages may develop in certain special lines, these should be offset by our tremendous capacity for producing many staple foodstuffs.

TABLE 6

Estimated 1941 Production, Expected 1942 Production, and Percentage Increase for Selected Food Crops

	1941 EST.	*1942* GOAL	% INCREASE
Milk (million lbs.)	116,500	125,000	7.0
Hogs (millions)	72.5	83	14
Cattle and calves (millions)	25.9	28	8
Chickens (millions)	582	644	10
Eggs (million doz.)	3,728	4,000	13

SOURCE: U. S. Department of Agriculture press release, Jan. 16, 1942.

Table 6 suggests the extent to which the supplies of certain basic food products are expected to increase in 1942 over the high levels of 1941. Milk production is expected to gain 7 per cent, from under 117 billion to 125 billion pounds, which, it is thought, will be adequate for both the enlarged domestic and Lend-Lease consumption of dairy products. Chickens and eggs are estimated to gain some 10 and 13 per cent respectively. Although supplies may not be entirely adequate, livestock production is expected to increase. Hog production for 1942 is estimated at almost 14 per cent above 1941, while cattle and calves are expected to be up about 8 per cent.

Cereal supplies as a whole should be ample. Although

1942 winter wheat production was estimated on June 10, 1942 at only 647 million bushels, whereas 1941 production was about 680 million bushels, the carryover of wheat in the United States on July 1, 1942 is estimated at the record total of 630 million bushels.[8]

Vegetables should be in substantially larger volume in 1942 than in 1941, while domestic fruits, production of which cannot be expanded quickly, will doubtless have to be supplemented by imports.

A real stringency was already evident by spring 1942 in our sugar supplies. Our usual supply from the Philippine Islands had been eliminated for 1942, we were having serious difficulty in importing sugar from Hawaii, and the submarine menace was reducing imports even from nearby Cuba.

Beyond 1942 the outlook for food supplies seems somewhat less favorable. We shall probably be called upon to satisfy an increasing demand from Great Britain because of shipping difficulties in bringing supplies from more remote sources. In addition, if our military outlays reach half of the gross national product, we are likely to experience a shortage of agricultural labor. Although our supply of foodstuffs as a whole in 1943 is not likely to fall much below the level of 1940, moderate stringencies are expected in some meats, dairy products, sugar, and fruits. Demand for these semi-luxury items tends to increase more rapidly than that for staple foodstuffs in periods of rising output.

b) *Semidurable Goods: Wearing Apparel*

The outlook for clothing supplies and those of other semidurable goods, while definitely favorable for some important items, presents a very mixed picture on the whole. In the first place, there should be little difficulty in supplying the expanded demand for cotton goods indicated by our estimates. Even though domestic consumption of raw cotton has been running at the record rate of 10.5 million bales annually, little ground exists for fearing a shortage. Production is

still sufficient at least to balance the current high rate of consumption, and the carryover at the end of 1941 amounted to more than a year's supply. Facilities for handling and processing the larger volume of raw cotton seem adequate.

The outlook for woolen goods is much less encouraging. In 1941, a year of high activity, we produced only about one-half of our domestic needs for apparel wool, importing the balance from Australia, New Zealand, South Africa, and South America. Since our processing facilities seem fully adequate, the prospective shortage of woolen goods turns largely on shipping facilities. The progressive shortage of ships is reducing our foreign supplies of raw wool, particularly since most of the sources are far distant. The war in the Pacific may cut off entirely our chief foreign sources, Australia and New Zealand. This condition will be aggravated, as far as civilian consumption is concerned, by the great demands of the armed forces for woolen goods.

Shipping is also the decisive factor for shoes and leather goods. In 1941 only about two-thirds of our requirements for hides were supplied domestically; the balance was imported from South America. Although some stringency is likely in shoes and leather goods, it will become serious only if the submarine menace in the Atlantic should cut off our access to South American sources.

