

THEORIES AND MEASUREMENT: LINKS
BETWEEN THEORIES FOR DEFINING POVERTY
AND MEASUREMENT THEORY



MEASURING IN SOCIAL SCIENCES I

- The most popular definition of measurement holds that "measuring consists of assigning numbers to objects or events according to rules" (Stevens 1951).
- However, what is measured in the social sciences are not things (objects given directly to the senses of the human being) or events in their double meaning (i) as events that happen in space and time or as subsets within a probabilistic universe.
- In social sciences the phenomena to be measured are much more abstract than things and events. It is of interest to make measurements, for example, of political effectiveness, alienation, gross domestic product, social classes, social strata, marginality, social exclusion, inequality, poverty.



MEASURING IN SOCIAL SCIENCES II

- It was Blalock (1968: 12) who stated that: "Theoretical sociology often uses concepts that are formulated at a high level of abstraction. These are very different from the variables that are the resources of empirical sociologists.....The problem with bridging the gap between theory and research is measurement error."
- Zeller and Carmines (1980) finish this idea, who, following Blalock, argue that measurement is the process of linking abstract concepts to empirical indicators (P.2).
- These same authors take a quote from Kant who argues "Concepts without percepts are empty" "Percepts without concepts are blind"
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ON THE CONCEPT OF POVERTY I

- The poverty syndrome and its perception. Poverty is, for the time being, a situational syndrome in which under-consumption, malnutrition, precarious conditions of housing, low educational levels, poor sanitary conditions, an unstable insertion in the productive apparatus or within the primitive strata of the same, attitudes of discouragement and anomie, little participation in the mechanisms of social integration, are associated, and perhaps the ascription to a particular scale of values, differentiated in some measure from that of the rest of society.
- The perception of poverty and its conceptualization are, however, strongly influenced by the socioeconomic context and by the general objectives of the social project in which anti-poverty policies are inserted. (Altimir O, 1979: 1 and 2)

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ON THE CONCEPT OF POVERTY II

- Analysis of the extent to which the concept of poverty has theoretical significance might seem pedantic in the face of the dramatic human dimensions of the problem. The truth, however, is that the theoretical ambiguity of the concept of poverty represents a basic difficulty for the studies of poverty, and that the use of the concept finds, instead, its justification in ethical and political concerns for this particular and extreme aspect of the misal distribution of social goods, and in the political will to devote itself especially to its solution (Altimir 1979: 3).



IMPLICACIONES DEL CONCEPTO DE MEDICIÓN I

- The concept of measurement in the social sciences has important implications:
- (1) It links with the statistical developments referring to the studies of class differences, intelligence and inheritance that were carried out within the research program initiated in the last quarter of the nineteenth century by Galton, Pearson (MacKenzie 1979: 39), and continued at the beginning of the twentieth century by Spearman who introduces the notion of measurement error.
- This theme has been central to the development of Psychometrics.
- And it has gained relevance in the analysis of latent variables within the techniques of structural equating modeling
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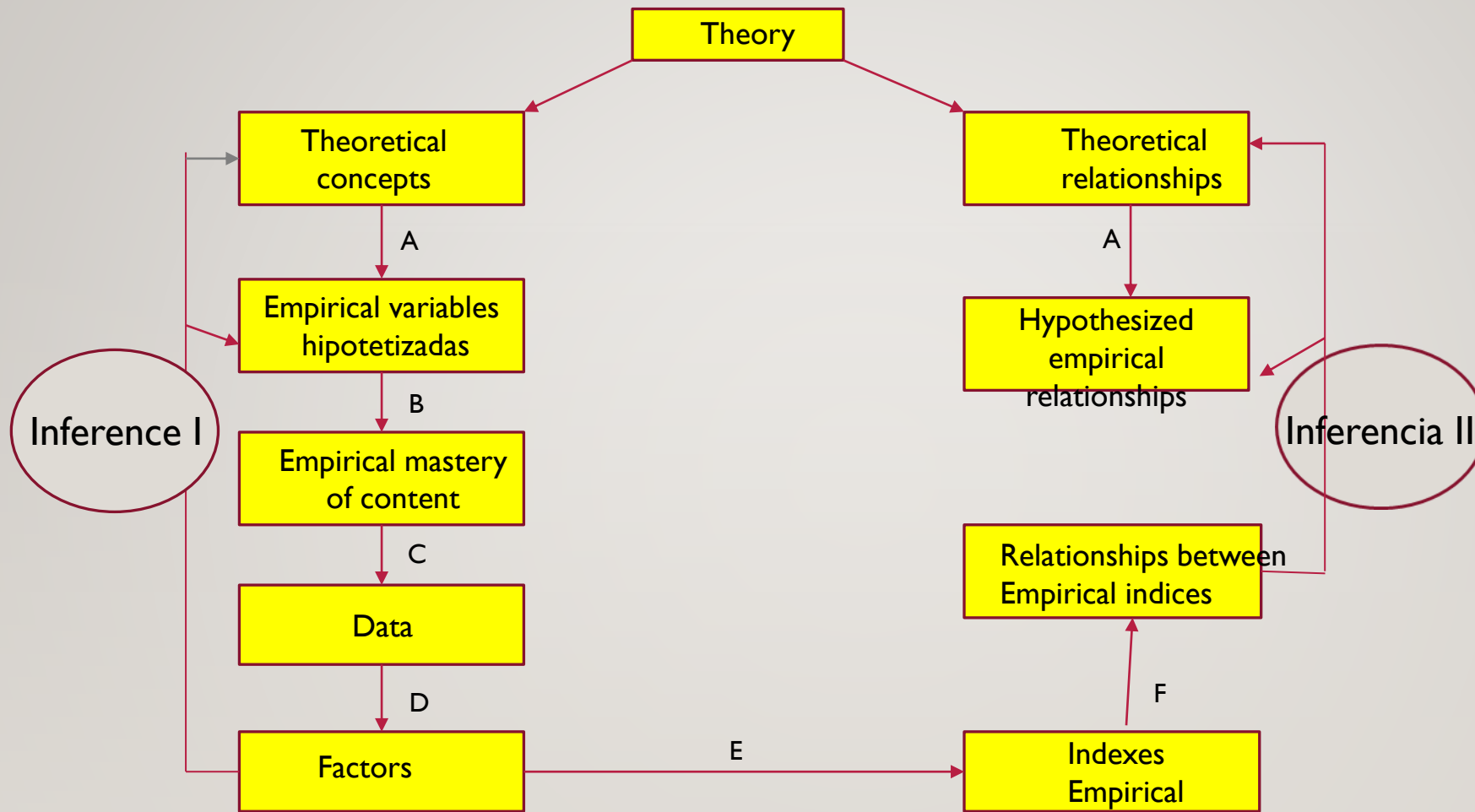
IMPLICATIONS OF THE CONCEPT OF MEASUREMENT II

