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- I. The regional planning context (quotes from planning sages)
 - II. The role of forecasting in planning
 - III. Necessary skills for the forecaster
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I. The regional planning context.

- Thompson versus Fradkin
- interconnectivity, complexity, circularity
- social progress -> technical planning

A birth occurs. The need for an additional hospital worker becomes urgent. A Southern field hand and his family migrate to New York. Income of the New York region rises. Gross Regional Product as well as household expenditures and government outlays in New York edge up. Personal savings increase slightly, as do private investment and the deficit of New York's account with the Rest of the World.

Impulses are transmitted to other regions. Citrus shipments from California register some gain. In part payment, money flows in the opposite direction. Too, California's balance of payments position improves. Income generated by new exports has a multiplier effect on California's economy. California's service and nonbasic trades expand. So do her imports from other regions, which in turn generate multiplier effects in these other regions. Regional and interregional expansionary forces operate through an interregional interindustry linkage system. Thus they influence industrial composition of regions. They also affect both national and regional investment behavior. Hence, they color the cyclical sensitivities of regions. Concomitant with the phenomenon of impulse transmission through time and space is virtually a continuous succession of births. Each birth in its turn generates small-order repercussions. But in the aggregate, effects are major. Major migratory movements occur. Major changes in regional income, Gross Regional Product, household expenditures government outlays, personal savings, and investment obtain. Major realignments of interregional commodity and money flows develop. Major shifts in regional balance of payments positions, credit, tax, and other monetary and fiscal policy are evoked. Major impacts upon regional industrial structures are experienced. These in association with major shifts in consumption and investment behavior propagate significant though differential cyclical fluctuations for the regions of a system. Moreover, in addition to output adjustments of the diverse industries of regions, major market change provokes significant locational rearrangements. Cost minimization and profit maximization motives repattern cost-sensitive activities, individually or in groups as meaningful complexes. They even reallocate activities whose costs are insensitive to location but whose sales are attuned to the factor of market accessibility. Trip volumes land use patterns, and urban-metropolitan structures and hierarchies adapt accordingly and in line with changed probabilities for social interaction over space. Even beyond this array of repercussions, as they operate through an interregional interindustry linkage system, an interregional money flow system, and an interregional communications and other systems, cultural values and social goals change. Such change, whether reflected in citizens' voting behavior, or in political platforms proffered, or in administrative practices, or in business decisions and rate of capital formation, or merely in consumers tastes, leads to new social welfare policy.

But the causal matrix underlying the spatial panorama of events of reality is not as simple as this. Intricate and complex interdependence course through all facets of a culture. A region's births are not detached from economic and social forces. They are closely tied to the regional culture and goals, to its resource endowment, to major industrial shifts it or out, and to its levels of income, savings, exports, and imports. A region's births are indirectly interwoven with phenomena in, and structure and material welfare of, other regions. They are influenced as well by the features of the system of regions as a whole—by the system's state of technological advance, pace of investment and rate of consumption, research and development and educational policies, level of health and welfare services and social security programs, and other governmental activities reflecting the objectives of a culture. In fact, *all* the characteristics of a region and its very development path are thus intertwined in a maze of interdependencies. This maze interlaces *interregional systems* of population, resource patterns, industrial locations, local economies, social accounts, balance of payments positions, markets, central places and urban-metropolitan areas, administrative and political structures and institutions and even values, motives, and social goals. It interlaces all these systems via *interregional systems of interindustry* (interactivity) linkage, of commodity flows and money flows, of population movements, and of communications, and, in general, of sociocultural interaction inclusive of decision-making processes.

The maze of interdependencies in reality is indeed formidable. It more and more awesome as we probe it. Its tale is unending, its circularity unquestionable. Yet its dissection is imperative if analysis is to lead to social progress. At some point we must cut into its circumference. We choose to do so at population.

Walter Isard (1960) *Methods of Regional Analysis*, pp. 1-3.

