COWLES COMMISSION DISCUSSION PAPERS: ECONOMICS, No. 211

October 6, 1947

System of trade cycle equations derived from <u>quarterly</u> data of Harold Barger, U.S.A., 1921-39.

by Colin Clark

All values expressed in "wage units" (i.e. seasonally corrected money values per quarter, measured in billions, divided by average hourly rate of wages).

Variables considered for the present fully exogenous (though in fact they contain endogenous elements):

Proceeds of taxation	T
Net government deficit	F
Net balance of current transactions abroad	E

Endogenous variables:

National income or production	Y
National expenditure (defined as income less inventory changes: it is assumed that all inventory changes are the involuntary consequence of non-coincidence of income and expenditure)	X
Construction (dwellings and commercial buildings)	H
Cumulated construction for past forty years	$\bar{H}$
Other fixed investment (producers' durable goods)	G
" " " cumulated for past ten years	$\bar{G}$
Consumption (exc. governmental services)	C
Maximum previous level of (Y-T) i.e. income less taxation	M

$$X = E + F + T + C + G + H$$

$$H = .209Y - .0107\bar{H} - 2.70$$

$$G = .132Y - .032\bar{G} + 0.09$$

$$C = .622(Y-T) + .148M + 0.57$$

$$Y = .986X_{-1} + .216(X_{-1} - X_{-5}) + 0.83$$

where suffixes indicate lag in quarters