- (II) A second implication of this notion of measurement derives from the fact that it is the measurement of a concept.
- For Mario Bunge (1999: 77) concepts "are the units of meaning and therefore the foundations of rational discourse. We use concepts to form propositions in the same way that we break down complex propositions into simpler ones and these in turn into concepts."
- Propositions are those that can be true or false. Only they can be subjected to real tests because it is they who say something about one or more objects (Bunge M: 77).
- Concepts cannot be subjected to these tests as they do not affirm or deny anything. There are no false concepts can only be accurate or vague, applicable inapplicable, fruitful or sterile, (Bunge M: 77) as would be, for example, the discussion of the concept of poverty.
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IMPLICATIONS OF THE CONCEPT OF MEASUREMENT III

- Each proposition has its reference class, which is defined as the collection of individuals over which it applies (Bunge 1999: 89), for example, the reference class of the unary poverty proposition may be persons, households, regions, or countries.
- Just as concepts form propositions, theoretical or conceptual statements, a system of statements forms a theory (Bunge 1999: 88).
- And the full meaning of a proposition is the set of propositions that it implies or that imply it, that is, the union of logical ancestry and descent (Bunge 1999: 88).
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Empirical evaluation of a theory



A: Application of correspondence rules; B: Operational definitions; C: Observation; D: Simplification of data; E: Construction of scales; F: Analysis

Fuente: Zeller R. y E. Carmines (1980: 5)

IN SUMMARY

- Discussions of isolated concepts, such as those relating to the concept of poverty without considering the conceptual framework, are meaningless to the extent that the concepts themselves are neither true nor false.
- The situation is different when confronting concepts of poverty included in theoretical statements or theories.
- But, in this case we must distinguish two inferential processes, the first refers to making observable concepts not directly observable (measurement) and the second to the validation of empirical hypotheses related to theoretical propositions.
- In the social sciences, the latter has largely predominated and the systematic study of the steps involved in the reliability and validity of measurement has been neglected..

SI LOS MÍNIMOS ESTÁN ENTENDIDOS ¿QUÉ PASA EN EL CAMPO DE LA MEDICIÓN DE POBREZA?

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Metl
Wor

Income and B
Latin America

Measuring material deprivation in the EU

POVERTY IN

GLOBAL MULTIDIMENSIONAL

El método de las necesidades básicas insatisfechas (NBI) y sus aplicaciones en América Latina

Fuzzy set theoretic applications in poverty research

Counting and multidimensional poverty measurement

the review of income and wealth

Original Article

A Multidimensional Poverty Index for Latin America

Peter Towns

Report to UNICEF

Theoretical minimums, difficulties and practices in measurement of poverty

IF THE MINIMUMS ARE WELL UNDERSTOOD, WHY DO WE HAVE SO MANY DIFFERENT APPROACHES?



UNDP 1990s

UNICEF 2004

Different frameworks but very similar results (?)

A. Basic Needs Indicators

The basic needs, for which indicators could be derived

a) Housing, including the following indicators:

- Rooms per person
- Built area per person
- Principal means of heating

b) Water and sewerage, including:

- Connection to a water network
- Principal source of potable water
- Means of disposal of sewage

c) Education, including:

- Pursuit of studies
- Level of education

d) Income-related indicators, including:

