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NOTES AND MEMORANDA

FLUCTUATIONS IN NET INVESTMENT IN THE UNITED STATES

IN my *General Theory of Employment, Interest and Money*, Chap. VIII, pp. 98–104, I made a brief attempt to illustrate the wide range of fluctuations in net investment, basing myself on certain calculations by Mr. Colin Clark for Great Britain and by Mr. Kuznets for the United States.¹

In the case of Mr. Kuznets' figures I pointed out (p. 103) that his allowances for depreciation, etc., included "no deduction at all in respect of houses and other durable commodities in the hands of individuals." But the table which immediately followed this did not make it sufficiently clear to the reader that the first line relating to "gross capital formation" comprised much wider categories of capital goods than the second line relating to "entrepreneurs' depreciation, etc."; and I was myself misled on the next page, where I expressed doubts as to the sufficiency of the latter item in relation to the former (forgetting that the latter related only to a part of the former). The result was that the table as printed considerably under-stated the force of the phenomenon which I was concerned to describe, since a complete calculation in respect of depreciation, etc., covering all the items in the first line of the table, would lead to much larger figures than those given in the second line. Some correspondence with Mr. Kuznets now enables me to explain these important figures more fully and clearly, and in the light of later information.

Mr. Kuznets divides his aggregate of gross capital formation (as he calls it) for the United States into a number of categories as follows :—

(1) *Consumers' Durable Commodities*

These comprise motor-cars, furniture and house equipment and other more or less durable articles, apart from houses, purchased and owned by those who consume them. Whether or not these items should be included in investment depends (so far as

¹ Published in *Bulletin* 52, Nov. 15th, 1934, of the National Bureau of Economic Research (New York).

the definition is concerned) on whether the expenditure on them when it is initially made is included in current saving or in current expenditure; and it depends (so far as the practical application is concerned) on whether in subsequent years the owners feel under a motive to make provision for current depreciation out of their incomes even when they are not replacing or renewing them. Doubtless it is not possible to draw a hard-and-fast line. But it is probable that few individuals feel it necessary in such cases to make a financial provision for depreciation apart from actual repairs and renewals. This, in combination with the difficulty of obtaining proper statistics and of drawing a clear line, makes it preferable, I think, to exclude such equipment from investment and to include it in consumption-expenditure in the year in which it is incurred. This is in accordance with the definition of *consumption* given in my *General Theory*, p. 54.¹

I shall, therefore, exclude this category from the final calculation;² though I hope to deal with the problem more thoroughly at a later time. Nevertheless it may be interesting to quote Mr. Kuznets' estimates, which are of substantial magnitude:—

(Millions of dollars.)

	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.
Consumers' Durable Commodities	8,664	9,316	8,887	9,175	10,058	7,892	5,885	4,022	3,737

The above figure for 1929 includes 3,400 million dollars for motor-cars, whilst the depreciation in respect of the same item for that year is estimated at 2,500 million dollars.

(2) Residential Construction

This is an important and highly fluctuating item which should undoubtedly be included in investment, and not in consumption expenditure, since houses are usually regarded as purchased out of savings and not out of income, and are often owned by others than the occupiers. In the *Bulletin* from which these figures are taken Mr. Kuznets gives no estimate for the annual rate of depreciation, etc. More recently, however,

¹ See also *op. cit.*, pp. 61, 62, where I should have made it clearer that the purchase of a house is most conveniently regarded as an act of entrepreneurship.

² It was (inconsistently) included in the figures for gross capital formation given in my *General Theory*, p. 103.

his colleague, Mr. Solomon Fabricant, has published such estimates,¹ which I have used in the following table :—

(Millions of dollars.)

	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.
Residential Construction	3,050	2,965	2,856	3,095	2,127	1,222	900	311	276
Depreciation ¹	1,554	1,676	1,754	1,842	1,911	1,901	1,698	1,460	1,567
Net Investment.	1,496	1,289	1,102	1,253	216	-679	-798	-1,149	-1,291

¹ These figures are calculated in terms of current (reproduction) costs. Mr. Fabricant has also provided estimates in terms of original cost, which for the years prior to 1932 are considerably lower.

