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IL FUTURO DELL'AGRICOLTURA SOSTENIBILE

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# EVAL FORM

## La valutazione alla prova dei fatti

## Orientarsi tra metodi e dati

**R.Cagliero F. Basset** *CREA Centro di Politiche e Bioeconomia*

## Qualitative or mixed methods

**Actor-network analysis**
Learn more >

**Contribution analysis**
Learn more >

**Cost-benefit and cost-effectiveness analysis in the context of CAP...**
Learn more >

**Innovation capacity scoring tool**
Learn more >

**Knowledge mapping**
Learn more >

**Method for impact assessment of programmes and project...**
Learn more >

**Most Significant Change**
Learn more >

**Outcome mapping**
Learn more >

**Rapid appraisal of agricultural innovation systems (RAAIS)**
Learn more >

**Social network analysis**
Learn more >

**Stakeholder mapping**
Learn more >

**Theory-based approaches**
Learn more >

**Visualised AKIS mapping**
Learn more >

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## Quantitative quasi-experimental methods

**Difference in differences**

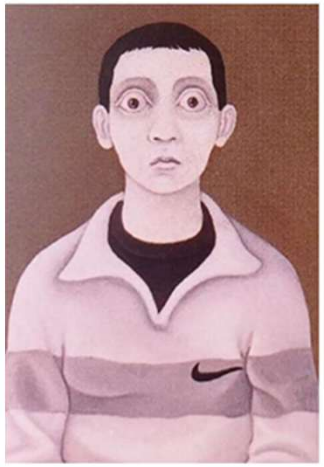
Learn more >

**Difference in differences with propensity score matching**

Learn more >

**Generalised propensity score methods**

Learn more >



**Instrumental variables**

Learn more >

**Modelling approaches**

Learn more >

**Naive comparisons**

Learn more >

**Network diversity index (NTd)**

Learn more >

**Propensity score matching**

Learn more >

**Regression discontinuity**

Learn more >

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# Domande & approcci


| | Valutazione sperimentale e quasi sperimentale | Approcci statistici | Approcci naturalistici | Valutazione basata sulla teoria | Valutazione realista |
|---|---|---|---|---|---|
| **Domande principali** | Funziona? | Cosa varia? | Per chi? | Come? | Perché e quando? |
| **Finalità** | Valutare se l'intervento ha 'fatto la differenza' | Riconoscere le cause e gli effetti e come al variare delle une si modificano gli altri | Valutare per chi l'intervento funziona<br><br>Offrire spiegazioni 'dense' di casi specifici | Aumentare la conoscenza su problema e soluzioni<br><br>Descrivere i processi causali generali e di dettaglio | Identificare i meccanismi di funzionamento per il policy disegn |
| **Metodi (esempi)** | Randomized control trials<br><br>Disegni quasi sperimentali | Analisi statistica<br><br>Modelli econometrici | Metodi narrativi, interpretativi, etnografici, studi di caso… | Ricostruzione e verifica della teoria e dei processi | Analisi C-M-O e sintesi realista |
| **Tipo di inferenza** | Controfattuale | Correlazione | Osservazione diretta e triangolazioni Validazione dai partecipanti | Identificazione/ conferma di processi o catene causali | Meccanismi |

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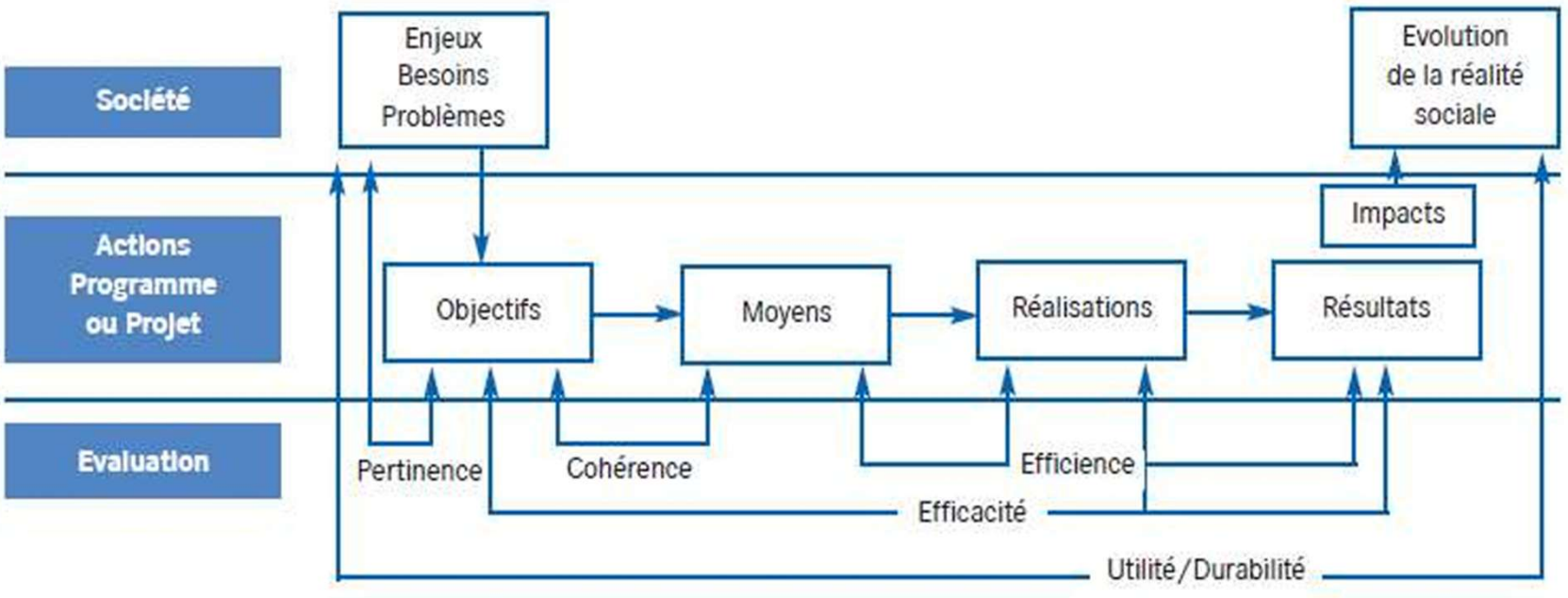
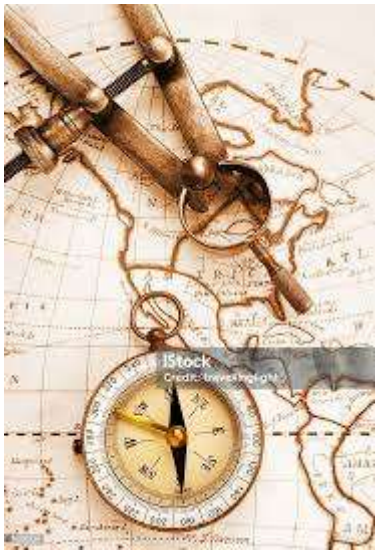
# Domande & approcci