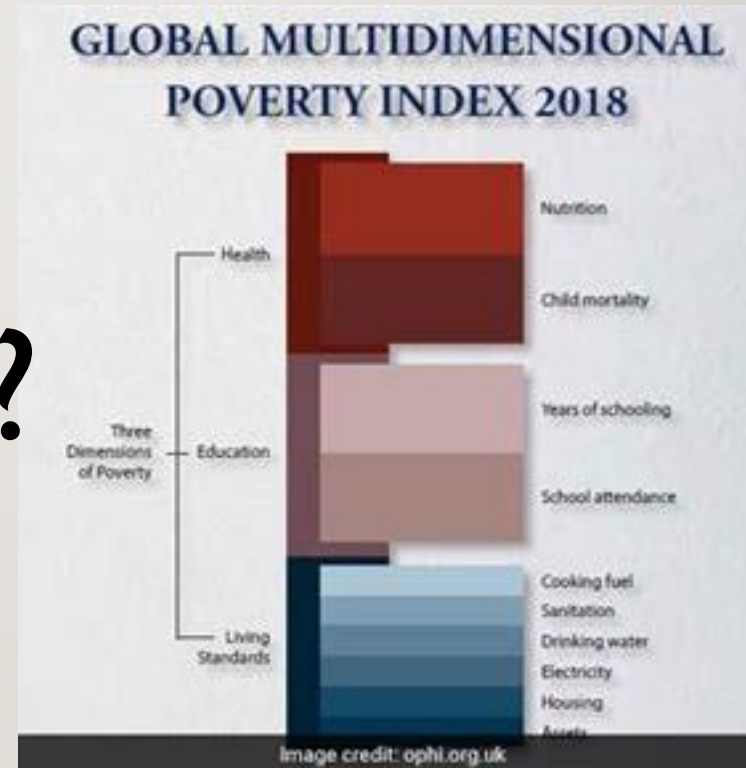
- Number of private cars
- Dependency rate
- Main occupation

= ?

| Form of Deprivation | Severe Deprivation (criteria selected) | Indicators |
|-----------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Food | Malnutrition | Severe Anthropometric Failure in children under 5 (stunting, underweight, and wasting at <-3 standard deviations from reference population median) |
| Safe drinking water | Long Walk to water (more than 200 meters) which is occasionally polluted | Over 15 min to water or surface water |
| Sanitation Facilities | No sanitation facilities in or near dwelling | No sanitation facility (no toilet, pit latrine etc) |
| Health | Health facilities more than 1 hours travel away. No immunisation against diseases. | No immunisation or untreated diarrhoea |
| Shelter | No facilities, non perm. Bldg, no privacy, no flooring, one or two rooms. 5+ per room | Mud flooring or over five people per room |
| Education | Unable to attend primary or secondary education | Child between 7-18 years and not currently in school or not received any education |
| Information | No access to radio, television or books or newspapers. | Combination of (i) Information access – If mother listened to radio in last week or read newspaper or watched TV. (ii) Information possession – of a TV or radio |

= ?

OPHI-UNDP 2011



Theories and similar definitions

Same data and same results

(?)

Minimum standards for quality measurement: goals, differences and assessment spaces-

- The importance of working with scientific definitions. –Scientific definitions-
- Poverty theory, distinction between concept and propositions
- Distinction between causes and consequences –analysis vs measurement-

- Measurement theory and methods
- Gap: theory and evidence
- Methods to estimate error (random and systematic)



Income and Beyond: Multidimensional Poverty in Six Latin American Countries

El método de las necesidades básicas insatisfechas (NBI) y sus aplicaciones en América Latina

Fuzzy set theoretic applications in poverty research



Income and wealth
A Multidimensional Poverty Index for Latin America



The Distribution of Child Poverty in the Developing World
Poverty As An Overlap
Report to UNICEF

Ideal workflow in measurement

Poverty
theory

Concept and
definition

(Unsatisfied Basic needs)

(Capabilities)

(Relative deprivation)

(Social rights)

Poverty theory

Concept and definition

(Unsatisfied Basic needs)
(Capabilities)
(Relative deprivation)
(Social rights)

Multidimensional?

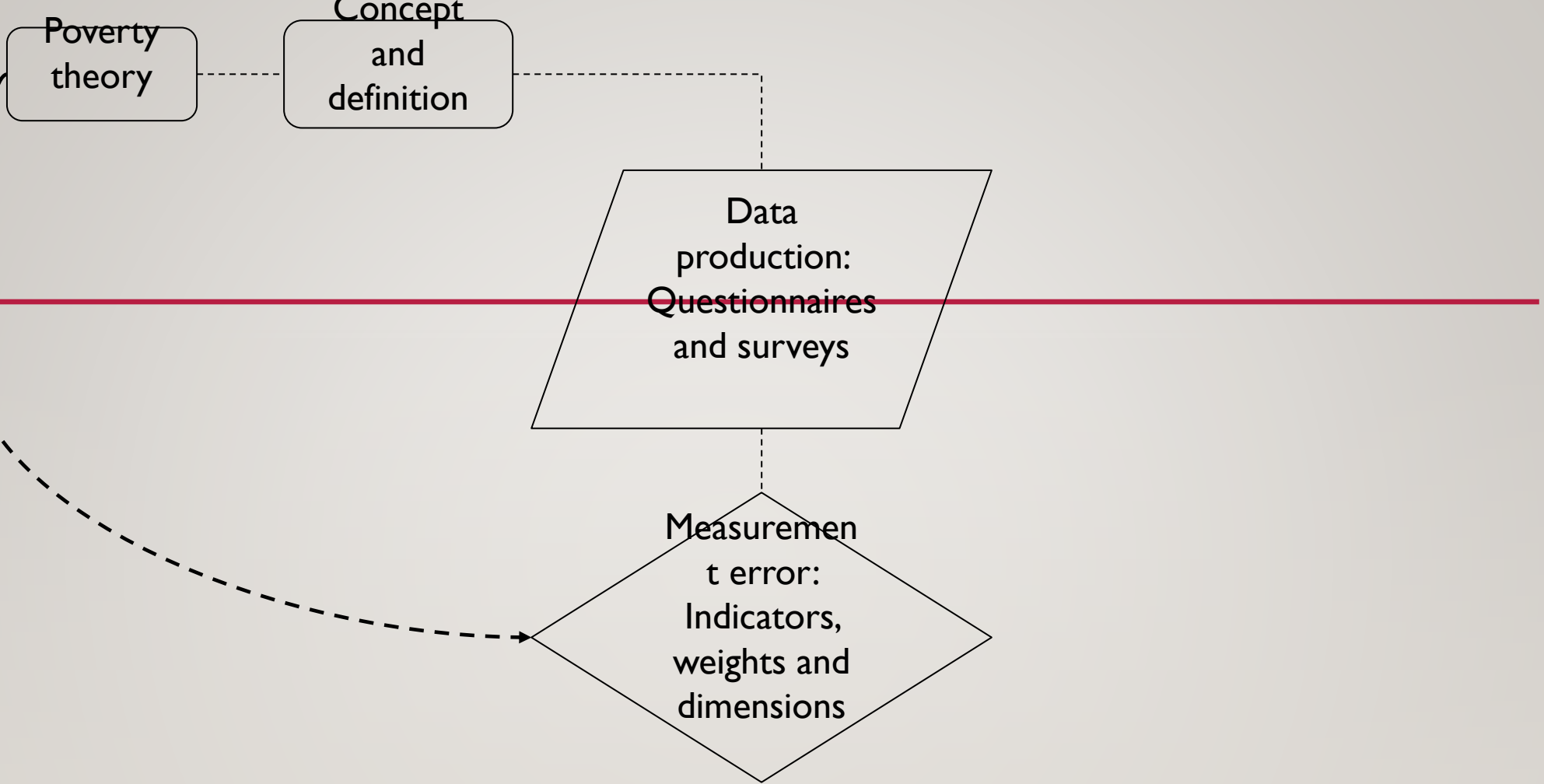
(Data production,
questionnaires and
surveys)

