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Workshop 3.2: Planning the time path of commitments, payments and evaluation

"Forecasting absorption of Structural Instruments with the use of quantitative and qualitative methods"

Proiect co-finanțat din Fondul European de Dezvoltare Regională prin POAT 2007-2013

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Context and scope of evaluation

- A context of less than expected absorption performance for Romanian Operational Programmes.....
  - Several Evaluation reports carried out between 2009-2011 related to Structural Instrument implementation in Romania
  - These demonstrated an absorption performance of Operational Programmes that was less than expected, and identified important internal and external factors affecting performance
  - Incremental improvements alone would be insufficient to ensure adequate acceleration in absorption and implementation; rather, some sizeable financial reallocations would be necessary
  - Overall commitment rate of 65% and payment rate of 7% on 31.12.2011 in relation to the available financial envelope for 2007-2013
- Government of Romania therefore sought external advice in search of options to improve absorption performance....
  - Objective of evaluation: to provide stakeholders with reliable information and knowledge regarding the optimal financial course of EU Funds in order to reach the best possible absorption rate till year 2015, and to avoid or minimize the automatic decommitment of funds
  - The resulting report is seen as an important input for drafting the next Romanian 2014-2020 programming period in accordance with the new European 2020 priorities
  - The report will outline scenarios for revision of the financial allocations covering all 7 OP

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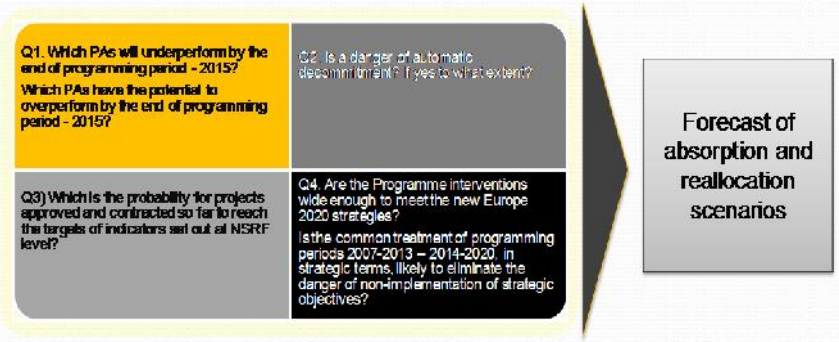
Context and scope of evaluation

- Four evaluation questions developed in order to address the priorities of the Government of Romania and assist in its decision-making regarding Structural Instruments:



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Methodology for forecasting absorption

- Our methodology for this evaluation comprises both quantitative and qualitative techniques:
  - Quantitative: development of a forecast absorption model, observing the payment lifecycle of individual projects
  - Qualitative: interviews with Managing Authorities to understand the future stock of projects and their characteristics; and validate feasibility of forecasts developed
- These two methods are to be cross-analysed and supplemented by the consultant's opinion, with due regard to previous experience in structural funds evaluation and the context and realities of the situation in Romania

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Methodology for forecasting absorption

Description of data

1. Forecasts on the projects which have registered at least one payment prior to 31/12/2011 and which provide a project start date
2. Forecasts on the payments relating to future projects: the model of historical project payments will be applied to the expected "contracting amounts" in order to convert them into payment amounts

Our presentation below of the approach is based on a simulation of the results to date, but does not represent the actual results of the evaluation since it is still in progress

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Quantitative approach

Conceptual model

- At the beginning of the evaluation we defined a conceptual data model, listing data variables which were considered theoretically necessary to develop an effective and reliable forecast model for absorption of funds
- It listed all potential data requests, such as project timeframes per phase (forecast vs actuals), nature of procurement and supplier and beneficiary details
- This "ideal" model was then compared with what was available, not available, and what required processing or was incomplete in the SMIS database, in order to finalise the construction of the model
- Due to limitated data that satisfies three important criteria, it was not feasible to define clusters of projects according to their similar qualitative characteristics and payments behaviour, as planned

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Quantitative approach

Method for forecasting, and adjustment factors

- The payment completion rate is calculated with respect to the EU budget variable. The modelling exercise involved analysing, in relation to the project start date, the elapsed period of time before a project will complete its payments.
- Once an average timing for project completion is established by OP, we apply the model for average timing for payment completion per quarter (add/subtract a ratio of its standard deviation to the associated quarter for the Strong/Weak scenario) to all projects and simulate their development based on the project start date.
- Compensation coefficients for missing data have been established for the sums of payments not retained in the model.
- The results of each OP have been adjusted, using a coefficient based on the volume of payments of observations not retained for the modelling. This coefficient ranges from 0% to 5%.
- Similarly, by volume effect between the completion of projects with a high EU budget and a low EU budget, a second adjustment factor has been used to adjust the values of the scenarios.

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Quantitative approach

Complete lifecycle of a project using Chain Ladder approach

- Our approach seeks to simulate the **complete lifecycle** of a project for each contracted project using the Chain Ladder approach
  - The project lifecycle covers a maximum period of 32 quarters (time elapsed between Q1 2008 and Q4 2015)
  - Each quarter number refers to the number of quarters elapsed since the launch of a given project
  - Projects for which we do not have exhaustive lifecycle data (are not completed but have registered at least one payment) have been included in the model through an adjustment coefficient

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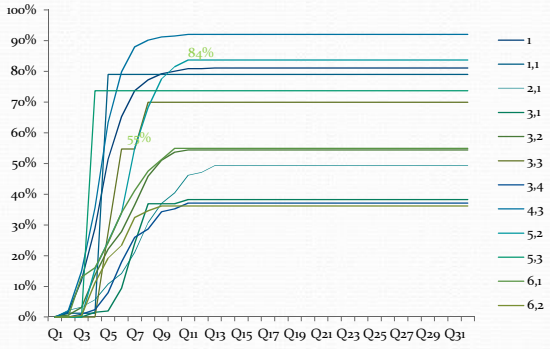
Quantitative approach

Complete lifecycle of a project using Chain Ladder approach



This graph is an example that illustrates the payment completion rate (payments as a percentage of EU budget, per project) of "**completed" projects** over this period of 32 quarters

The plateau of project payments from Q16 to Q32 is defined by the fact that, as completed projects, they do not expect new payments in the coming quarters.

