Most people make forecasts although a central banker has less need for forecasting than have business men. To be alive—to live, is to forecast. Everyone is making forecasts almost continuously and this is inevitable. A very common example of forecasting, or rather the results of it, lies in the building up of inventories in anticipation of a rise in prices.

Many types of forecasting have been employed in the past and many methods are employed today. Accurate figures on economic forecasting are not possible since economic developments are not independent of the forecasts made. Since forecasts influence decisions, the problem itself changes as the forecasts are accepted and decisions are based on them.

In general, economists think a mild dip is in store for the level of business activity in the United States. In economics, as in other fields, there would be little fun in life if all forecasts came true.

There are four requirements for systematic forecasting:

1. A theory of how our economy functions.
2. A judgment as to public policy.
3. A comprehensive framework into which we can fit all economic activities.
4. A method of relating (1), (2) and (3) to the current situation.

A Theory of How the Economy Functions

We need an economic theory—we need knowledge of how our economic system will actually function—of how it will react to various actions that may be taken. We thought in the early twenties that we had learned how to control the business cycle, or at least we thought we had so learned. Then
came twenty-nine to thirty-two and we had to rethink our way out of that period.

It was thought then and is now that the way to get out of a depression is to put more money in the hands of the people so they can spend it. Then when we have booms we take a portion of this money back in order to control them.

Since World War II the government has not been repaying the public debt as rapidly as private debt went up. Government spending is therefore not everything as private borrowing has actually been putting more money in the hands of the people to spend than the government has been taking away from them to repay the Federal debt.

We cannot hope to design out all ups and downs of the economy but government controls can help materially. They can help in making money easy or hard to obtain.

The actions taken by the Federal Reserve Bank do have a major effect on the economy and for this reason it is well to have fairly definite ideas of how the Federal Reserve System works.

A Judgment as to Public Policy

It did not take the Employment Act of 1946 to demonstrate that the activities of the federal government and of the monetary authorities have significant influence on the direction and level of economic activity. It is necessary, therefore, to have some judgment as to what the authorities in responsible jobs will do in order to make forecasts for the future.

A Comprehensive Framework into Which We Can Fit All Economic Activities

The most common framework used by economists at the present time is the so-called "Gross National Product" (G.N.P.) approach. The composition of the Gross National Product (G.N.P.) is given in the Historical Supplement to Economic Indicators on pages 4 and 5. The major categories are personal
consumption expenditures, gross private domestic investment, net foreign investment, and government purchases of goods and services, both federal and state.

In 1952 G.N.P. was 358 billion dollars and 367 billion dollars in 1953. The latter is the highest figure reached to date. Government expenditures included therein do not reflect transfer payments. It should be noted that state and local expenditures have been increasing over a period of years at a rate of about two billion per year. There is no reason to believe that this increase will not continue at about the same rate. The most erratic single item is changes in inventories, which is included in the item "gross private domestic investment".

Most federal revenue comes from personal graduated income taxes and taxes on corporations. These can drop rapidly with decreases in the "Gross National Product". It is possible, in view of present economic conditions, that the cash deficit in the Federal budget for 1954 may reach two billion rather than the figure of 100 million recently forecast.

A Method of Relating (1), (2) and (3) to the Current Situation.

Many methods of forecasting have been used in the past. One of the most common of these consisted of plotting curves of past performance and extrapolating such curves to produce forecasts for the future. An example of the errors that may be expected by this method lies in past forecasts of population growth in the United States. In 1893 a curve was plotted most carefully of the actual population growth from 1700 to 1890. Extrapolation of this curve indicated that the population would be 41 billion in 2900.

From 1930-1940 great effort was concentrated on forecasts of population growth using the same basic methods. In 1937 it was estimated that the population by 1952 would reach 146.8 million. The process was repeated in 1947 resulting in an estimate for 1952 of 149.3 million. The actual figure in 1952 was 157 million.
The Harvard economic service used a method of forecasting known as the A, B, & C curves. The A curve was indicated to change six months before the B curve and the B curve four months ahead of C. Since the war, the continued prosperity has proven this method to be completely unreliable.