*Figure 3 : Les principaux critères de jugement de l'évaluation*

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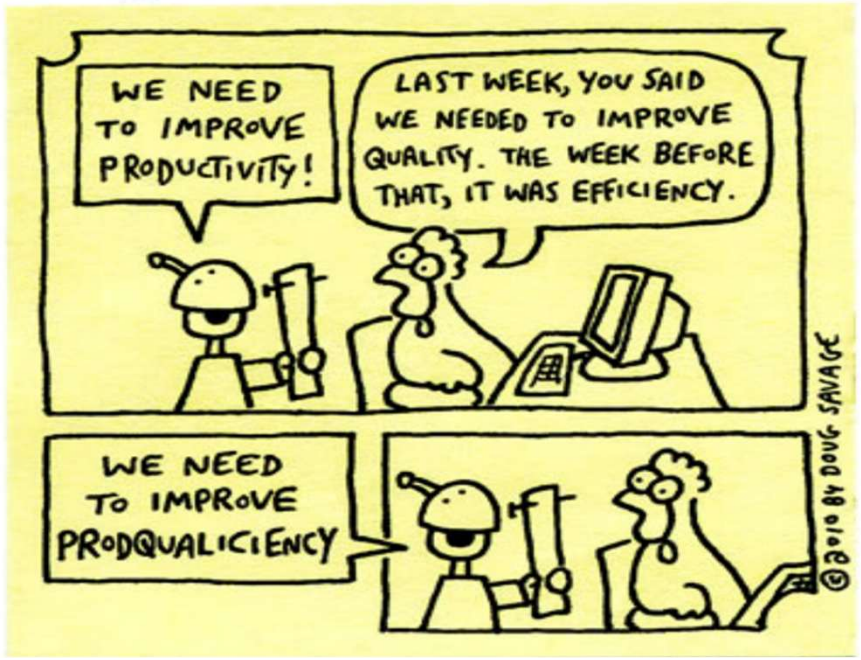
# Domande & approcci

**Punto di partenza: la domanda valutativa: cosa vogliamo sapere?**

•Tipologie di domande:
- Descrittive (cosa è successo?)
- Causali (perché è successo?)
- Implementative (è efficace? È efficiente?)
- Esplorative (voglio capire meglio…. )




→ **La domanda guida la scelta del metodo**

•Domande descrittive → analisi statistiche / qualitative
•Domande causali → metodi controfattuali
•Implementative (analisi costi e qualcosa / analisi target)
•Domande esplorative → metodi qualitativi

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# Domande & metodi


Jerzy Michalek (core team expert from the Evaluation Helpdesk) gave a **presentation on methodological approaches** for measuring net impacts of BISS & CRISS using FADN data.
He presented an example on **advanced econometric meth**ods that can be used for direct payments evaluations.

Some methodological requirements for such an impact evaluation are reliance on causal analysis (i.e. using control groups, **not only situations with or without**), high stability of obtained results and the ability to isolate effects of a specific intervention from other factors

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# Domande & metodi

## Methodological requirements for impact evaluation

1. Reliance on causal analysis! (rigorousness & credibility)
   - Ensuring that a causal model is explicitly incorporated
   - Causality vs. correlation! (high correlation does NOT imply causality => naïve approaches?)

2. High stability of obtained results (Reliability & Robustness)
   - Ideally: sensitivity is low and reduced to random factors
   - But, robustness dependents on the specific limitations of the applied method!

3. Applied methodology => should allow to isolate effects of a specific intervention from other (e.g. exogenously determined) factors

Example of rigorous evaluation techniques => e.g. quasi-experimental approaches

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# Domande & metodi

- Binary quasi-experimental methods relying on “BISS-CISS supported” vs. “BISS-CISS non-supported” (e.g. binary PSM-DID, exact matching, etc.) are not applicable

- Evaluation of 1st Pillar is more difficult than evaluation of 2nd Pillar (for latter a binary PSM-DID can be applied)

- Most evaluators of Pillar 1 prefer to utilize sectoral- or CGE models (policy scenarios: “base-run scenario” vs. “policy-scenario”, e.g. CAPRI, CGE modelling, etc. or spatial econometric analysis. However, these approaches are good for ex-ante evaluations but problematic for ex-post

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# Domande & metodi

**Evaluation Question**: To what extent has BISS-CISS support affected income and competitiveness of supported agricultural farms?

Possible outcome variables/Impact Indicators:

- Gross Farm Income (SE410) (output – interm. Consump + balance subs/taxes)
- Farm Net Value Added
- Farm economic size
- Farm employment
- Farm investments, etc.

=> application of naïve methods would be problematic!

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## Domande & metodi

# Analytical four steps:

1. **Estimation of the generalized propensity score** (GPS) as a conditional density of the treatment assignment (T), e.g. BISS-CISS per farm, given the covariates (X)
2. Diagnostics: Validate GPS by **checking for covariate balance** (!)
3. **Response model**: Finding the appropriate functional relationship between the impact indicator (e.g. farm income), the intensity of the BISS-CISS support, T, and the estimated values of GPS for each farm i.
4. Causal quantities of interest: **Estimation** of the average outcome for each potential level of support T and **the entire dose-response function**

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# Domande (temi) & metodi

| *Tema valutativo* | *Focus* | *Approccio metodologico* | *Fonti di dati* | *Riferimento geografico* |
|---|---|---|---|---|
| **Produzione alimentare sostenibile** | Effetti sul reddito | Statistiche descrittive; modello econometrico; qualitativo | FADN+ CATS+ Eurostat | UE |
| **Sviluppo territoriale** | Effetti di tipo socioeconomico | Modello regressivo; matrici I/O; casi studio | FADN + Eurostat | UE |
| **Occupazione** | Effetti di diversi mix di politica | Analisi di causalità (GPSM, analisi di impatto) | CATS + Eurostat, ESPON, Corine, … | UE |
| **Efficienza ed efficacia** | Efficienza e produttività | Data envelopment analysis (DEA) | FADN | SM |
| **Disaccoppiamento parziale** | Effetti sul reddito | Simulazioni *ceteris paribus* | Eurostat; FADN; Comtrade; DB GIA, survey dirette | Settore produttivo |
| **Obiettivi redistributivi (equità)** | Diseguaglianza dei redditi | Decomposizione del coefficiente di Gini | FADN | SM |

