

Time –series and data gaps

Harry Vreuls

Regional Training Seminar,
Zagreb, 19-21 November 2014

Theory

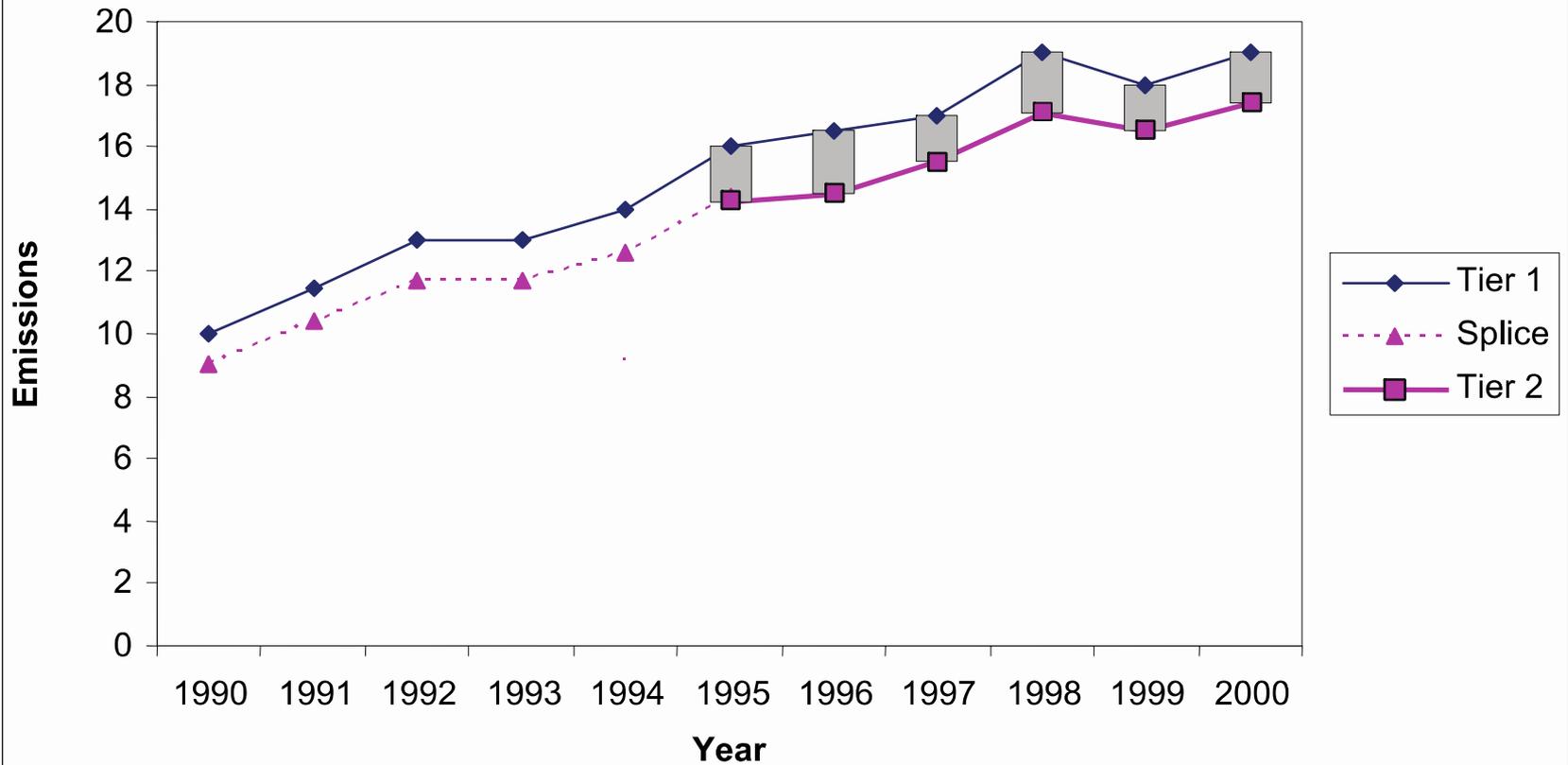
- Annual data
 - Calendar year
 - Other years (e.g. fiscal year)
 - Use these consistent over time or
 - Recalculate to calendar year
- Periodic data (every xx year)
 - Trend available? → extrapolation
 - Surrogate data?
 - Other (international data source: UN, IEA, Eurostat...)
 - Related data
 - Combined with (later) recalculation(s)

Options

- New time series: Overlap
- Missing years, in between: Interpolation
 - Ensure this is in line with drivers
- Missing data since a moment:
 - trend extrapolation
 - Ensure this is in line with drivers
 - Surrogate date
 - Based on the situation
 - Based on other countries
 - Default (+ corrections)
- Others (Modelling) ?

