

# PUBLIC POLICY

# Forecasting Expected

# Policy outcomes

(Selected methods of policy analysis)

MPV\_APPA – Analysis of public policy

2018

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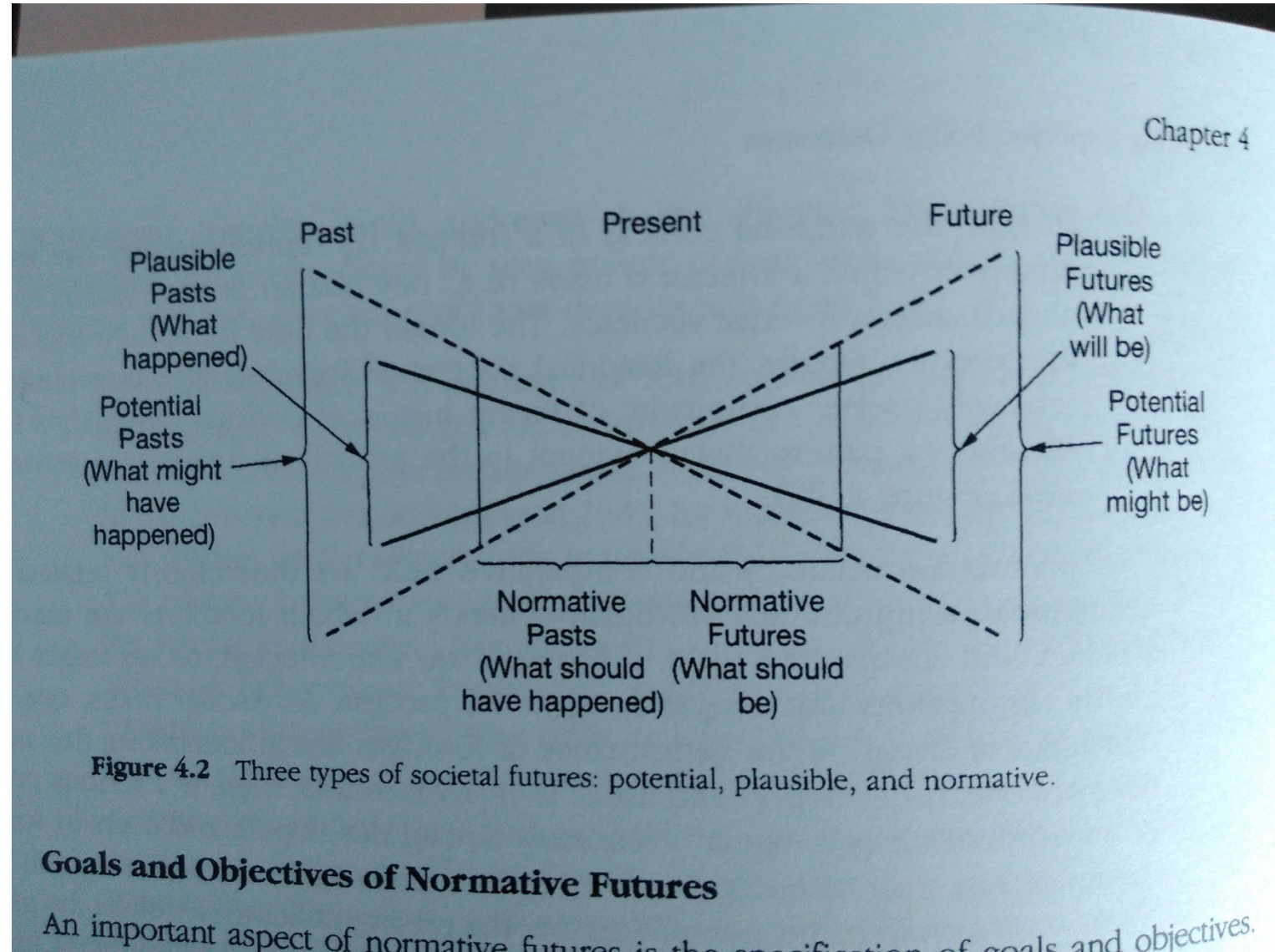
# Forecasting in policy analysis

- Forecasting is a procedure for producing factual information about future states of society on the basis of prior information about policy problems. Forecast take three principal forms
  - Projection is a forecast that is based on the exploration of current and historical trends into the future
  - Prediction is a forecast based on explicit theoretical assumptions
  - Conjecture is a forecast based on informed or expert judgments about future states of society