# Domande & metodi & filiere logiche

| RD PRIORITY | | FOCUS AREA | | FOCUS AREA-RELATED EVALUATION QUESTION | JUDGEMENT CRITERIA | COMMON RD INDICATORS[6] | ADDITIONAL INFORMATION |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| P2 | *Enhancing farm viability and competitiveness of all types of agriculture in all regions and promoting innovative farm technologies and the sustainable management of forests* | P2A | Improving the economic performance of all farms and facilitating farm restructuring and modernisation, notably with a view to increasing market participation and orientation as well as agricultural diversification | 4. To what extent have RDP interventions contributed to improving the economic performance, restructuring and modernization of supported farms in particular through increasing their market participation and agricultural diversification? | • Agricultural output per annual working unit of supported agricultural holdings has increased<br>• Farms have been modernized<br>• Farms have been restructured | • Change in agricultural output on supported farms/AWU *(FA 2A - Complementary result indicator)*<br>• % of agriculture holdings with RDP support for investments in restructuring or modernisation *(FA 2A - Result indicator)* | • % of agriculture holdings with RDP support for investments regarding modernization<br>• Economic farm size structure of supported farms |
| | | P2B | Facilitating the entry of adequately skilled farmers into the agricultural sector and, in particular, generational renewal | 5. To what extent have RDP interventions supported the entry of adequately skilled farmers into the agricultural sector and in particular, generational renewal? | • Adequately skilled farmers have entered intothe agricultural sector<br>• The share of adequately skilled young farmers in the agricultural sector has increased | • % of agriculture holdings with RDP supported business development plan/investments for young farmers *(FA 2B - Result indicator)* | • % of adequately skilled farmers in the agricultural sector of the RDP territory |

# Domande & metodi & filiere logiche

**Quantitative method to calculate the complementary result indicator R2 - change in Agricultural output/AWU (= farm labour productivity)**[27]

Complementary result indicator **R2** (Agricultural output/AWU) = farm labour productivity) can be interpreted as a partial measurement of the competitiveness of the agricultural sector. Both **primary** (programmed directly under the FA 2A) and **secondary** (programmed under other FAs than 2A, but contributing to 2A) contributions of all relevant RDP measures to this indicator have to be taken in consideration.

The main challenge of the use of the R2 in the evaluation of RDPs is to be seen as a fact that an observed change (e.g. in period 2013-2016) of this indicator in supported projects may result from a number of various factors, e.g.:

a) **Primary contributions** of investment support received **by a given farm** from RDP measures linked directly to the **focus area 2A** (e.g. M3, M4, M6)

b) **Primary contributions** of non-investment support received **by a given farm** from RDP measures associated with the **focus area 2A** (e.g. M1, M2, M9, i.e. training and advisory services, producer groups)

c) **Secondary contributions** of support received **by a given farm** from RDP measures linked to **other focus areas**, e.g. FA4 or FA5 (e.g. via M10, M11, M12, M14, etc.)

d) **Direct and indirect effects** of other **subsidies not related to RDPs** received **by a given farm** (e.g. from Pillar I)

e) **Direct and indirect effects** of other subsidies **not related to the CAP** (e.g. from regional funds - via migration of labour from agriculture to the non-agricultural sector)

f) Effects of **other exogenous factors** not related to the RDP, e.g. change in agricultural prices, change of price ratios between agricultural outputs and inputs which provide an incentive for an increase/decrease of agricultural output; etc.

# Domande & metodi & filiere logiche

| | | |
|---|---|---|
| R2 (Complementary result indicator) | Calculation of programme effects using indicator R2 requires collection of data for both **beneficiaries of RD measures affecting P2A and appropriate control groups:**<br>• Numerator: Agricultural output (output of crops and crops products, livestock and livestock products = value of sales + balance of stocks + own use or consumption) per farm in years prior to receiving support from the RDP (i.e. 2013) and after support (i.e. 2016, 2018 and ex post)<br>• Denominator: Total labour input of holding expressed in annual work units (AWU full-time person equivalents) (= family and unpaid labour AWU + paid labour AWU) per farm in years prior to receiving support from RDP (i.e. 2014) and after support (i.e. 2016, 2018 and ex post).<br>• Relevant GIS data (to be used for evaluation of environmentally related measures)<br>• Information on the total amount of subsidies (RDP subsidies directly related to focus area 2A + RDP subsidies non-directly related to focus area 2A + non-RDP subsidies) obtained by a farm in respective periods before the current programme and during its | Application forms/payment request (beneficiaries - operations database)<br>Survey on beneficiaries and non-beneficiaries and/or<br>FADN data base and anonymised paying agency data (no information which could identify entity or person) needed to identify beneficiaries of RDP measures linked to focus area 2A[26]<br>Eurostat: Farm structure survey<br>Standard outputs per MS and region and year – average 2010: http://ec.europa.eu/eurostat/web/agriculture/so-coefficients |

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# Domande & metodi & filiere logiche

| Method |
|---|
| Qualitative methods |
| Theory-based evaluation |
| Econometric methods |
| Experimental methods |
| Computational economic models |
| Environmental approaches |
| Combinations of approaches |

Table 12. Overview of data availability in case study regions

| RDP territories | Methodologies for assessing investment support and applicability for investment group | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Input-Output Analysis | Econo-metric counterfactu-al analysis | MAPP method | Theory-based evaluation design | Environmental Impact Assessment | Cost-Benefit Analysis | Cost Effective-ness Analysis | Life Cycle Assessment |
| | A,B | A,B,C,D | A,B,C,D | A,B,C,D | A,B,C,D | A,B,D | A,B,C,D | A,D |
| 01_AT | + | +/R | +/R | + | +/R | 0 | + | 0 |
| 02_CZ | + | +/R | +/R | + | 0 | 0 | +/R | 0 |
| 03_DE (Hessen) | +/R | +/R | 0 | + | 0 | 0 | +/R | 0 |
| 04_DK | + | 0 | - | + | 0 | 0 | +/R | 0 |
| 05_ES (Galicia) | + | 0 | +/R | +/R | +/R | 0 | + | 0 |
| 06_FR | + (only 4 regions) | 0 | + (only 4 regions) | + | +/R | 0 | + | 0 |
| 07_PL | +/R | +/R | +/R | + | - | 0 | + | 0 |
| 08_GR | + | 0 | - | + | - | 0 | +/R | 0 |
| 09_SK | +/R | + | +/R | + | - | 0 | + | 0 |
| 10_CY | + | 0 | - | + | - | 0 | +/R | 0 |