(3) *Business Fixed Capital*

Mr. Kuznets here distinguishes expenditure on new producers' durable goods and business construction from the net change in "business inventories," *i.e.* in working and liquid capital; and we shall, therefore, deal with the latter under a separate heading.

The amount of the deduction to obtain net investment in respect of parts, repairs and servicing, and repairs and maintenance of business construction as distinct from depreciation and depletion, which is not made good, depends, of course, on whether the former have been included in gross investment. Mr. Kuznets gives a partial estimate for the former but the figures given below exclude these items both from gross and from net investment. But whilst the result of deducting both the repairs item and the depreciation item probably corresponds fairly closely to my *net investment*, the two deductions taken separately do not closely correspond to my deductions for *user cost* and *supplementary cost*; so that it is not possible to calculate from Mr. Kuznets' data a figure corresponding to my (gross) *investment*.

The following table gives in the first line "the formation of gross capital destined for business use, exclusive of parts, repairs and servicing, and repairs and maintenance of business construction, and excluding changes in business inventories"; and in the second line the estimated "depreciation and depletion" on the same items :—

(Millions of dollars.)

	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.
Gross business capital formation (as above)	9,070	9,815	9,555	10,019	11,396	9,336	5,933	3,205	2,894
Depreciation and depletion ¹	5,685	6,269	6,312	6,447	7,039	6,712	6,154	5,092	4,971
Net Investment.	3,385	3,546	3,243	3,572	4,357	2,624	-221	-1,887	-2,077

¹ These figures are not taken from Mr. Kuznets' memoranda, but from Mr. Fabricant's later and revised estimates. As before they are in terms of current (replacement) cost. In terms of original cost they are appreciably lower prior to 1931 and higher subsequently.

¹ "Measures of Capital Consumption (1919-33)," *National Bureau of Economic Research Bulletin* 60.

(4) *Business Inventories*

For the financial gains or losses arising out of this item there appear to be fairly adequate statistics in the United States, though not in this country. Mr. Kuznets' figures are as follows :—

(Millions of dollars.)

	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.
Net gain or loss in business inventories	916	2,664	-176	511	1,800	100	-500	-2,250	-2,250

This table covers not only manufacturers' stocks but also stocks of farmers, mines, traders, government agencies, etc. From 1929 onwards the figures given in Mr. Kuznets' memorandum of 1934 proved to require correction. Those given above are provisional and approximate estimates, pending the publication of revised figures by the National Bureau.

(5) *Public Construction and Borrowing*

The relevant figure in this context is not so much the gross (or net) expenditure on construction, as the amount of expenditure met out of a net increase in borrowing. That is to say in the case of public authorities and the like, their net investment may be best regarded as being measured by the net increase in their borrowing. In so far as their expenditures are met by compulsory transfer from the current income of the public, they have no correlative in private saving; whilst public saving, if we were to find a satisfactory definition for this concept, would be subject to quite different psychological influences from private saving. I have touched on the problem in my *General Theory*, p. 128, footnote. I propose, therefore, to insert in place of the figures of public construction the "loan expenditure" of public bodies.

Mr. Kuznets has very kindly supplied me with figures for the net changes in the amount of public debt (Federal, State and local) outstanding in the United States, which, except for minor changes in the Government's cash balances, represent the amount of public expenditure not covered by taxes and other revenues.¹ This is given below in parallel with his estimates of the amount of construction by public authorities. The interesting result emerges that up to 1928 there was a net reduction in the public debt in spite of a large expenditure on public construction, and that even up to 1931 some part of public construction was met out of

¹ The details of Mr. Kuznets' compilation are given in an appendix below.

revenue. The excess of borrowing over construction in 1932 and 1933 represents, of course, various measures of public relief.

(Millions of dollars.)

	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.
Public construction ¹ .	2,717	2,612	3,045	3,023	2,776	3,300	2,906	2,097	1,659
Net change in outstanding public debt ²	-43	-280	-244	-10	+441	+1,712	+2,822	+2,565	+2,796

¹ See Mr. Kuznets' Bulletin, Table II, line 22, brought up to date on the basis of more recent data.