Theory-dependent observations (?)

NBI, Capabilities, Social Rights (Theory without production of specific data? Unit of analysis?)

Consensual method / Relative deprivation (Theory with production of specific data)

Measurement model



Modelo

Poverty theory

Concept and definition

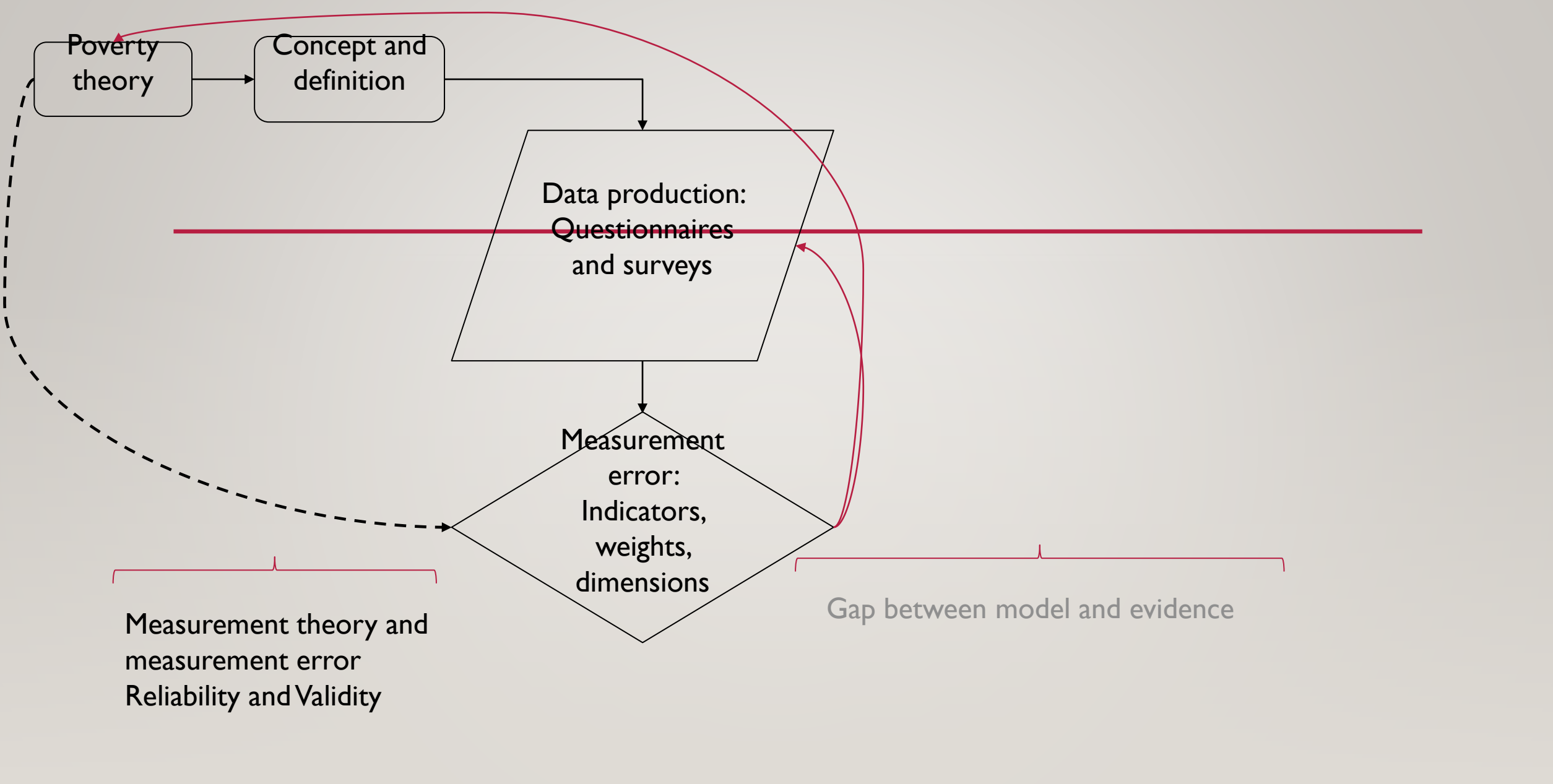
Data production:
Questionnaires
and surveys