The war in the Pacific has brought us face to face with acute shortages in rubber and silk. The chief former source of our rubber was in Malaya and the Dutch East Indies, now overrun by Japan, and less than eight months' supply was on hand in the United States at the end of 1941. Almost immediately after we entered the war, domestic production of tires for passenger automobiles was sharply curtailed. With military needs for rubber rising steadily, civilian uses have been drastically restricted, and substitute materials are certain to prove inadequate to bridge the gap. Practically our sole source of silk, Japan, was virtually cut off some time before the war started. Because of war requirements

for silk in the manufacture of parachutes and powder bags, civilian consumption has been virtually eliminated. The silk shortage, however, should not prove nearly as serious as that in rubber because of our large domestic capacity to produce rayon and other substitutes.

In summary, we see a likelihood of some real stringencies in certain important lines of consumer semidurable goods, such as wool, silk, rubber, and possibly leather. The extent will be closely correlated with the tightness of the shipping situation and the progress of the war in the Pacific. For the class as a whole, progressive curtailment seems likely in 1942. In 1943 aggregate civilian consumption may be as low as $7-8 billion in 1940 dollars, compared with about $11 billion in 1941. Moreover, many plants producing luxury or non-essential items may be closed in order to release workers for war industries.

c) *Consumer Durable Goods*

Under ordinary conditions of rising output, as shown in Table 5, production of consumer durable goods tends to rise conspicuously to satisfy the greater demand. During the war this category is certain to suffer a drastic curtailment. Production of automobiles, refrigerators, and washing machines means competition for materials, such as steel, zinc, aluminum, copper, tin, glass, and rubber, for skilled workers, and for mechanical facilities, all of which can be devoted directly to arms production. In 1940 automobiles alone (including spare parts and accessories) consumed 16 per cent of steel output, 51 per cent of malleable iron, 80 per cent of crude rubber, 13 per cent of copper, and 12 per cent of tin.

Even before we entered the war, it had become evident that almost all kinds of consumer durable goods would have to be drastically curtailed if military output were to be expanded further. Progressively lower quotas for passenger automobiles, put into effect in autumn 1941, were intended

to restrict production of 1942 models to approximately half of the totals produced in the 1941 model year. Similar restrictions were placed on the production of refrigerators, washing machines, and radios. Early in 1942 production of passenger automobiles and of many other durable goods was stopped entirely and we can expect this trend to become more and more accentuated.

We can expect declines far below the total of about $10 billion registered by this category in 1941, and in 1942 and 1943 the total will probably not amount to more than $2-3 billion annually. Operation of automobiles is almost certain to decline markedly because of inability to replace worn-out cars, the acute shortage of tires, and shortages of gasoline in certain areas because of transportation difficulties.

This curtailment will, however, come after the unusually high levels of production reached in 1941. During the first nine months of 1941 not only was deferred demand in most of these lines substantially filled but also considerable forward buying occurred in anticipation of future shortages. For example, refrigerator sales totaled over 3 million units compared with about 2.8 million for all 1940; sales of electric ranges totaled over 500,000 units [9] compared with 380,000 for all 1940; sales of washing machines and vacuum cleaners gained approximately 40 per cent over the same period in 1940. Production of automobiles and trucks in the first nine months of 1941 totaled 4,031,000 units,[10] a gain of about 22 per cent over the same period in 1940. With the exception of automobiles, the use of which will be severely restricted by rubber and gasoline shortages, any widespread civilian shortages of these facilities will tend to be minimized during the next year or two.

d) *Consumer Services*

This category ordinarily expands with a rise in output, as is suggested in Table 4. People have more funds with which to command better housing accommodations, more trans-

portation and utility services, more amusements, doctors, tailors, lawyers, etc. During the war, however, this class as a whole should show a moderate but progressive decline, although our military effort should not mean a substantial diversion of resources from it. Stringencies will develop in some areas as the armed forces require more doctors and dentists, as the transportation and utility systems become increasingly burdened, and as domestic servants go into factory employment. As a result of the increasing shortage of labor, some curtailment is also likely in amusement industries as well as in various personal service industries, such as barber shops, beauty shops, laundries, and cleaning establishments.

e) *Capital Goods*

A rising national output is usually associated with a relatively greater expansion of capital goods than the rise in total output, as is indicated in Table 5. Thus, net additions to private capital goods rose from $2.4 billion in 1939 to $5.6 billion in 1940, a gain of about 130 per cent.