² See col. 9 of the table given in the appendix below.

(6) *Foreign Investment*

Finally, we have the net change in claims against foreign countries, estimated by Mr. Kuznets as follows:—

(Millions of dollars.)

1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.
428	44	606	957	312	371	326	40	293

(7) *Aggregate Net Investment*

We are now in a position to combine the above items into a single aggregate. This total is not quite comprehensive, since it excludes construction by semi-public agencies, and a small amount unallocable construction. But Mr. Kuznets is of the opinion that both omissions are quite minor in character and could not much affect the movements of net investment in the table which now follows.

(Millions of dollars.)

	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.
Residential construction .	1,496	1,289	1,102	1,253	216	-679	-798	-1,149	-1,291
Business fixed capital . . .	3,385	3,546	3,243	3,572	4,357	2,624	-221	-1,887	-2,077
Business inventories . . .	916	2,664	-176	511	1,800	100	-500	-2,250	-2,250
Net loan expenditures by public authorities . . .	-43	-280	-244	-10	441	1,712	2,822	2,565	2,796
Foreign investment . . .	428	44	606	957	312	371	326	40	293
Aggregate net investment . . .	6,182	7,263	4,531	6,283	7,126	4,128	1,629	-2,681	-2,529

It is evident that this table is of first-class importance for the interpretation of business fluctuations in the United States. In matters of detail the following points stand out:—

(a) The arrears of residential construction at the end of 1933

must have been enormous. For there had been no net investment in this field since 1925. This does not mean, of course, that the actual state of housing was so bad as this. Some gross investment in housing continued throughout, and the gradual deterioration in the state of accommodation, through obsolescence and decay not made good, does not impair forthwith to an equal extent the actual accommodation available for the time being.

(b) The part played by fluctuations in business inventories is very marked, especially in accentuating the depression at the bottom of the slump. The increase in inventories in 1929 was probably for the most part designed to meet demand which did not fully materialise; whilst the small further increase in 1930 represented accumulations of unsold stocks. In 1932 and 1933, manufacturers met current demand to an extraordinary extent out of stocks, so that effective demand fell largely behind actual consumption. But this, fortunately, is a state of affairs which could not continue indefinitely. A further depletion of stocks on this scale could not possibly take place, since the stocks were no longer there. A level of business inventories so low as that which existed in the United States at the end of 1933 was an almost certain herald of some measure of recovery. In general an aggregate of net investment which is based on an increase in business inventories beyond normal is clearly precarious; and it is easy to see in retrospect that a large growth of inventories in 1929, coupled with a decline in residential construction, was ominous. The figures for 1934, 1935, and 1936 will be most interesting when we have them. One would expect that the recovery of the two former years has been based on a return of inventories to normal and on public loan expenditure, but that by 1936 durable investment was beginning to supplant inventories in making up the total. It is on the continued steadiness of the first two items of the above table at figures not less than those of 1925 to 1928 that the maintenance of prosperity must depend; and it is for this reason that a low long-term rate of interest is so vitally important.

(c) The manner in which the changes in public loan expenditure came in to moderate the fluctuations, which would have occurred otherwise, is very apparent. The manner in which from 1931 Federal borrowing took the place of State and local borrowing, as shown in the appendix below, is striking. From June 30, 1924, to June 30, 1930, Federal loans outstanding fell from 21 to 15 billions, whilst in the same period State and local loans rose from 10 to 16 billions, the total remaining unchanged; whereas

from June 30, 1930, to June 30, 1935, Federal loans rose from 15 to 26 billions and the others from 16 only to 17 billions. The appendix, which gives the figures of public borrowing up to June 30, 1935, shows—contrary, perhaps, to the general impression—that public borrowing was at its height in 1931, and that in 1934–35 it was but little more than in 1929–30.

(d) When comparable figures of income are available, we shall be able to make some computations as to the value of the Multiplier in the conditions of the United States, though there are many statistical difficulties still to overcome. If, however, as a very crude, preliminary test we take the Dept. of Commerce estimates of income (uncorrected for price changes), we find that during the large movements of the years from 1929 to 1932 the changes in money-incomes were from three to five times the changes in net investment shown above. In 1933 incomes and investment both increased slightly, but the movements were too narrow to allow the ratio of the one to the other to be calculated within a reasonable margin of error.