Measurement
error:
Indicators,
weights and
dimensions

Measurement theory and measurement error

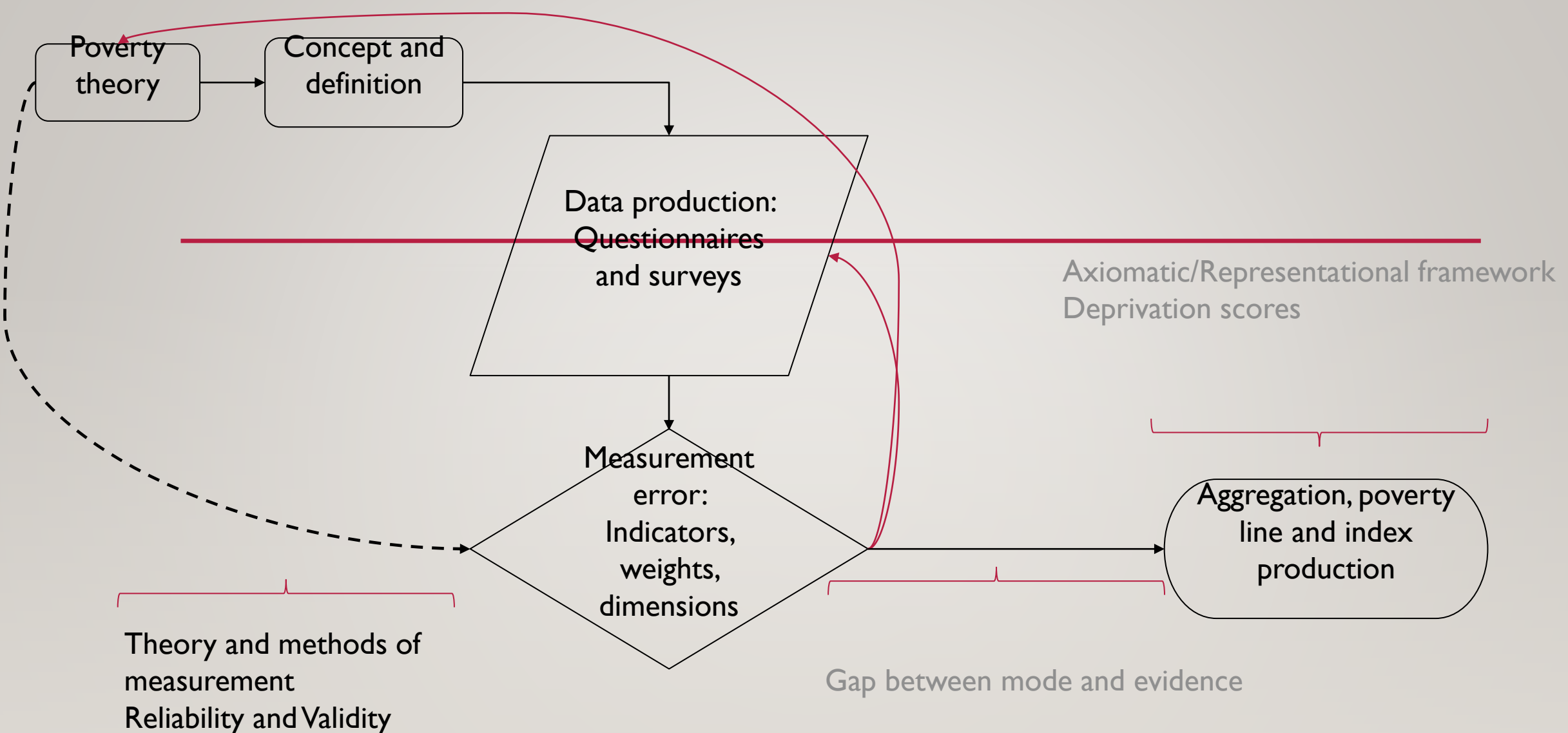
Reliability and validity





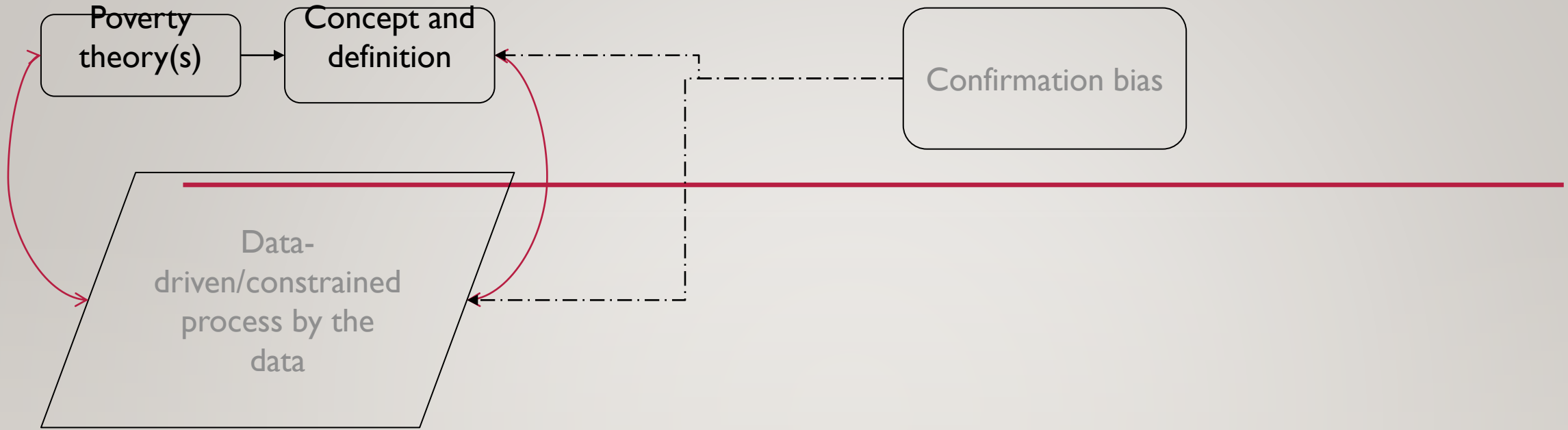
Measurement theory and measurement error
Reliability and Validity