These figures refer to *net additions* to capital goods, a total derived by deducting from gross capital formation the depreciation and depletion accrued or imputed in a given year. The actual amount of private capital goods produced in any year exceeds net additions by the allowance for depreciation and depletion. For the purposes of this analysis, the *gross* amount of private capital goods, rather than net additions, is the really significant total, because it shows the actual volume of physical installations, while allowances for depreciation and depletion are simply bookkeeping deductions to enable us to estimate the annual net increment to our stock of physical capital. As set forth in Table 5, the gross volume of private capital goods in 1940 amounted to $14.6 billion, and deductions for depreciation and depletion to $9.0 billion, leaving $5.6 billion for net additions to private capital goods. The reader should also be reminded

that the totals in Table 5 are for *private* capital formation alone, and therefore exclude government capital formation. Thus, the enormous outlays by the federal government for armament plants and other capital items are treated in this analysis as military expenditures, not as capital goods items.

In contrast to the large increase from 1939 to 1941, the private capital goods category is certain to decline sharply during 1942 and 1943, despite very substantial additions for defense purposes. Sharp curtailments will be inevitable in the availability of machine tools, structural steel and other building materials, skilled labor and transportation facilities for the construction of residential buildings, business plants and equipment, bridges, schools, etc., except to the extent that such construction is deemed essential for war purposes.

As a result of the tremendous increase in defense plant additions and other military construction, gross capital additions are estimated to have expanded to approximately $18 billion in 1941 compared with $14.6 billion in 1940. Gross additions to plant and equipment for private business were estimated at $8.7 billion for 1940 (Table 5). The total for 1941 is estimated at about $11.4 billion as a result of the substantial increase in additions for defense activities. In 1942 the total should continue large because the enormous program of war plant expansion is still uncompleted. On the other hand, plant and equipment for non-defense industries will be curtailed sharply as pressure to supply armament needs becomes greater on the machine tool industries, steel, and other lines. In 1943, with the war effort at a peak and with the armament plant program largely completed, total gross additions to private business plant and equipment for all purposes should decline sharply, and will probably amount to not more than one-half of the total for 1940.

Not only will non-defense industries find it impossible to make net additions to plant and equipment, but they will also be forced to postpone most of their normal replacements of old plants and machinery. Such postponement of

replacements, or undermaintenance of capital, releases resources to the war effort. For example, if the machinery in a factory, a part of which normally would have been replaced in 1942, is made to operate a year or two longer, resources in the machine tool industry are freed to provide equipment for turning out machine guns, tanks, or airplanes. As pointed out in Chapter 1, this is one of the few methods by which we can borrow from the future. When the armament program hits its full stride, the undermaintenance of capital in non-military lines will probably be at least equal to net capital additions in war industries; there will be no net capital additions for private industry as a whole, and there will probably be a substantial net decline.

Gross residential construction in 1940 was placed at $2.3 billion, or slightly less than the imputed allowance for depreciation. In 1941 it is estimated at $2.7 billion, showing a moderate increase over 1940. During the last few months of 1941, however, the influence of priority rulings had already checked new private construction. In 1942 gross residential construction is expected to decline progressively as private projects are completed. In 1943 total privately financed residential construction for all purposes other than necessary repairs and maintenance should be extremely small.