Investment Support under Rural Development Policy

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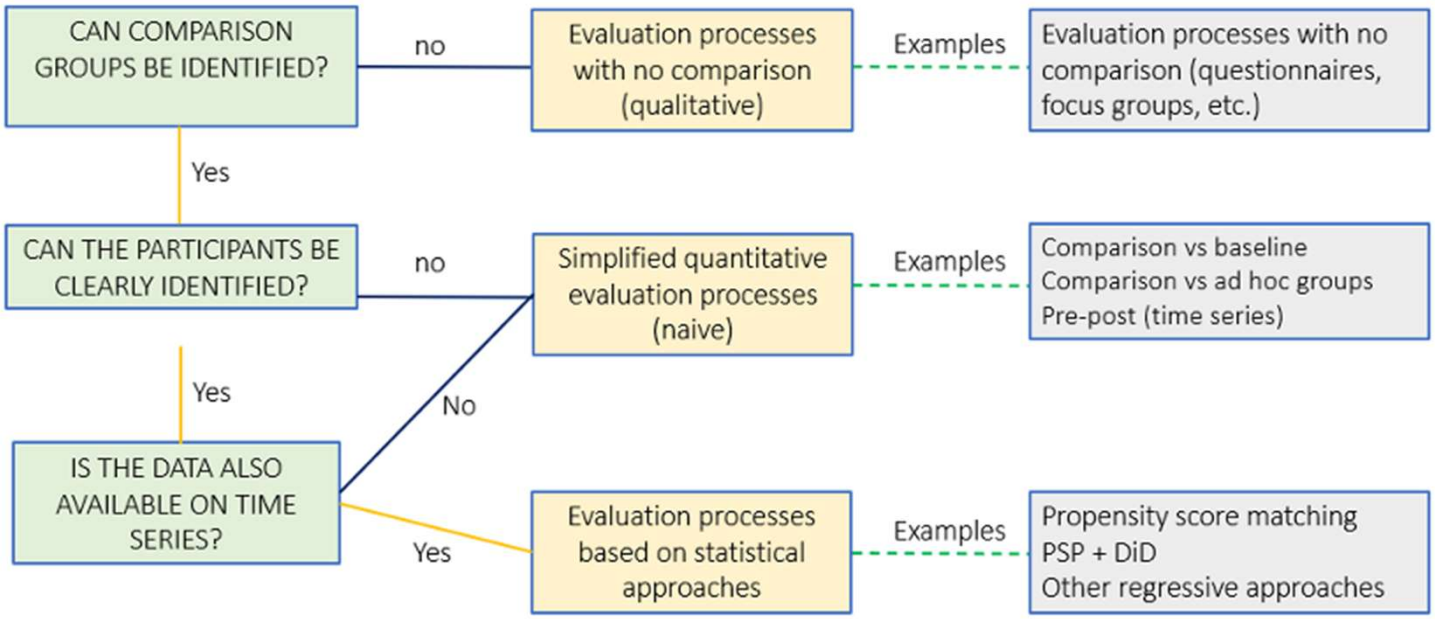


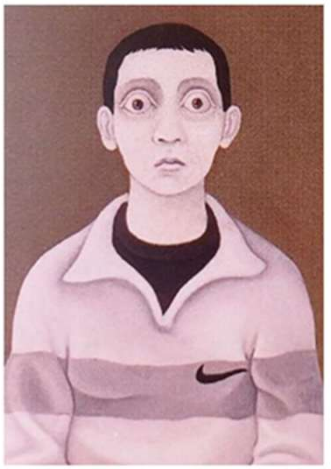

Source: European Commission, 2018

[Evaluation Learning Portal | EU CAP Network]

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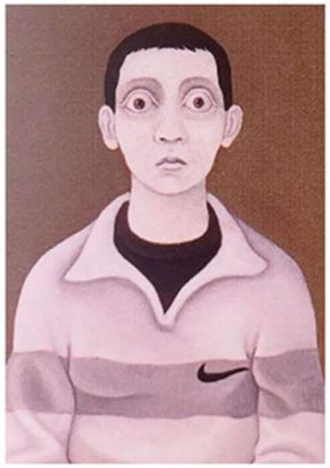

| Data structure | Policy exposure/control group | Suitable methods | Type of relationship |
|---|---|---|---|
| **Cross-section** | All farms affected (no control group) | OLS | Correlation |
| **Cross-section** | Some farms treated, others not; rich covariates | Propensity score matching (PSM) | Causality |
| **Cross-section** | Treatment assigned by sharp eligibility cutoff | Regression discontinuity design (RDD) | Causality |
| **Panel** | All farms affected; medium-length panel (≈3-5 years) | Fixed effects (FE) | Correlation (within-farm) |
| **Panel** | All farms affected; long panel (>5 years, dynamic effects) | Difference-GMM / System-GMM | Correlation (dynamic) |
| **Panel** | Some farms treated, others not; pre- and post-policy data | Difference-in-differences (DiD); event study | Causality |
| **Panel** | Few treated units; long pre-policy time series | Synthetic control | Causality |
| **Panel** | Only post-policy panel; some treated, others not; rich covariates | PSM (panel); RDD (eligibility cutoff, if rule generates treatment in panel) | Causality |

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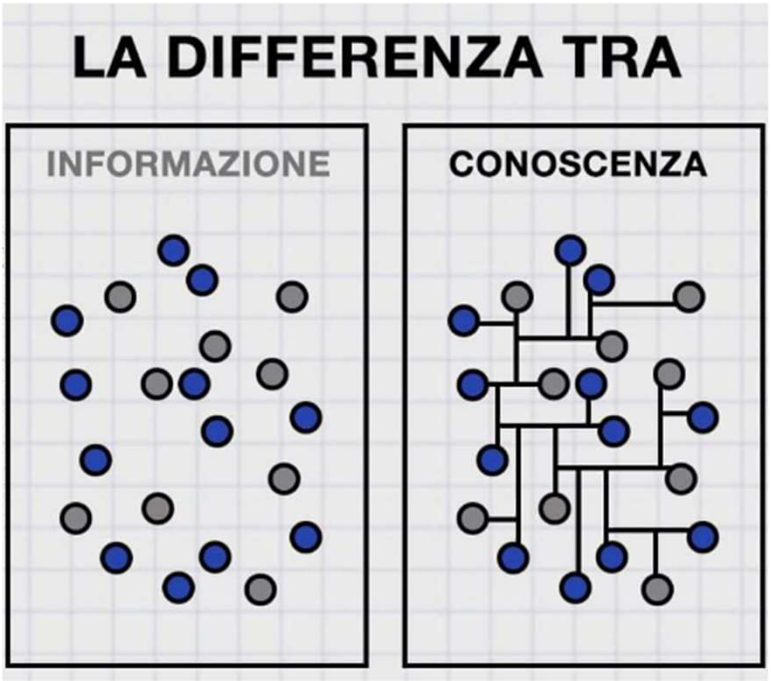