Other methods employed in the past were the "Consumption Function Method"; the method of current behavior; the method securing opinions from the well informed; the method of recording expressed intentions; etc. None of these methods has been proven of any considerable value in the light of actual happenings at a later date.

Summing up, it can be fairly stated that there is no technique which will enable a person to arrive at results better than the assumptions on which they are based. It is necessary to use assumptions in any method and, with reference to the element of judgment necessarily involved, no one has done an awfully good job.

In any long range forecast of future economic conditions, the burden of proof is on the person who states the industrial revolution (progress in past 50 years) will not continue. It appears reasonable to look forward to further marked improvements in our standards of living; e.g., our grandchildren may well have a standard of living twice that we now enjoy.

In response to a question, Mr. Bopp ventured an opinion to the effect that the "Gross National Product" may go as low as 350 billion in some quarter of 1954. In that event unemployment expenditures by government will go up, as will other government spending. Corporate and personal income taxes will probably go down. An increase in the personal exemption on personal income tax from 600 to 700 dollars would result in a reduction of personal income tax take of one billion dollars.

By the fall of 1954, the economy will probably be again rising.
ECONOMIC TRENDS

by

KAHL R. BOFP

Vice President
Federal Reserve Bank of Philadelphia

before the

BELL SYSTEM EXECUTIVE CONFERENCE

Berkeley-Carteret Hotel, Asbury Park, N.J.

Wednesday, February 24, 1954
ECONOMIC TRENDS

Economic Forecasting

More an art than a science and we have no great artists!

INTRODUCTION

A. Function: to promote thought and provide basis for discussion rather than make precise prediction for 1954

B. Why I am a central banker

1. Inherently an observer and analyst
2. Less need to predict than others
3. Conviction I owe society something for being part of it

I. THE INEVITABILITY OF FORECASTING

A. Implicit in every action taken

1. Crossing the street
2. Stocking up on inventory
   (a) To avoid shortage
   (b) To beat a price rise
3. Building a plant

B. Advantages of explicit, systematic forecasting, particularly knowing our assumptions

II. ASPECTS OF ECONOMIC FORECASTING

A. Even the strongest demand for an accurate forecast does not mean that it will - or can - be supplied

B. Forecasting in the physical sciences and in human affairs

1. In the physical sciences, the results often are independent of the forecaster
II. B. 2. In human affairs, they may not be

(a) Hypothetical illustration:

Suppose a forecaster had a perfect record but nobody believed him.

Then everybody discovers his wizardry (Walter Winchell and bases their action on his forecast broadcast).

He predicts "next summer will be a good time to build because costs will be low."

(b) Single forecaster and agreement among many.

(c) Uniformity of forecasts for 1954 and possible implications.

(1) The saucer vs. the slide school.

(2) Lunatic fringe: Colin Clark.

C. The role of uncertainty in life.

III. REQUIREMENTS FOR ECONOMIC FORECASTING

A. A theory of the economic process.


2. The mature economy theory of the 1930's and fiscal policy.

3. Theory and practice.

B. A judgment as to public policy.

C. A framework.

An internally consistent whole into which all the parts fit - with none left over, none left out, and none counted more than once.

The theory of G.N.P.

This doesn't solve anything. It is a method not a result - for the future.

D. A method of relating A, B, and C to the current (or recent past) situation.

1. The method of past relationships.

(a) In general the method of the physical sciences.

(b) Population forecasts.

(1) N.S. Pritchett - Washington Univ. mathematician and astronomer.

Method - 3° parabola to census data 1790-1890 - excellent fit.

Forecast - by 2900 U.S. population would = 41 billion.
III. D. 1. (b) (1)(continued) 3 errors

1. Population growth can be expressed in mathematical formula
2. Population function of time only
3. That shape of formula revealed by experience 1790-1890

(2) Population projections of 1930's and 1940's

Woytinsky's judgment: "Their projections deserve a place of honor in the history of statistical methodology as specimens of unsurpassed skill and patience. Their only weak point is that they proved to be false."