Regional development planning:

- need to understand the relationship between the region and nation
- regional needs and national needs may be in conflict
- institutional control is drastically different at the regional versus national level

Regional connectivity to nation

Intraregional connectivity

Fig. 1.2, 1.3 (Bendavid-Val)

Fig. 2.1, 2.2 (Bendavid-Val)

Finally, the regional economy is a living, dynamic, responding organism. The regional planner needs not only to understand this, but to help improve the sustainability of its growth forces and its adaptability to changing circumstances in the national, and indeed the world, environment. Setting employment or income or output targets, or defining roles for specific urban places, may be among many useful exercises employed during a planning effort, but they are hardly legitimate regional development objectives.

Planning meant to achieve specific quantified economic measures representing a desired status in the region at a target date (sometimes called *blueprint planning*) involves heroic assumptions. It requires assuming that markets, competition from other regions, the roles and comparative advantages of regional towns or agricultural zones, the weather, and a myriad of other significant factors beyond planning control can be predicted or assigned, or assuming by default that they will remain unchanged. Responsible planning involves concentrating on factors within planning control. What is within the control of regional development planning is really quite limited. But it is enough to improve the regional environment in ways that enable the forces currently working to expand economic well-being to work better, and to enable new forces to emerge that increase opportunities for broad-based economic adaptation and expansion.

Avrom Bendavid-Val (1991) *Regional and Local Economic Analysis for Practitioners* pp. 16-17.

II. The role of forecasting in planning

Why do we forecast?

- A. Since planning is future oriented we want to know the future.
- B. We try to anticipate what the state of affairs in one community will be in the future under certain assumptions, and then try to intervene if we do not like what we see, or think we can do better.
- C. Greater knowledge of the future will lead to better plans today
- D. Many planning and policy positions will forecast to fulfill mandates.

What do we forecast?

- A. Total population and by age-sex classifications
- B. Demand for public goods
ex. schools, infrastructure, housing, open space, environmental quality
- C. State, county, and municipal revenue sources
- D. Regional and local economy
ex. employment, unemployment, earnings, output, sales

All statistical facts refer to the past. The United States Census of April 1970 counted 203 million of us, but no one knew this until the following November, and the details of the count were published over the course of years. The census differs only in degree from stock market prices, which are hours old before they appear in the daily press. There are no exceptions—not even statistics of intentions—to the rule that all data are to some degree obsolete by the time they reach us.

On the other hand, all use of data refers to the future; the business concern proposing to set up a branch in a certain part of the country consults the census but is interested in what it tells only as an indication of what will come in the future. The branch plant, or a school or hospital, may take 3 years to build and will be in existence over the following 30 years; whether or not the decision to build was wise depends on circumstances between 3 and 33 years hence, including the number and distribution of people over that period.

8.1 FORECASTING: BOTH UNAVOIDABLE AND IMPOSSIBLE. PAST DATA, PRESENT ACTION, AND FUTURE CONDITIONS OF PAYOFF

That all data refer to the past and all use of data to the future implies a line between past and future drawn at “now.” Without continuities that make possible extrapolation across that line statistical data would be useless, indeed the very possibility of purposeful behavior would be in doubt

The separation between a past census and the future in which action will be implemented is not only the instant of *now*, but also a finite period of time that includes the interval from enumeration of the census to publication of its results, the interval between their publication and the use of them in making a decision, and the interval between the decision and its implementation. The slab of time separating past data on population and the start of operation of a factory or school or telephone exchange decided upon by projecting these data can easily be a decade or more. Prediction often consists in examining data extending several decades back into past and inferring from them what will happen several decades in the future, with one decade of blind spot separating past and future.