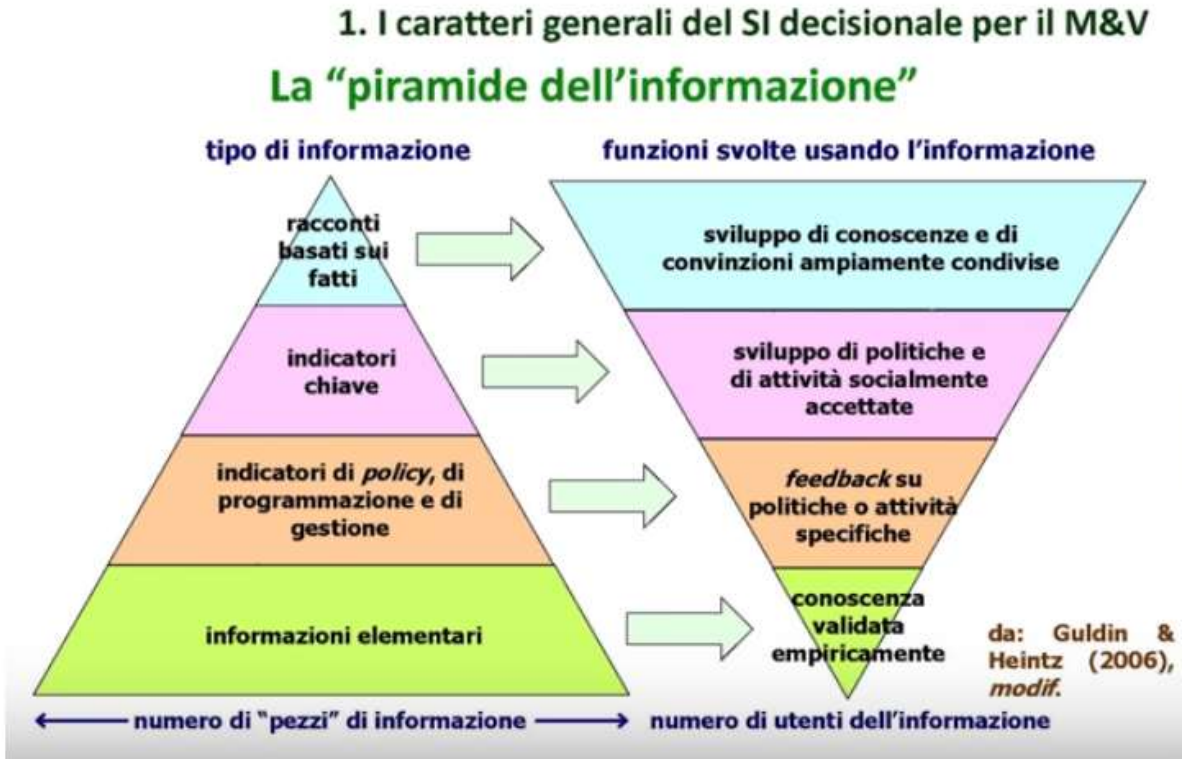


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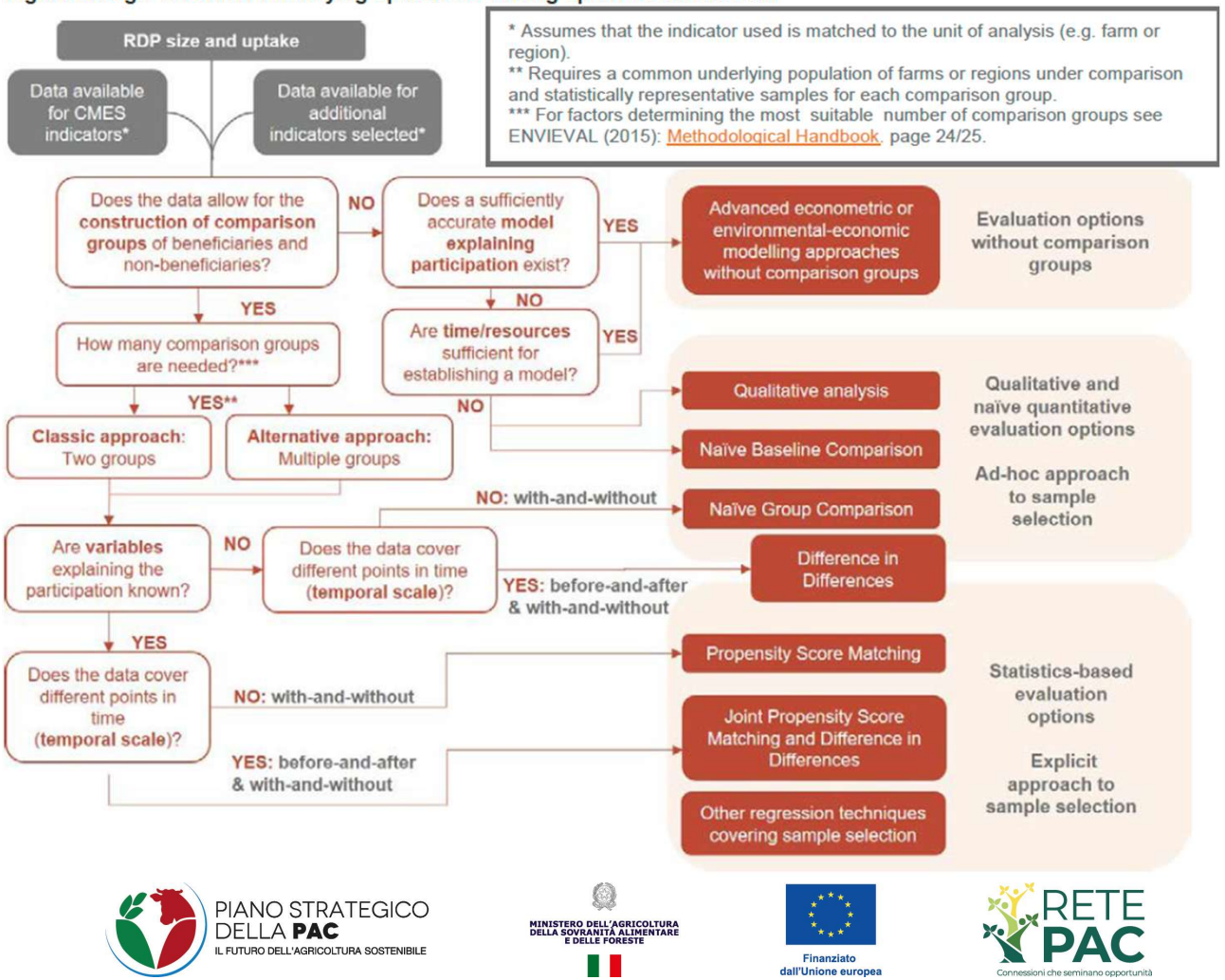
**Figure 3. Logic model for identifying options for setting up the counterfactual**