- Aims of forecasting
  - Provide information about future changes in policies and their consequences
  - Forecasting permits greater control through understanding past policies and their consequences
  - Forecasting also enable us to shape the future in an active manner
- Limitation of forecasting
  - Forecast accuracy
  - Comparative yield – assumptions and implications
  - Context – institutional, temporal and historical

# Types of future

- Plausible futures
- Potential futures (alternative)
- Normative futures



# Discussion – class work

- Provide examples of plausible, potential and normative future for
  - Children's obesity
  - Situation (CZ) Number of obese counted for 1000 registered children
  - Age 0-14: 5,5 in 1996 to 20,5 in 2011 (i.e. 0,5% to 2%)
  - Age 15-18: 8,8 in 1996 to 47 in 2011 (0,9% to 5%)

- By selecting an approach we mean three things. The analyst must
  - Decide what to forecast, that is, what the object of forecast is to be
  - Decide how to make the forecast, that is, select one or more bases for the forecast
  - Choose techniques that are most appropriate for the object and base selected.

# Approaches to forecasting

- Objects – The object of forecast is the point of reference of a projection, prediction, or conjecture.
  - Consequences of existing policies
  - Consequences of new policies
  - Content of new policies
  - Behavior of policy stakeholders
- Bases
  - Basis of forecast is the set of assumptions or data used to establish the plausibility of estimates of consequences of existing or new policies, the content of new policies, or the behavior of stakeholders.
    - Trend extrapolation
    - Theoretical assumption
    - Informed judgements

# Bases

- Trend extrapolation is based on inductive logic, that is, the process of reasoning from particular observations to general conclusion or claims
- Theoretical assumption is based on deductive logic, that is, the process of reasoning from general statements, laws, or proposition to particular sets of information or claims.
- Informed judgment often expressed by experts and based on retroductive logic, that is, the process of reasoning that begins with claims about the future and then works backward to the information and assumptions necessary to support claims
- In practice the boundaries between inductive deductive, and retroductive reasoning are often blurred.



# Three approaches to forecasting

Approach	Bases	Appropriate technique	Product
Extrapolative forecasting	Trend extrapolation	Classical time-series analysis	Projections
		Linear trend estimation	
		Exponential weighting	
		Data transformation	
		Catastrophe methodology	
Theoretical forecasting	Theory	Theory mapping	Predictions
		Causal modelling	
		Regression analysis	
		Point and interval estimation	
		Correlation analysis	
Judgmental forecasting	Informed judgement	Conventional Delphi technique	Conjectures
		Cross-impact analysis	
		Feasibility assessment	