Gap between model and evidence

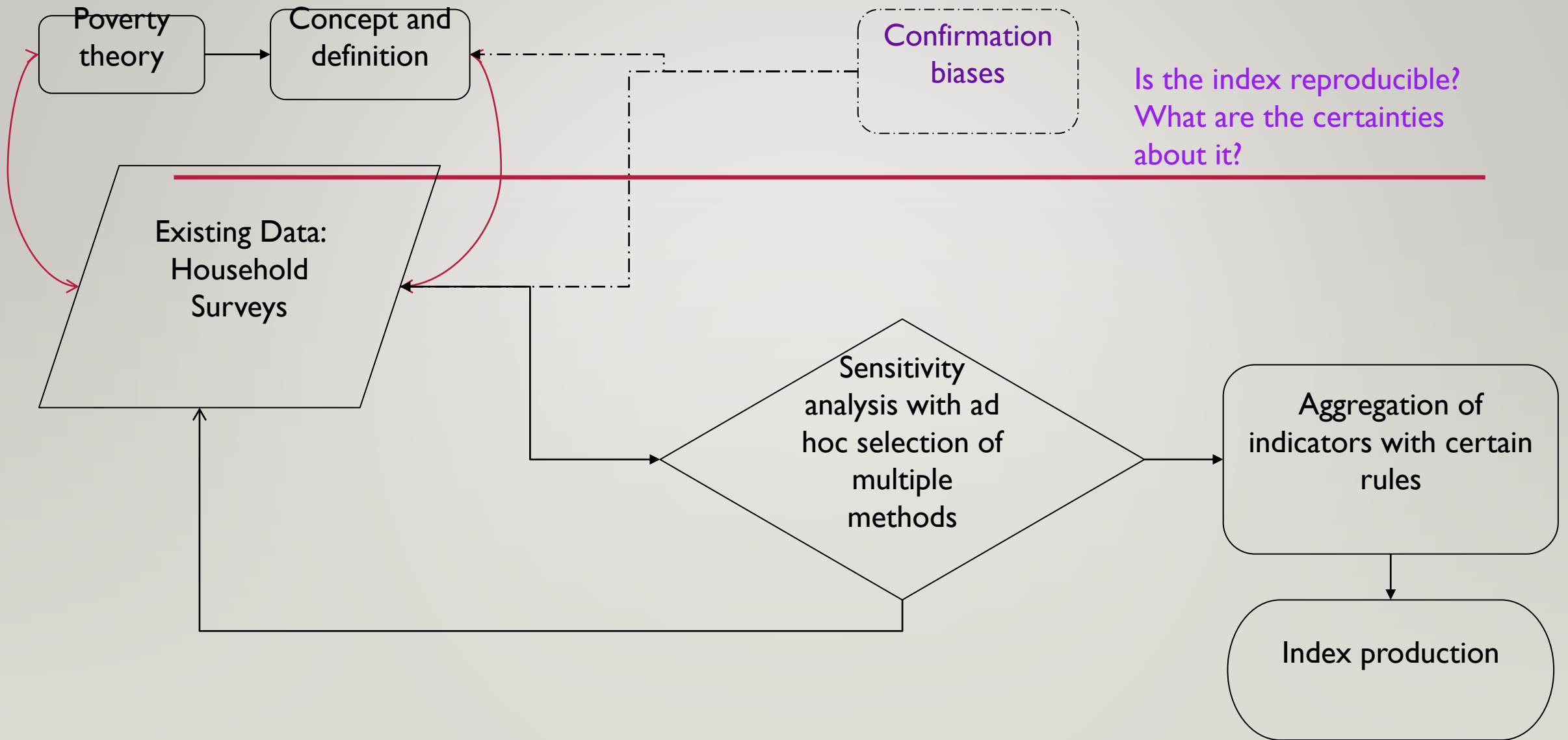