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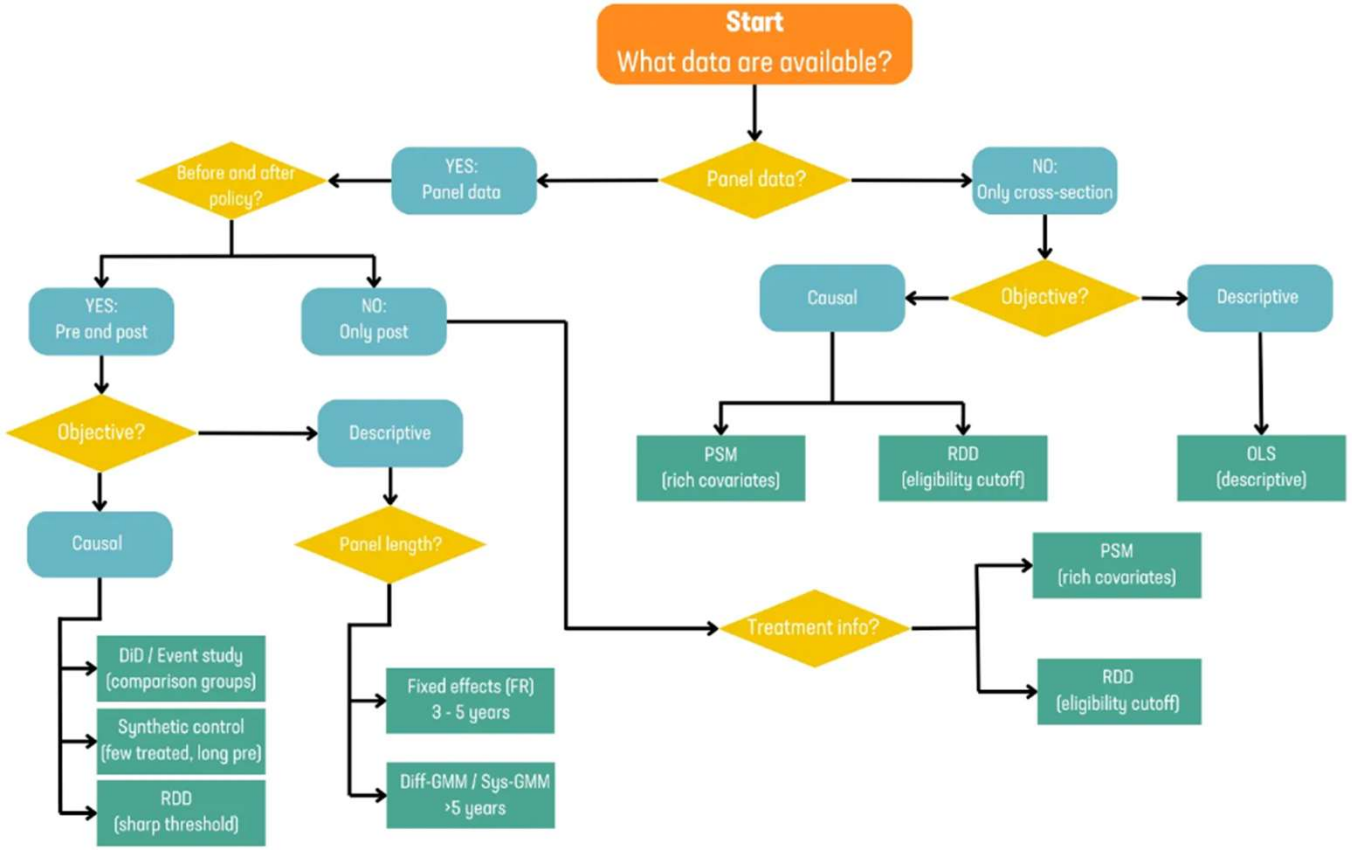


# Domande & metodi & dati & FADN

| | Context analysis and needs identification | Evaluation of implementation and performance | Evaluation of supporting documents | Change (impact) evaluation |
|---|---|---|---|---|
| **Indicator type** | Context<br>Baseline | Result<br>Specific | Specific | Baseline<br>Result (impact) |
| **Approach** | Benchmarking | Pre-post analysis | Analytical accounting | Shift-share |
| | Definition of scenarios | Profiling activities | Streamlined data reporting | Comparison group design |
| | Parameterisation activities | Selection criteria analysis | Technical coefficients | Statistical matching |
| **Indicator example** | Work productivity | Value added | Costs and profitability | Net value added |
| **Technique example** | Analysis by clusters<br>Index chains<br>Holding profitability | Ceteris paribus<br>Sensitivity<br>Profiling | Fair compensation<br>Cost-benefit analysis<br>Loss of income and increased costs | Naive Comparison<br>Regressive models<br>PSM and DiD |
| **Reference** | Borsotto, 2019<br>Cagliero *et al.*, 2011 | Cagliero *et al.*, 2021<br>NUVAL, 2016 | Seroglia & Trione, 2002<br>INEA, 2014 | Cisilino *et al.*, 2013<br>EC, 2018a<br>Michalek, 2012 |
| **Note/caveat** | Information gaps | Rotation of holdings in samples | Representativeness | Satellite samples |

Source: Cagliero *et al.*, 2021

# Domande & metodi & dati & FADN

| Use | Critical issues | Possible improvements |
|---|---|---|
| Construction of groups addressed and similar control groups | Low number of beneficiary farms | Methods for extension of the sample<br>Activation of satellite samples |
| | FADN sample not aligned with the beneficiary population | Activation of satellite samples |
| Use of deep time series (>10 years) | Rotational nature of the panel | Activation of satellite samples |
| Analysis and comparison of evolution in context | Estimate of very dirty effects and not the actual contribution of the RDP | Benchmarking on statistical data |
| Estimate and application of technical coefficients (e.g., economic return) | Need for comparison with administrative data | Matching with administrative archives<br>Construction of administrative archives based on compatible methodologies |

Source: Cagliero *et al.*, 2021

# Domande & metodi & dati & FADN

## Dealing with lack of data: Alternative approaches

### Case 1. Data is not available for non-supported farms

→ Comparing/contrasting data on supported farms with contextual or general trend data (e.g., provided by Eurostat for MS/regions)

Limited: contextual data includes both supported and non-supported farms.

### Case 2. All farms have been supported by a given RDP, but with different levels of intensity

→ Counterfactual based approach + farm-level data

Adequate: using appropriate methods (e.g., GPSM) and farm-level data on the structure and performance of the supported farms before and after RDP implementation.

### Data on small farms

**Standard Output (SO) of supported farms < FADN threshold**

FADN sample of farms not sufficient to meaningfully estimate the population's ATTs.

In this case, evaluators may use **other sources of data** (e.g., farm **bookkeeping statistics, or surveys**) which may include these 'very small' farms (supported and non-supported).

# Domande & approcci & dati & FADN (RISA)

## 4. How to overcome data-gaps in FADN (e.g. in regionalized Member States)?

**Good Practices**

- Aragón in Spain developed a regional database (a "Unique Register") including ALL farms in the region linking it to the Tax Agency so as to get more accurate data. (see GPW-16 report)
- Italy uses FADN satellite samples order to make the FADN sample more useful for evaluation and to overcome the lack of data at regional level. It undertakes updates and reviews to complement time series and the sample size.
- Estonia conducted a study to explore the possibilities to increase the use of FADN data, as well as made agreement with several data providers to streamline data collection (see GPW-16 report)
- Additional data collection to extend the FADN variables of interest for the MA (see Hungarian FLINT experience, Irish FLINT experience)

# Domande & metodi & dati & FADN (RISA)

### Extending the FADN sample

The approach suggested by the EC is to extend the number of observations, in total and for farms by type, by incorporating into the analysis units found in other similar regional situations.