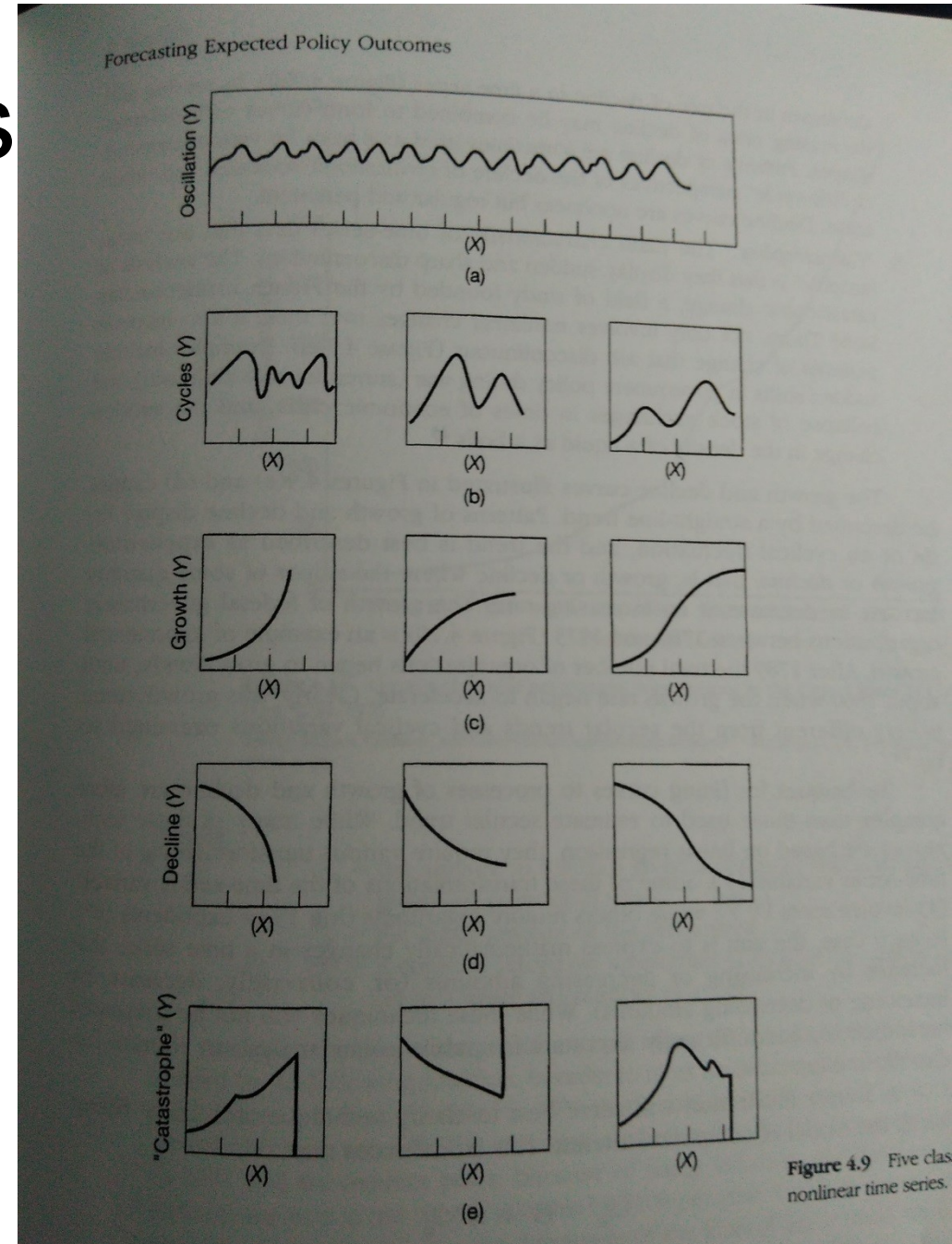
- While the selection of an object and basis helps guide the analyst toward appropriate methods and techniques, there are literally hundreds of forecasting methods and techniques to choose from
- Including an option to invent a new method, or modify existing one

# A) Extrapolative forecasting

- Rests on three basic assumptions
  - Persistence. Patterns observed in the past will persist in the future
  - Regularity. Past variations observed trends will regularly recur in the future
  - Reliability and validity of data.

# A1) Nonlinear time series

- Oscillations
- Cycles
- Growth curves
- Decline curves
- Catastrophes



## B) Theoretical forecasting

- In policy analysis, deductive reasoning is most frequently used in connection with arguments from cause that seek to establish that if one event (x) occurs, another event (y) will follow it.
- Some procedures are concerned with ways to identify and systematize theoretical assumptions, while others provide better estimates of future societal states predicted from theory.

# B1) Theory mapping

- To help analysts to identify and arrange key assumptions within theory or causal argument
- Four types of causal arguments
  - Convergent – two or more assumption are used to support a conclusion or claim
  - Divergent – single assumption supports more than one claim or conclusion
  - Serial – one conclusion/claim is used to support a series of further conclusions/claims
  - Cyclic – serial arguments in which the last is connected with the first
- Procedure
  - Separate and number each assumption, (axiom, law, proposition)
  - Underline the words that indicate claims (therefore, thus, hence) or assumption used to warrant claims (since, because, for)
  - When specific words (therefore,..) have been omitted, but are clearly implied, supply the appropriate logical indicators in brackets
  - Arrange numbered assumptions and claims in an arrow diagram that illustrates the causal argument or theory

## B2) Causal modeling

- Causal models are simplified representations of theories that attempt to explain and predict the causes and consequences of public policies. The basic assumption of causal models is that covariations between two or more variables are a reflection of underlying generative powers (causes) and their consequences (effects)
- The relation between cause and effect is expressed by laws and propositions contained within a theory and modeled by analyst.