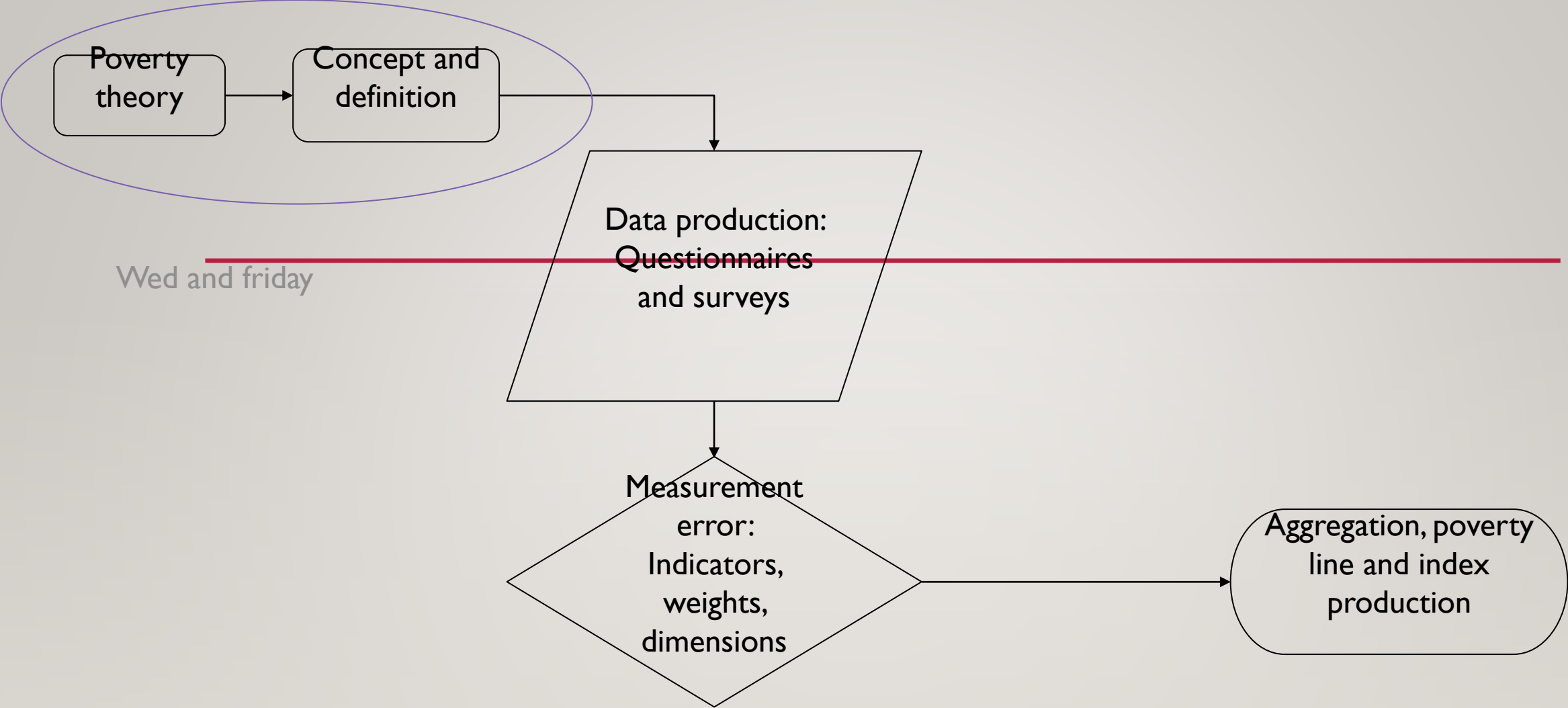
Multidimensional?

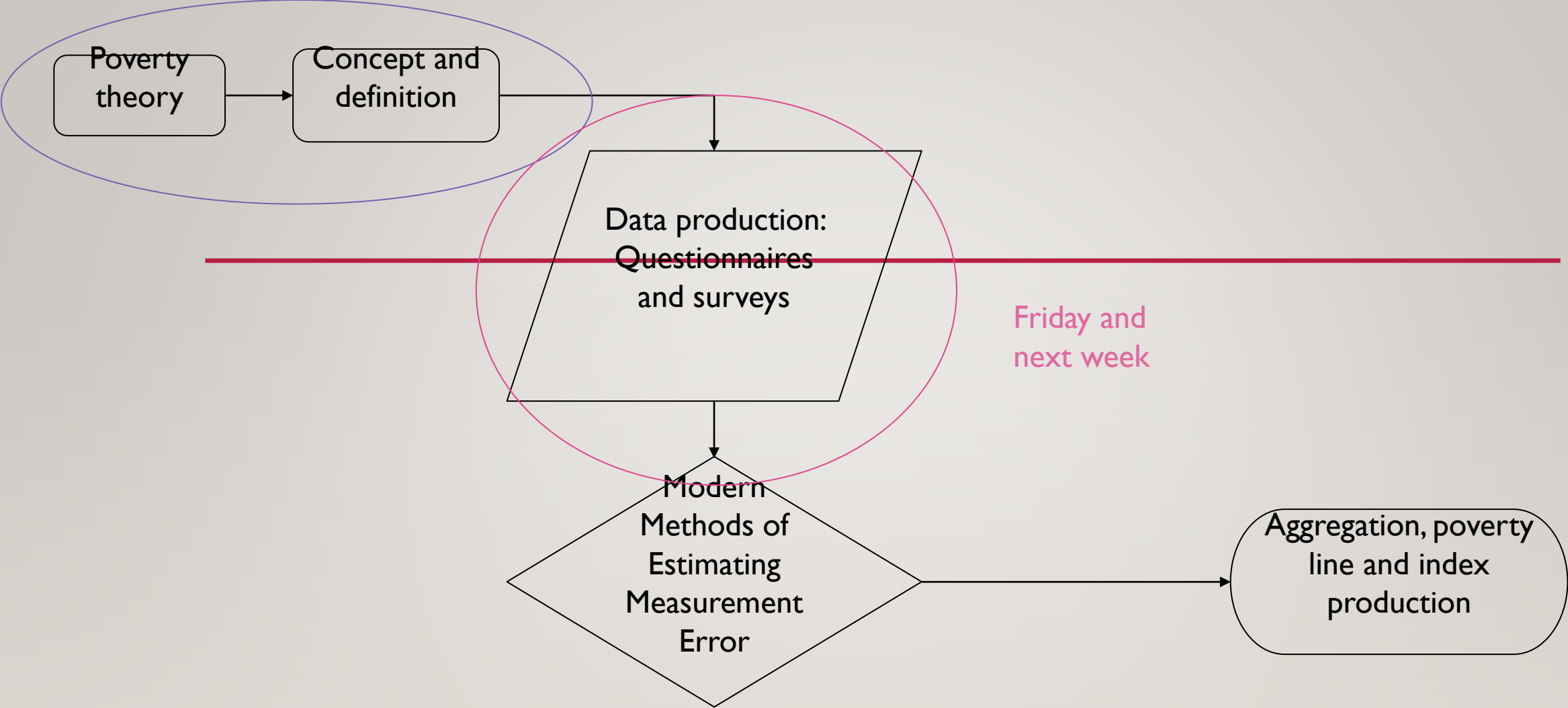
IN PRACTICE?