For example, in the case of Germany, in an FADN sample identified in Bavaria, holdings present in the Baden-Württemberg FADN sample could also be incorporated in order to extend the sample with additional observations. However, this may be done only when the RDPs do not substantially differ in their implementation, for example in type of beneficiary or in eligibility criteria, and a certain similarity in the characteristics of the farms between the regions would also be necessary.

In the new implemented data set, obviously, it must be included a control dummy variable that indicates in which area of the programme a given farm is located. -

If there are still not enough observations even after adding the observations of the nearby region, the evaluators could decide to extend the analysis field to other Focus Areas as well. For example, to analyse the effects under FA 2A, they could extend the observations to farms supported in FA 3A. Such a decision, albeit unorthodox, is still considered more effective than giving up on a quantitative analysis.

*European Commission – Directorate-General for Agriculture and Rural Development – Unit C.4 (2021): Working Document 'Best use of FADN for the assessment of RDP effects on fostering the competitiveness in agriculture – Working Package 3 'Assessment of RDP effects on fostering the competitiveness of agriculture' - Thematic Working Group no 8 'Ex post evaluation of RDPs 2014-2020: Learning from practice'. Brussels*

*Note: In Italy, a similar approach was used by Seroglia & Trione (2002) to estimate fair compensation for compensatory allowances in Valle d'Aosta region.*

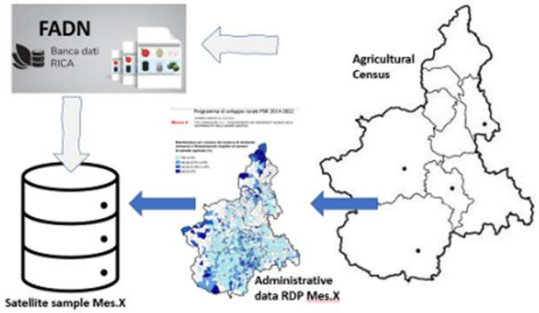
### The FADN satellite system

Starting from mid-2000, INEA [Italian National Institute of Agricultural Economics] developed a specific proposal aimed at considering the possibility of using the FADN to evaluate agri-food policies and rural development interventions. The proposal was based on a sample system defined as satellite, a system consisting of multiple samples linked to each other to meet the evaluation information needs.

The hypothesis takes the regional FADN sample, which has been statistically representative since 2003, as a base sample, constituting the reference for all other possible satellites. According to the satellite design, other (satellite) samples with lower numbers, each of which is specific to particular public interventions, revolve around the regional sample. Therefore, the satellite samples represent the beneficiary units of a given intervention, deriving from administrative archives, and useful information for the evaluation is collected on these units in a manner similar to that available on the regional FADN base sample units.

The identification of appropriate satellite samples offers a dual advantage: the possibility of carrying out spatial analyses on the one hand and of also being able to properly develop dynamic type analyses on the other.

**Representation of the FADN satellite system**




3.1 Are the variables available in the FADN sufficient to estimate the RDPs' effects?

3.2 What are the sample requirements to be used to answer the CEQs?

3.3 How can the FADN be best used to answer the CEQs?

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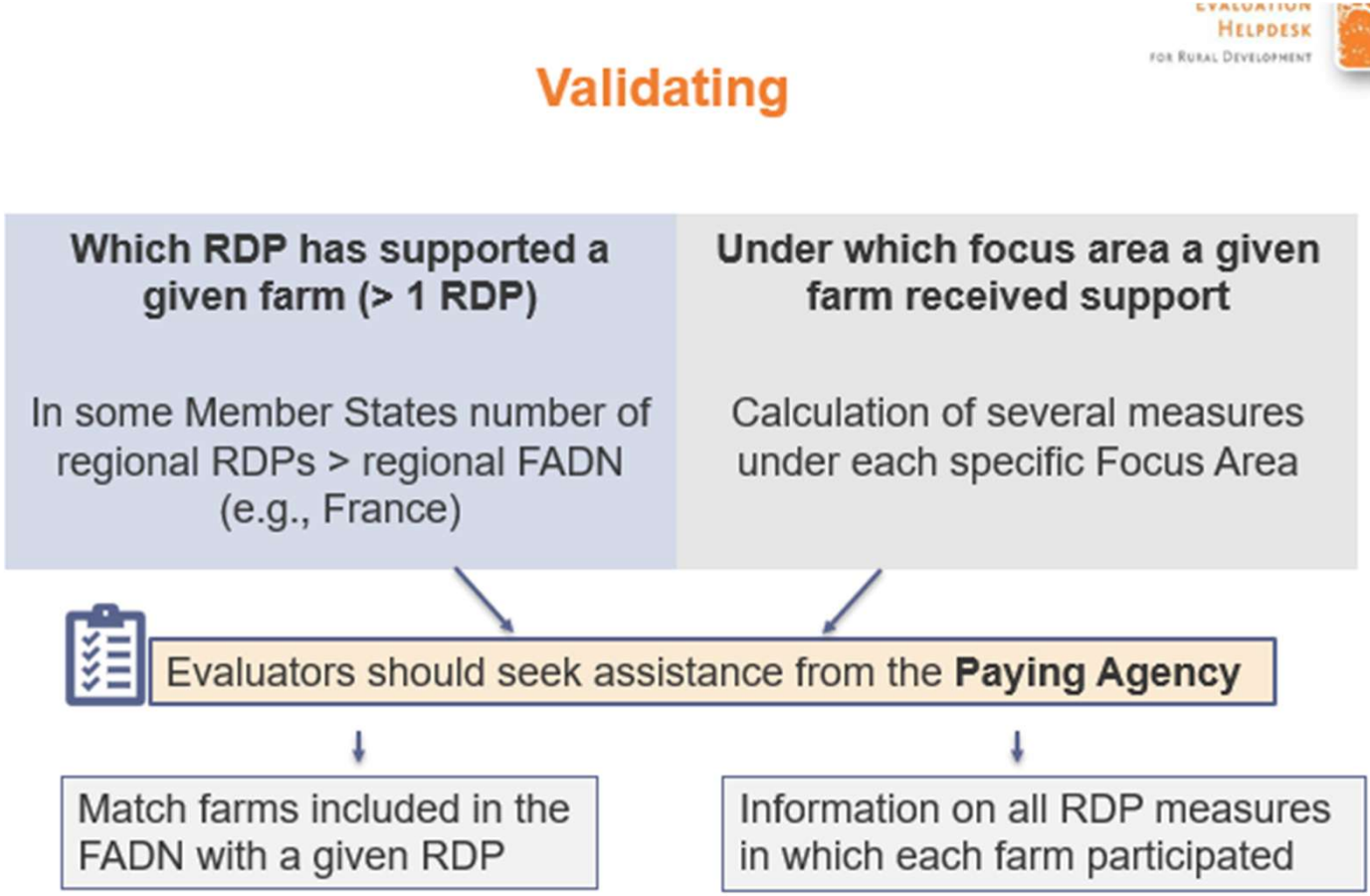

# Domande & metodi & dati & FADN

## 3 questioni chiave da considerare:

- **Problemi tecnici** (interoperabilità tra database)
- **Aspetti legali** (vincoli di condivisione dei dati a causa della legislazione sulla privacy dei dati)
- **Questioni di governance** (cooperazione tra enti governativi, istituti di ricerca, ecc.)