Another item of business investment is inventory accumulation, or the net increase in business inventories from one year to the next. In 1940, it was $1.9 billion and is estimated at $3.9 billion in 1941. Under the pressure of increasing shortages and of tighter governmental controls in 1942, however, inventory accumulation will undoubtedly slow down and may actually become negative. In 1943 the depletion of business inventories should be substantial and become a significant negative figure in the capital goods component. Net foreign claims, exclusive of Lend-Lease claims, will also decline and probably become negative in 1942 and 1943, since imports are likely to rise to ease domestic shortages, and

since an increasing proportion of our exports will consist of Lend-Lease shipments.

The capital goods items considered above, private business plant and equipment, residential construction, inventory accumulation, net foreign claims, should all decline progressively and substantially throughout the war. As a rough estimate, we believe that total gross private capital additions in 1942 may not exceed $10 billion. This would about equal estimated depreciation and depletion. We roughly estimate gross private capital additions in 1943 at not more than $3 billion, which would mean net capital consumption, or undermaintenance, of about $7 billion, after deducting estimated depreciation and depletion.

Summary of Outlook for the Composition of the National Product

Shifts in the composition of the national product during 1942 and 1943 will reflect the diversion of resources to military needs. Once past the early stages of rearmament we cannot have both guns and all the butter we want. When war production reaches the magnitudes indicated for 1942 and 1943, mechanical facilities and skilled workers are certain to be inadequate for both, and non-military output will have to decline.

As suggested in the preceding chapter, we believe that military outlays in 1943 may be as high as half of the gross national product. The current rate of military expenditures indicates that military outlays in 1942 are likely to be about $50 billion. This would mean in 1940 dollars about $43 billion or 34 per cent of an estimated gross national product of $125 billion for 1942. For 1943 we estimate military expenditures at roughly $61 billion, in 1940 dollars, or nearly 50 per cent of an estimated gross national product of $128 billion.

In this chapter, we have analyzed in some detail the probable shifts in the composition of the national product which

may be expected as a result of such military expenditures, and have indicated the corresponding civilian sacrifices. In Table 7 the results of this analysis are summarized. Using Department of Commerce estimates for 1940 and 1941 as a base, we have projected these estimates for 1942 and 1943,

TABLE 7

Estimated Composition of the Gross National Product, 1940–1943 (billions of 1940 dollars)

	CALENDAR YEAR			
	1940	*1941*	*1942*	*1943*
Civilian consumer goods & services				
Perishable	29	32	29	27
Semidurable	9	11	9	7
Durable	8	10	3	2
Services	20	19	18	17
Total	66	72	59	53
Private gross capital formation	15	18	10	3
Total purchases of non-military goods & services by all governments	13.5	13	13	11
Military outlays	3	10.5	43	61
Gross national product	97.5	113.5	125	128

SOURCE: *Survey of Current Business,* April and May 1942. Figures for 1942 and 1943 are our own estimates, based upon figures available to date.

on the assumption of levels for gross national product and military outlays as indicated above. These estimates are not intended to be precise forecasts but, because of the many variables involved, should be considered merely as rough approximations of what may be expected within the limits suggested for gross national product and military expenditures.

As we have already seen, food supplies should be reasonably adequate for domestic consumption, despite stringencies in certain lines. Supplies as a whole in 1942 should be about equal to the 1940 level, although about 10 per cent less than the high level of 1941. A further moderate decline may be expected in 1943. The expected curtailment in wearing apparel and other semidurable goods is considerably more, be-

cause of actual and prospective shortages of many important materials, such as wool, silk, rubber, and leather. In 1943 it may amount to as much as 35 per cent from the 1941 level.

The most drastic curtailment in consumer goods will be among durables, and the total available for the civilian population may not be more than 20 to 30 per cent of the 1941 volume. New automobiles, refrigerators, washing machines, radios, etc., for civilian use are likely to be almost non-existent. Consumer services are expected to decline gradually but steadily, as the labor shortage draws workers away from non-essential services, and as our transportation and utility systems become overburdened.

Considering consumer goods and services as a whole, we estimate that the volume available for civilian use may decline as much as 18 per cent in 1942, and as much as 26 per cent in 1943, from the 1941 level. Since everyone will have plenty to eat and reasonably satisfactory supplies of clothing, we do not expect much actual civilian suffering from the greater curtailments in other less essential lines.