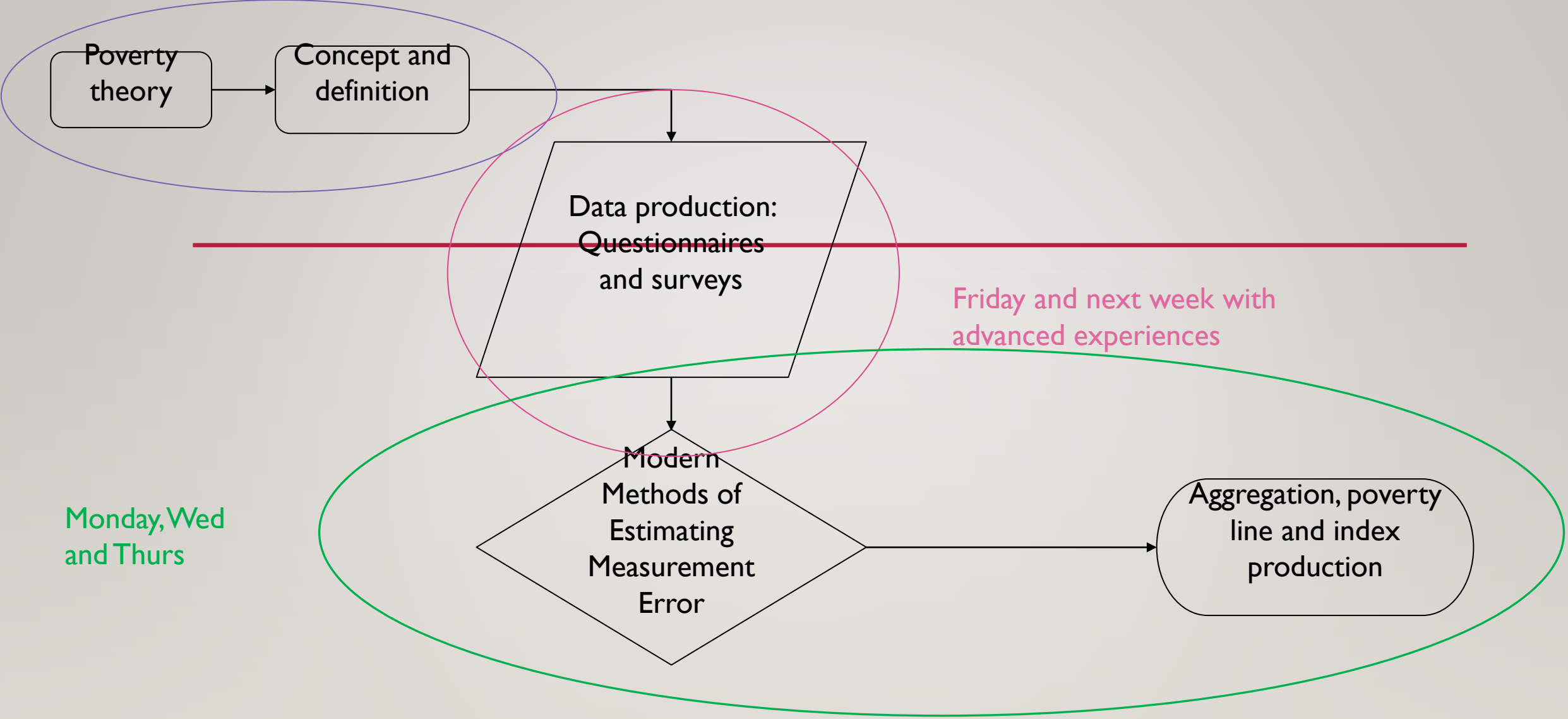


¿QUÉ PASA EN LA PRÁCTICA?









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