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# Domande & metodi & dati & FADN (RISA)

## Farm Sustainability Data Network (FSDN) - 2022

Comprende I dati sulle pratiche ambientali e sociali

- Link agli Interventi PAC - impatto positivo sull'ambiente, confronto delle prestazioni dell'azienda agricola, consulenza e guida su misura per gli agricoltori
- Migliora la sostenibilità degli agricoltori → obiettivi delle strategie Green Deal Farm to Fork e Biodiversità

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# Domande & metodi & incroci

| Method | Credibility/Rigour/ Reliability, etc. | Ability to reduce selection- and other biases | Quality of evaluation | Data demand |
|---|---|---|---|---|
| Experimental approach | +++++ | +++++ | +++++ | +++ |
| Quasi-experimental approaches | ++++ | ++++ | ++++ | ++++ |
| Matching approaches (combined with DID) | ++++ | ++++ | ++++ | ++++ |
| RDD | +++ | +++ | +++ | +++ |
| IV | ++++ | +++ | +++ | +++ |
| DID | ++ | ++ | ++ | ++ |
| Comparisons with non-beneficiaries in a given period of time (naïve approach) | + | + | + | ++ |
| Before-after comparison of programme beneficiaries (naïve approach) | + | + | + | + |
| Qualitative approaches applied to estimation of programme results/impacts | ++ | ++ | ++ | + |

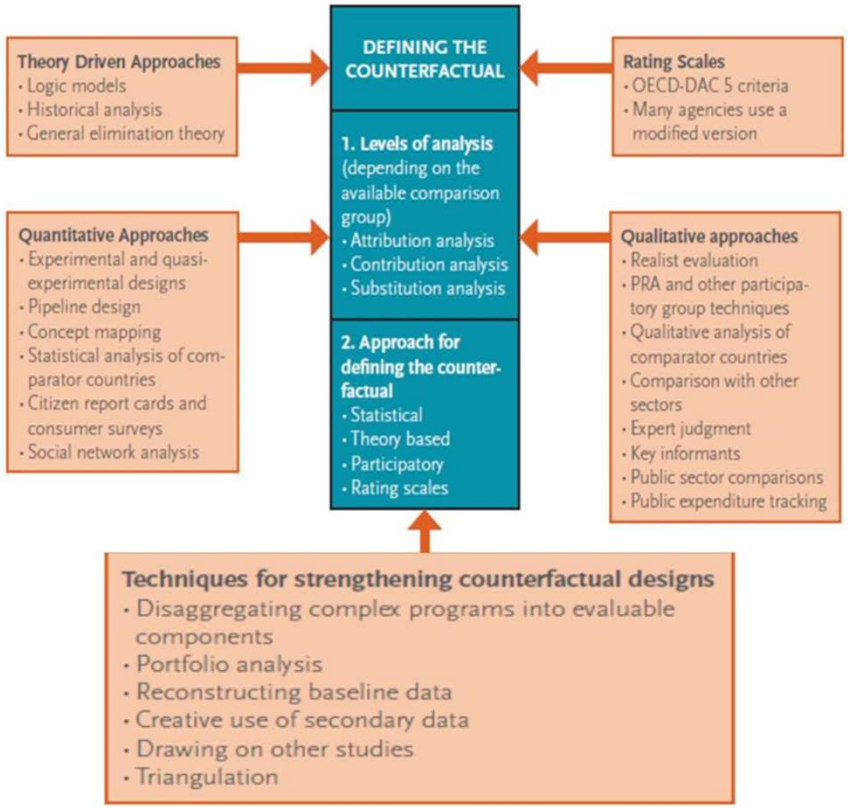
**Table 7** **Advantages and disadvantages of various evaluation designs**

| Evaluation design | Advantages | Disadvantages |
|---|---|---|
| Experimental | ○ Free from selection bias issues;<br>○ Ease of measurement (simple econometric methods);<br>○ Ease of interpreting results;<br>○ High internal validity. | ○ May be expensive and time consuming;<br>○ Can be politically difficult;<br>○ Risk of contamination of control group;<br>○ Difficult to ensure assignment is truly random. |
| Quasi-experimental | ○ Can draw on existing secondary data sources;<br>○ Can be quicker and cheaper to implement;<br>○ Evolving econometric methods. | ○ Reliability of the results is often reduced, as the methodology may not completely solve the problem of selection bias;<br>○ Some techniques can be statistically complex that require unique skills. |
| Non experimental | ○ Relatively cheap;<br>○ Easy to implement since it can draw on existing data sources;<br>○ Well-developed econometric methods. | ○ Reliability of results is reduced as the methodology is less robust statistically;<br>○ Some techniques can be statistically complex that require unique skills;<br>○ Full correction of selection bias remains a challenge;<br>○ Identifying good instrumental variables can be problematic. |

*Source: Based on Maredia, 2009; and IEG (World Bank, IFC, MIGA), 2011b*

# Domande & metodi & incroci

Figure 13 Using mixed methods design for evaluating complex interventions




*In relation to programme-level EQs*

| Evaluation Question | Recommended approach |
|---|---|
| 1. To what extent has the RDP contributed to the growth of the whole rural economy? (Impact indicator 1 and 3)<br>2. To what extent has the RDP contributed to employment creation? (Impact indicator 2)<br>3. To what extent has the RDP contributed to improving the competitiveness of the agricultural and forestry sector? (Community strategic priority)<br>4. To what extent has the RDP accompanied restructuring of the dairy sector? (Health Check objective)<br>5. To what extent has the RDP contributed to introduction of innovative approaches? (Health Check objective cutting across axes) | • Mixed-methods approach:<br>○ first stage: theory-based approach;<br>○ second stage: estimation of programme effects at micro or local community level;<br>○ third stage: aggregation of results to programme area, country level;<br>○ fourth stage: cross-checking using qualitative techniques and structural modelling aiming at triangulation. |

| Evaluation Question | Recommended approach |
|---|---|
| 6. How and to what extent has the measure contributed to improving the competitiveness of the beneficiaries? | • Mixed–methods approach, incl. quasi-experimental design e.g. PSM (GPSM), RDD, IV at micro-level combined with qualitative techniques aiming at triangulation. |
| 7. What other effects, including those related to other objectives/axes, are linked to the implementation of this measure (indirect, positive/negative effects on beneficiaries, non-beneficiaries, local level)? | • Mixed-methods approach:<br>○ Theory-based and qualitative techniques at the first <orientation> level;<br>○ Quasi-experimental design, e.g. PSM (GPSM), RDD, IV methods aiming at provision of quantitative results concerning indirect effects (second stage). |

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