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Quantitative approach

Three scenarios for modelling absorption

- We have modelled the timing of project payments according to three different scenarios:
  - Strong scenario
    - This scenario will illustrate what level of payments would be achieved at a certain point in time if all projects modelled had a payment performance equivalent to the best performing projects in the historical dataset.
  - Expected scenario
    - This scenario will illustrate what level of payments are expected to be achieved at a certain point in time, taking into account the strong performing and poor performing projects in the historical dataset.
  - Weak scenario
    - This scenario will illustrate what level of payments would be achieved at a certain point in time if all projects modelled had a payment performance equivalent to the poorest performing projects in the historical dataset.

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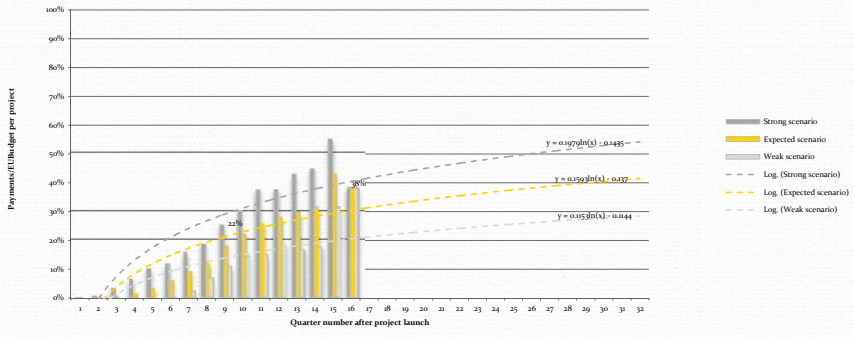
Quantitative approach

Mixing complete and ongoing projects



- Since there is a significantly higher percentage of "incomplete" projects in the historical data, the graph above covers both completed and incomplete projects
- This is to ensure there is a large enough population of projects within each Key Area of Intervention for the modelling
- The modelling curve however is determined by the "complete lifecycle of a project"

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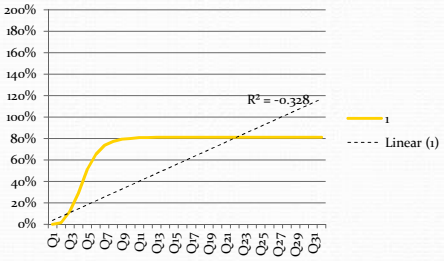
Quantitative approach

What possible models could be applied?

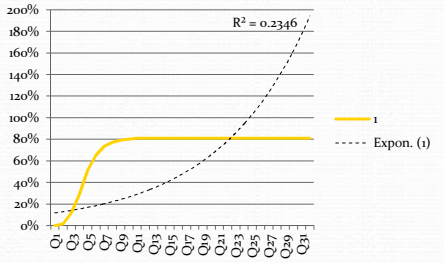
LINEAR MODEL



Project payments in relation to EU budget for Q3 until Q4 would be severely underestimated.

Conversely from Q25 to Q32, payments would be overestimated (average of 120% of the EU budget programming at Q32).

EXPONENTIAL MODEL

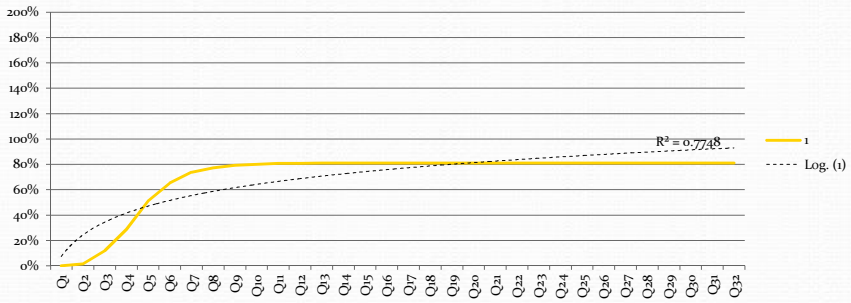


Project payments in relation to EU budget for Q5 to Q20 would be severely underestimated.

Conversely from Q24 to Q32, payments would be highly overestimated, (200% of the EU budget programming at Q32)

Quantitative approach

Why a logarithmic model?



The R^2 criteria associated is highest of the 3 simulations (closest value to 1).
The fit of the curve is therefore better adapted to the typical lifecycle of projects.

Qualitative approach

- Interviews held with Managing Authorities of each Operational Programme in order to:
  - Complete the historical data set, for example through updating data for projects where a start date or payment(s) may be missing, in order to maximise the reliability and quantity of data for modelling
  - Obtain data relating to contracting assumptions for future projects. The data cover the pipeline of projects under preparation for each KAI (e.g. major projects), calls for proposals to be launched and general expectations concerning the level of contracting.
  - Understand other factors that influence the absorption rate which must be considered and which the model is not able to address

Lessons learnt

- Impact of historical data quality and completeness issues on the utility of the model
- Importance of obtaining data on future projects (at project level for major projects and KAI level for others) that are validated with the Managing Authorities
- Importance of highlighting the methodology used, the reasons why, and the possible impacts of data limitations on the interpretation of results
- Value of combining quantitative and qualitative techniques to ensure the final result best reflects the reality

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Questions

Thank you for your attention