Highest estimates for 1952

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimate</th>
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<tbody>
<tr>
<td>1937</td>
<td>146.8</td>
</tr>
<tr>
<td>1943</td>
<td>147.3</td>
</tr>
<tr>
<td>1947</td>
<td>149.3</td>
</tr>
</tbody>
</table>

Actual July 1, 1952

Bureau of Census 157.0

1947 projection gave "probable" of 160.6 in 1975 - Reached in September 1953

Extrapolated decline in natality in 1930's and 1930's is permanent

(c) The Harvard Economic Service - Bullock-Persons started with 50 series to get consistency of cycle behavior

The A, B and C curves

A. Speculation - preceded B by 4-10 months
   New York bank clearings
   Shares traded
   Industrial stock prices

B. Business - preceded C by 2-8 months
   Outside N.Y. bank clearings
   Bradstreet's index commodity prices

C. Banking
   Rate on 4-6 month paper
   Rate on 60-90 day paper

(d) N.B.E.R. - Statistical Indicators 801 series

(e) Regression analyses
   e.g. Consumption function
   dangers of extrapolation
III. D. 2. The method of current behavior
   (a) That it will continue unchanged
   (b) That recent trend will continue
   (c) But the only "constant" in life is change

3. The method of securing expressions of current opinion
   - of informed observers
     e.g. builders, car dealers, purchasing agents

4. The method of expressions of current intentions
   e.g. capital expenditures surveys, survey of consumer finances

E. Assumptions - implicit or explicit

   No rabbits in the hat
   You cannot get more out of your projection
   than the assumptions you put into it

1. As a whole
2. In detail

F. The element of "judgment"

IV. THE NATIONAL PRODUCT ACCOUNTS

A. A few technicalities

1. Hybrid classifications
   (a) On basis of purchaser
      (1) Government vs. private
      (2) Domestic vs. foreign
   (b) On basis of object
      Consumption vs. investment

B. A preliminary look at the government sector

1. Federal fiscal operations
   (a) Expenditures for goods and services - transfer payments
   (b) Budget operations vs. consolidated cash operations
      Trust accounts
      Interest accumulation
   (c) The budget message

2. State and local expenditures
IV. C. Private - domestic investment
   Gross vs. net, depreciation
   1. Plant and equipment
   2. Residential construction
   3. Inventories

D. Net private foreign investment

E. Consumption
   1. Durables
   2. Non-durables
   3. Services

F. Second look at the Federal government sector
   1. Implicit forecasts underlying the Federal budget
   2. Compensatory fiscal policy
      (a) Theory
      (b) Practice
      (c) Built-in flexibility

G. Monetary policy

CONCLUSION:

Motion that economy has more "inherent" stability is romantic.
Business cycles not a thing of the past - deferrable to accelerated purchases

A. Will not be severe - fiscal and monetary management

B. Some intermediate term guesses
   Chase Bulletin

C. Some very long-run predictions - economic possibilities of our grandchildren
   Nature of the industrial revolution
   Free minds
   Incentives
   Burden of proof on those who say development of last two centuries is to end

D. Implications for A.T. & T.
   Need for communication services will expand
   Real problems:
      Technology
      Geographic
Liquid Savings of the Public and Consumer Debt

<table>
<thead>
<tr>
<th>SEC net additions to claims of individuals</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th></th>
<th>1953</th>
<th>1954</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liquid savings</strong></td>
<td>$21.4</td>
<td>$21.4</td>
</tr>
<tr>
<td>+ in consumer debt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Home mortgage</td>
<td>6.5</td>
<td>6.0</td>
</tr>
<tr>
<td>(2) Other</td>
<td>3.2</td>
<td>-1.0</td>
</tr>
<tr>
<td>To be taken by &quot;others&quot;</td>
<td>11.8</td>
<td>16.4</td>
</tr>
<tr>
<td>Government</td>
<td>5.8</td>
<td></td>
</tr>
<tr>
<td>&quot;others&quot;</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>ex post</td>
<td>-</td>
<td>10.4</td>
</tr>
</tbody>
</table>

3.6% of disposable personal income vs. 3.3 and 3.6 in '48 and '49 then $6.5 billion

Just a little less than last year

Neutral

Same

ex ante \(\therefore\) aggressive policy of Gov't deficit

viz. $10.4!