Since our knowledge of population mechanisms is weak, moreover, predictions or forecasts, more appropriately and modestly called projections, must involve some element of sheer extrapolation, and this extrapolation is from a narrow data base. Below the observations is an historical drift in underlying conditions that makes the distant past irrelevant to the future. If in the nineteenth century fluctuations in population were caused largely by epidemics, food scarcities, and other factors, and if now these factors are under better control but even larger changes in population are caused by parental decisions to defer or anticipate births, then carrying the series back through the nineteenth century will not be of much help in present extrapolations to the future. Thus, even supposing the continuity that makes forecasting possible in principle, the volume of past data enabling us to make a particular forecast is limited. Moreover, this intrinsic scarcity of relevant data is in addition to the shortcomings of past statistical collections. For such reasons some of those who are most knowledgeable refuse to take any part in forecasting. Yet ultimately the refusal to forecast is absurd, for the future is implicitly contained in decisions. The very act of setting up a school on one side of town rather than the other, of widening a road between two towns, or of extending a telephone exchange is in itself a bet that population will increase in a certain way; not doing these things is a bet that population will not increase. In the aggregate implicit bets, known as investments, amount to billions of dollars each year. The question is only who will make the forecast and how he will do it—in particular, whether he will proceed intuitively or use publicly described methods. As Cannan (1895) said in the very first paper using the components method of forecasting, “The real question is not whether we shall abstain altogether from estimating growth of population, but whether we shall be content with estimates which have been formed without adequate consideration of all the data available, and can be shown to be founded on a wrong principle.”

In any concrete investment decision, the bet on population is combined with a bet on purchasing power, on preferences for one kind of goods rather than another, on technology as it affects alternative methods of production. The component of the bet that is our interest in this book, population, is somehow incorporated into a package of bets.

Nathan Keyfitz (1977) *Applied Mathematical Demography*, pp. 201-203.

Forecasts, projections, and predictions

Prediction: Predictions are made about the phenomena under study based on strong causal theories and laws. This framework is amenable to the physical sciences but not to social and economic behaviour. In the social sciences we use forecasts to make predictions.

Projection: Conditional (if, then) statement about the future where the "if" specifies the assumptions made and the "then" gives the numerical consequence.

Ex. *If* the current differential in the rate of job destruction between Orange and Person country continues *then* the level of manufacturing employment in Orange will be three times the size of the level in Person by the year 2000.

Forecast: The projection which has the *most likely outcome* compared to a set of projections which use rely on different assumptions. A good forecaster needs to have intimate knowledge of the economics, social structure, and population dynamics of community for which the forecasts are prepared.

How do we forecast or project?

Range of techniques

1. expert judgement
2. mathematical extrapolation
3. ratio/share models
4. regression models (simple and complex)

How techniques vary - "simple vs. complex"

1. data requirements
2. time, cost to operate
3. ability to account for uncertainty
4. theoretical validity
5. reliability
6. accuracy

Dilemmas facing the forecaster

- A. Self-fulfilling prophecies
- B. Political and other influences who want to bias the results
- C. Accountability - forecasts are unverifiable until target year

III. Forecasting skills/traits

- Approach

“Methods must be developed to think about the future systematically - to structure thought processes, to gather information, to stimulate imaginations, and to focus inquiry.”

“...answering such questions involves becoming an authority about the place being forecast, knowing its industries and firms and their locational patterns, understanding its resources and their potential and limits, studying the fertility literature and being able to relate it to the area’s situation, developing a good sense of the area’s socioeconomic structure and being able to identify key factors in its future development, being aware of the possible impact of events in nearby areas, and so on.”

“The research style is far less formal, technical, and mathematical than model-building itself, but such informal research is an essential part of forecasting.”

Isserman (1984)

- Scenario writing
- Historical methods

“The successful development of forecasting skills also may involve a change in fundamental attitudes, a willingness to embrace artistic as well as scientific values, to think creatively as well as analytically.”

Isserman (1984)

“There is then a need for continuation of the architectural traditions in planning, by way of independent thinking, dissent, and long-range views. Radicalism and even utopianism are necessary to invent new alternatives, and even to invent new objectives. Long-range thinking, however uncertain and prone to error, is needed to see if the steps which we are taking one at a time lead us in the right direction. Holistic views are necessary to uncover relationships that are insufficiently recognized.”