Total capital formation, exclusive of government financed capital additions for military purposes, will decline markedly during the next two years. Fortunately, however, this also is an area in which substantial curtailments can be made without causing much actual civilian suffering. We estimate that gross private capital formation in 1942 will be little, if any, above the annual accruals for depreciation and depletion; in 1943 we believe it will be about one-third the 1942 total, and about one-sixth that of 1941. This will mean a substantial consumption, or undermaintenance, of our capital stock, which may amount to $7 billion or more.

We believe these estimates represent the minimum, rather than the maximum, of civilian curtailments which may be expected if our military outlays reach the levels indicated. If gross national product should rise to $130 billion or more in 1943 instead of the estimated $128 billion, most of the increment would undoubtedly consist of military goods. If,

however, the national product should be less than $128 billion, as is entirely possible, further declines in civilian consumption could be expected rather than any curtailment of our military program.

Finally, Table 7 shows clearly the sources from which the increase of $58 billion in our military outlays from the total of $3 billion in 1940 to the assumed level of $61 billion in 1943 may be derived. Of this gain, $30 billion should come from actual expansion in the gross national product, $13 billion from reduced civilian consumption, $12 billion from curtailed private capital formation, and $2-3 billion from a reduction in federal non-military outlays.

NOTES

[1] The average relationship was found by fitting a straight line to the two series: employment as represented by annual averages of the monthly employment figures published by the National Industrial Conference Board, and the gross national product as represented by the Department of Commerce series (*Survey of Current Business,* May 1942) adjusted to constant dollars, here the average of 1935–39. Prices in 1940 averaged the same as 1935–39.

[2] Alvin H. Hansen has estimated an average of 9 million unemployed in 1940 (*Review of Economic Statistics,* Feb. 1941, p. 1). J. P. Wernette's estimate of the total unemployed in the spring of 1940 was also 9 million (*Harvard Business Review,* Spring 1941, p. 288). The preliminary Census report of March 1940 indicated a total of 8 million, while 8.5 million is reached by subtracting total average employment in 1940 of about 46.5 million, as estimated by the National Industrial Conference Board, from the total labor force in 1940 of about 55 million, as estimated by the Bureau of Labor Statistics (*Journal of the American Statistical Association,* June 1941, pp. 167-8).

[3] The Work Projects Administration estimated total unemployment in December 1941 at 3.8 million.

[4] At the end of 1941 our armed forces totaled slightly more than 2 million men. In view of the worldwide struggle, it seems reasonable to assume that this total will reach at least 6 million before a successful conclusion is achieved. The ultimate total, of course, will depend to a considerable extent upon what course the war takes, and it is easily conceivable that our armed forces may greatly exceed 6 million.

[5] Bureau of the Census, Series P-4, No. 8, press release, Nov. 21, 1941.

[6] The current shortage of rubber may soon prove to be a restrictive influence of great importance on a further rise in national output. Our national economy has become so dependent upon transportation by trucks, busses, and

passenger automobiles that it is difficult to imagine what the effects will be when the civilian supply of tires wears out and cannot be replaced. We can be certain, however, that they will be serious. Delivery of manufacturing supplies and equipment is likely to be markedly delayed as the carrying capacity of our railroads becomes overtaxed, the efficiency of our labor force may be reduced as getting to and from work becomes more difficult, and other maladjustments appear. In fact, it is easy to conceive that the tempo of our entire industrial organization may be greatly retarded by this one factor alone.

[7] Gross national product in 1941, as estimated by the Department of Commerce in current dollars, amounted to $119.7 billion (equivalent to about $113 billion in 1940 dollars).

[8] *New York Times,* June 27, 1942.

[9] *Ibid.,* Sept. 28, 1941, p. F-5.

[10] *Ward's Automotive Reports;* Nov. 15, 1941.