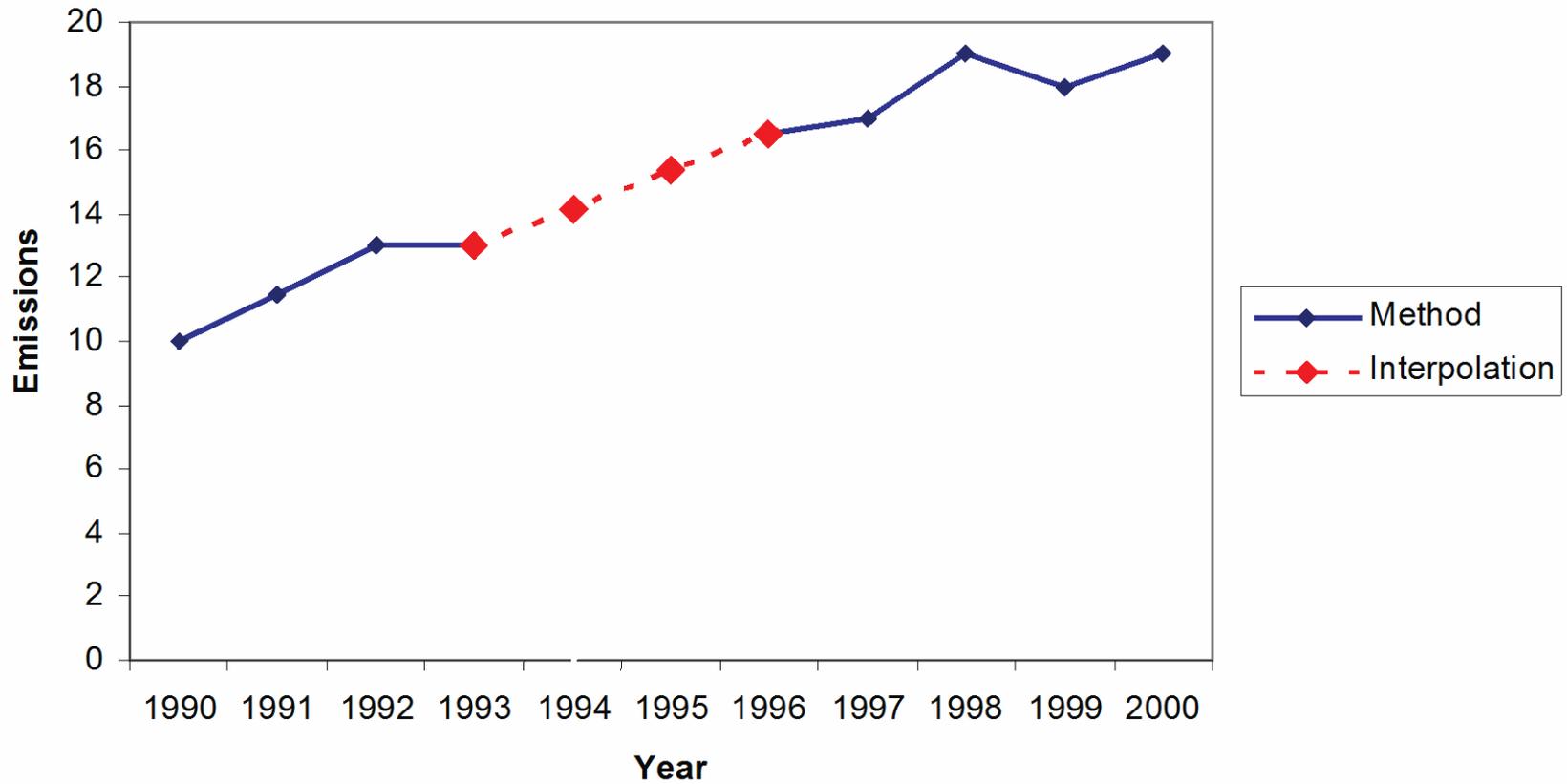
Consistent Overlap

Overlap - Consistent Relationship

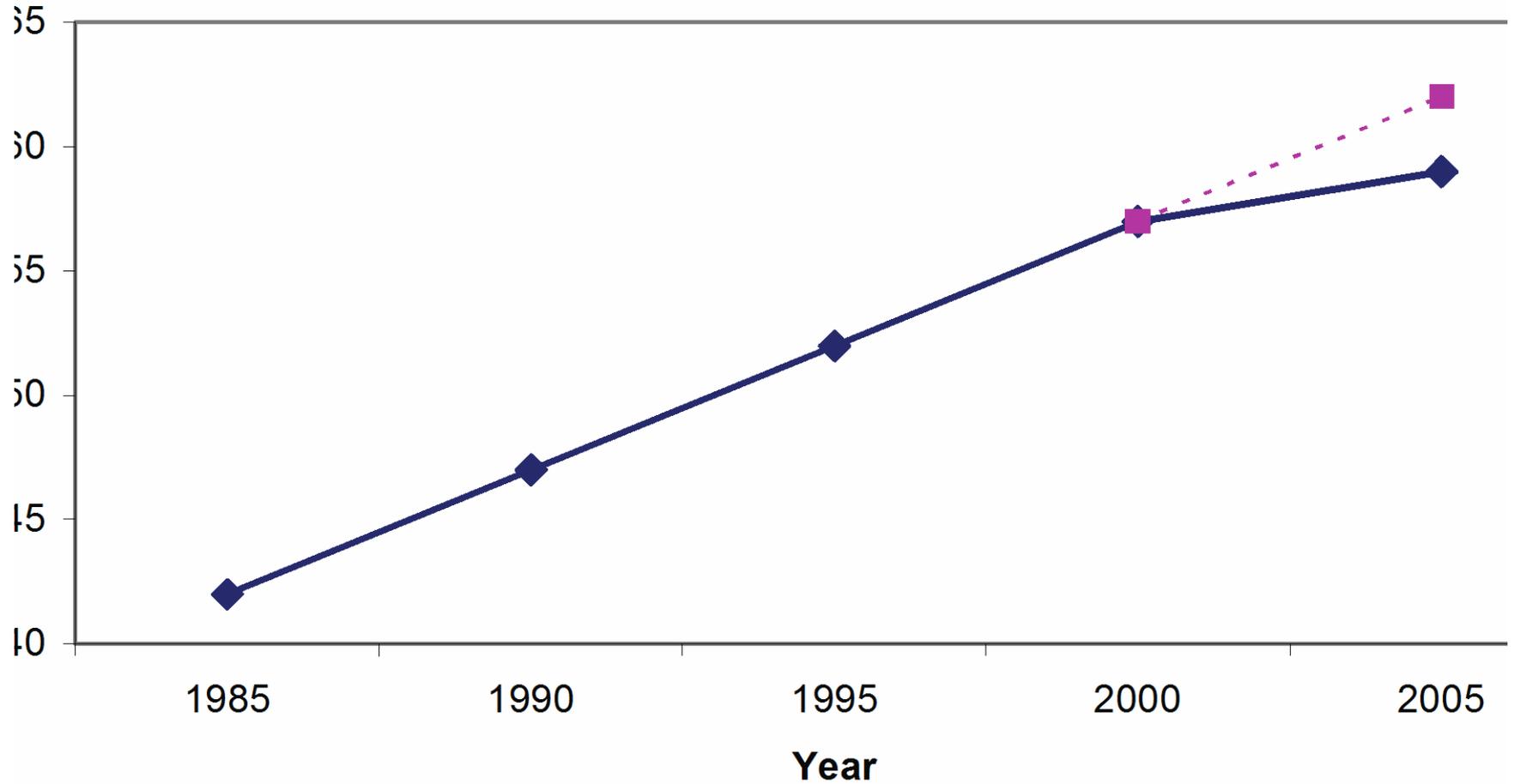


Trend interpolation

Linear Interpolation



Extrapolation, periodic data



Summary, IPCC 2006

TABLE 5.1
SUMMARY OF SPLICING TECHNIQUES

Approach	Applicability	Comments
Overlap	Data necessary to apply both the previously used and the new method must be available for at least one year, preferably more.	<ul style="list-style-type: none"> • Most reliable when the overlap between two or more sets of annual estimates can be assessed. • If the trends observed using the previously used and new methods are inconsistent, this approach is not <i>good practice</i>.
Surrogate Data	Emission factors, activity data or other estimation parameters used in the new method are strongly correlated with other well-known and more readily available indicative data.	<ul style="list-style-type: none"> • Multiple indicative data sets (singly or in combination) should be tested in order to determine the most strongly correlated. • Should not be done for long periods.
Interpolation	Data needed for recalculation using the new method are available for intermittent years during the time series.	<ul style="list-style-type: none"> • Estimates can be linearly interpolated for the periods when the new method cannot be applied. • The method is not applicable in the case of large annual fluctuations.
Trend Extrapolation	Data for the new method are not collected annually and are not available at the beginning or the end of the time series.	<ul style="list-style-type: none"> • Most reliable if the trend over time is constant. • Should not be used if the trend is changing (in this case, the surrogate method may be more appropriate). • Should not be done for long periods.
Other Techniques	The standard alternatives are not valid when technical conditions are changing throughout the time series (e.g., due to the introduction of mitigation technology).	<ul style="list-style-type: none"> • Document customised approaches thoroughly. • Compare results with standard techniques.

Documentation

- Internal documentation
 - Research for available data
 - Decision on the selected source(s)
 - Worksheets
 - Discussion papers
- External documentation
 - Report(s)
 - (Scientific) paper(s)

Summary

- Ensure that data in 'older' years are consistent with the actual years
- Prioritise capacity (money, people) to improve quality of data in coming years and not for older years: use gap filling
- Document to prove your outcome

Questions?