Sequence 3 : Modelling risk and time

Unit 3 : Modelling time

Lesson 27 : Dynamic models

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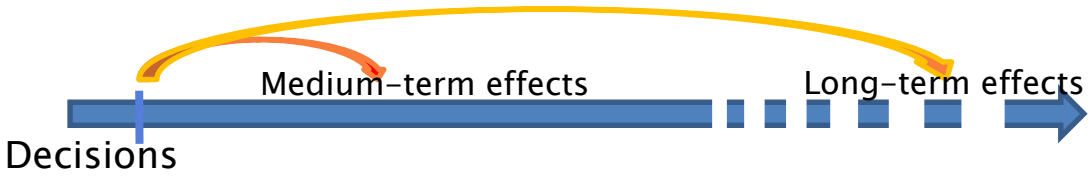
Dynamic modelling VS static modelling

- Farm decisions :



Consequences
- on the availability of future resources
- on income growth

  - *e.g. : investing in perennial crops, livestock or equipment*
    choice of activities, of crops

- Possible modelling in a static model : « routine year »
  - *e.g. :*  ; 

- But without taking into account the dynamic aspects of investments (spending today for effects later on, financing capacity,…)

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Dynamic modelling VS static modelling

- Dynamic modelling in order to :
  - Take into account the investment financing capacities of the decider
  - Comparing investments
  - Take into account preferences for the present moment or for the future
  - Analyse the cumulative effects of certain decisions
  - Analyse the adaptation of the decisions over time and represent transition pathways between 2 « routine systems »

e.g. :

investment A	*VS*	*investment B*
cost : €€		*cost : €*
lifespan : 		*lifespan :* 
profit/year : €€€		*profit/year : €€€€*

Multi-period VS Recursive

- Dynamic model -> explicitly takes into account time Time period depends on the model (in the course: multi-year)
- Inter-temporal optimization models or multi-period models

- Recursive models
  - Year-round optimization which repeats itself and takes into account the optimization results of year n-1

- Inter-temporal optimization models or multi-periodic models
  - Optimized model over the entire planning horizon
  - Data known by the decision-maker for the entire horizon

- Dynamic model often multi-periodic and recursive

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