J. M. KEYNES

APPENDIX

Total and Net Outstanding Issues of Public Debt

(Millions of dollars.)

Date.	Total Outstanding Issues.			Net Outstanding Issues.			Net Change.	Average for Calendar Year.
	Federal.	State, County, City, etc.	Combined.	Federal.	State, County, City, etc.	Combined.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 30th, 1924	20,982	11,633	32,615	20,627	9,921	30,548	—	—
" 1925	20,211	12,830	33,041	19,737	10,975	30,712	+ 164	- 43
" 1926	19,384	13,664	33,048	18,790	11,672	30,462	- 250	- 280
" 1927	18,251	14,735	32,986	17,542	12,610	30,152	- 310	- 244
" 1928	17,318	15,099	32,417	16,522	13,452	29,974	- 178	- 10
" 1929	16,639	16,760	33,399	15,773	14,358	30,131	+ 157	+ 441
" 1930	15,922	17,985	33,907	14,969	15,387	30,356	+ 725	+ 1,712
" 1931	16,520	19,188	35,708	16,098	17,457	33,555	+ 2,699	+ 2,322
" 1932	19,161	19,635	38,796	18,673	17,828	36,501	+ 2,946	+ 2,565
" 1933	22,158	19,107	41,265	21,613	17,072	38,685	+ 2,184	+ 2,796
" 1934	26,480	18,942	45,422	25,323	16,771	42,094	+ 3,409	+ 2,173
" 1935	27,645	18,277	45,922	26,137	16,896	43,032	+ 938	—

(Source : Report of the Secretary of the Treasury for year ended June 30th, 1935, p. 424.)

Total outstanding issues exclude a small volume of matured and non-interest bearing obligations (see *ibid.*, p. 379).

Net outstanding issues are equal to total outstanding issues less those held in U.S. Government trust funds, or owned by U.S. Government or by governmental agencies and held in sinking funds.

The table above does not include the contingent debt of the Federal Government, *i.e.*, obligations guaranteed by the United States. These, comprising largely debt issues of the Federal Farm Mortgage Corporation, Home Owners Loan Corporation and the Reconstruction Finance Corporation, were as follows :—

Date.	Millions of Dollars.
June 30th, 1934	691
Dec. 31st, 1934	3,079
June 30th, 1935	4,151
Dec. 31st, 1935	4,525

(See *Cost of Government in the United States*, by the National Industrial Conference Board, pub. no. 223, New York, 1936, Table 26, p. 68.)

A NOTE ON INDIA'S AGRICULTURAL INCOMES

IN view of the recent discussions regarding the great fall in India's agricultural incomes and the consequent reduction in the purchasing capacity of the cultivator, it is of interest to consider the statistics compiled by the Department of Commercial Intelligence, India, showing the precise extent of the fall in incomes and of the resulting depression measured in money prices. The value of the main crops in the different provinces of India has been taken for the agricultural year 1928-29, *i.e.*, the year just before the depression began, and then in 1933-34, the latest agricultural year for which statistics are available. The crops have been evaluated by taking the average harvest price in each case, *i.e.*, the money actually obtained by the cultivator for his produce.

The total value of all the crops for the whole of India amounted in 1928-29 to Rs. 1034 lakhs, but declined to Rs. 473 lakhs in 1933-34. In other words, the fall for the whole of India amounted to over 53 per cent. In this connection it may be pointed out that the major crops in Madras are rice and ground-nut; in Bombay rice, cotton and jowar; in Bengal rice and jute; in the United Provinces wheat, sugar-cane and barley; in the Punjab wheat and cotton; in Bihar and Orissa rice and wheat; and in Central Provinces rice and cotton. It is because of the difference in the major kinds of crops that the agricultural incomes in the different provinces have been differently affected.

The table on p. 548 shows how different provinces have been differently affected. Taking the eight Provinces together, the fall in the agricultural income amounts to a little over 53 per cent., and even allowing for the fact that the cultivator may be able to