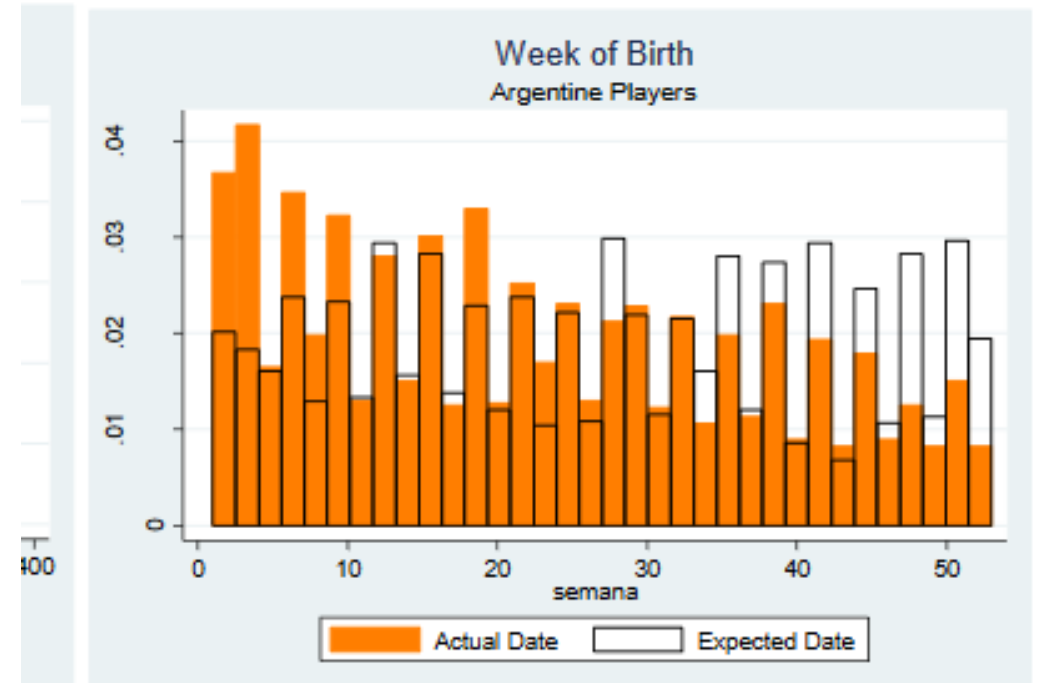
### B3) Correlational analysis

## Does a young football (soccer) player's birthdate affect his prospects in the sport?

- A number of scholars around the world have described what has been termed the “relative age effect,” or, in short, RAE. The effect consists of a correlation between early births in the calendar or competition year among young players within the same cohort and improved chances in sports as they get older.

	Born in First (%)	Born in Last (%)
Month	13.5	5
Two-Month	24	10
Trimester	34	16
Quarter	43	24
Half	61.5	39

Table 8. Chance of Playing in the Premier League According to Birthdates, Argentine Players





# C) Judgemental forecasting

- Is often based on arguments from inside, because assumptions about the creative powers of persons making the forecast are used to warrant claims about the future.
- The logic of intuitive forecasting is essentially retroductive, because analysts begin with a conjectured state of affairs and then work their way back to the data or assumptions necessary to support the conjecture.

# C1) Delfi

- Delphi technique/ conventional delphi, policy Delphi
  - modifications
- Principles
  - anonymity
  - Interaction
  - Controlled feedback
  - Statistical group response
  - Expert consensus

# Policy Delphi – steps 1-4

- Issue specifications
- Selection of advocates
- Questionnaire design
  - Forecasting items (probability of occurrence), forecasting goals, opinion items (alternative courses of action), issue items (ranking)
  - Scale of answers sometimes without an option without opinion
- Analysis of first round results
  - Not only tendency

# Policy Delphi – steps 5-7

- Develop subsequent questionnaires
  - Questionnaire for 2,3,4,5 round (most of delfi has 5 rnds)
- Organization of group meeting
  - Face to face
  - Argumentation of statements
- Preparation of final report
  - Consensus not guaranteed
  - But arguments for alternatives will be provided

# Literature

- Dunn, W.N. – Public policy analysis.
  - chapter 4
  - See study materials in the IS

# Goals and objectives

goals define... tions specifically. Contrasts between goals and objectives are illustrated in Table 4.1. ... popu

**Table 4.1 Contrasts between Goals and Objectives**

Characteristic	Goals	Objectives
Specification of purposes	1. Broadly stated (. . . to upgrade the quality of health care . . .)	1. Concrete (. . . to increase the number of physicians by 10 percent . . .)
Definition of terms	2. Formal (. . . the quality of health care refers to accessibility of medical services . . .)	2. Operational (. . . the quality of health care refers to the number of physicians per 100,000 persons . . .)
Time period	3. Unspecified (. . . in the future . . .)	3. Specified (. . . in the period 1990-2000 . . .)
Measurement procedure	4. Nonquantitative (. . . adequate health insurance . . .)	4. Frequently quantitative (. . . the number of persons covered per 1,000 persons . . .)
Treatment of target groups	5. Broadly defined (. . . persons in need of care . . .)	5. Specifically defined (. . . families with annual incomes below \$19,000 . . .)