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# Providing Monthly estimates based on LFS quarterly data

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# Index

- **Starting points**
- **Understanding the nature of the request**
- **Outlining the Output**
- **A short reference to the estimate procedure tested in Spain**
- **Some results**
- **Final remarks**

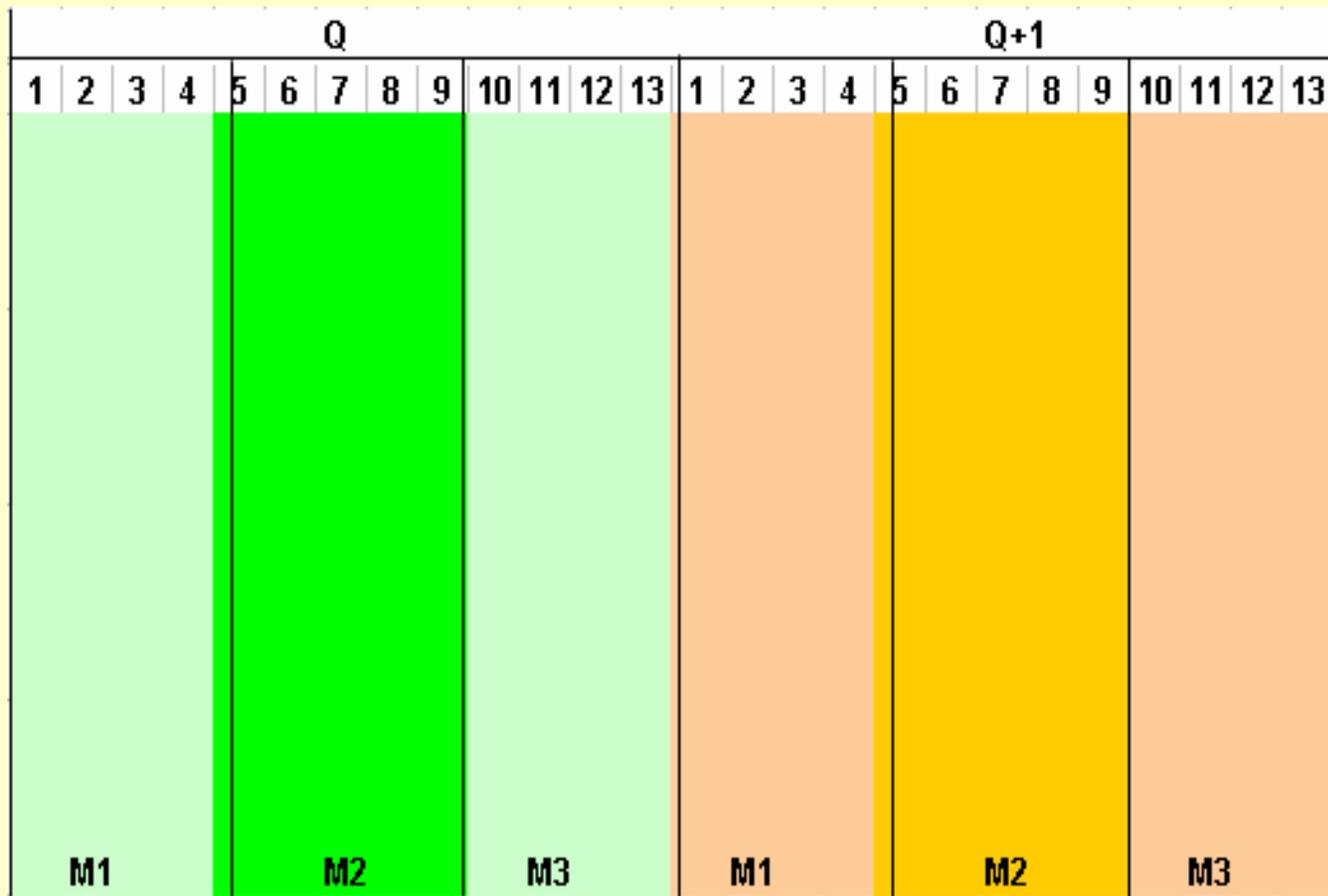
# Starting points

- **LFS is a continuous survey**
- **There is a demand on ‘monthly figures’ on the Labour Market**
- **The production of monthly figures based on LFS depends on the survey design**

# Understanding the request

- **LFS as a continuous survey...**
- **Have a clear potential to develop 'monthly estimates':**
  - ◆ **All the 'weeks' have to be represented**
  - ◆ **Quarters are 13 consecutive weeks**
  - ◆ **Years are  $13 \times 4 = 52$  consecutive weeks**
  - ◆ **As  $52 \times 7 = 364$  days, from time to time it is needed to introduce a 14th week in a quarter and 53th week in a year**
  - ◆ **All these aspects are regulated at EU level**
- **But, what is the situation concerning the definition of 'months'?**
  - ◆ **No definition regulated in the LFS legal basis**
  - ◆ **The 'natural extension' of the current framework is not so stable because the months are composed from 4-5 weeks which means a frequent 20-25% of variation (minus-plus) on the sample between consecutive months**

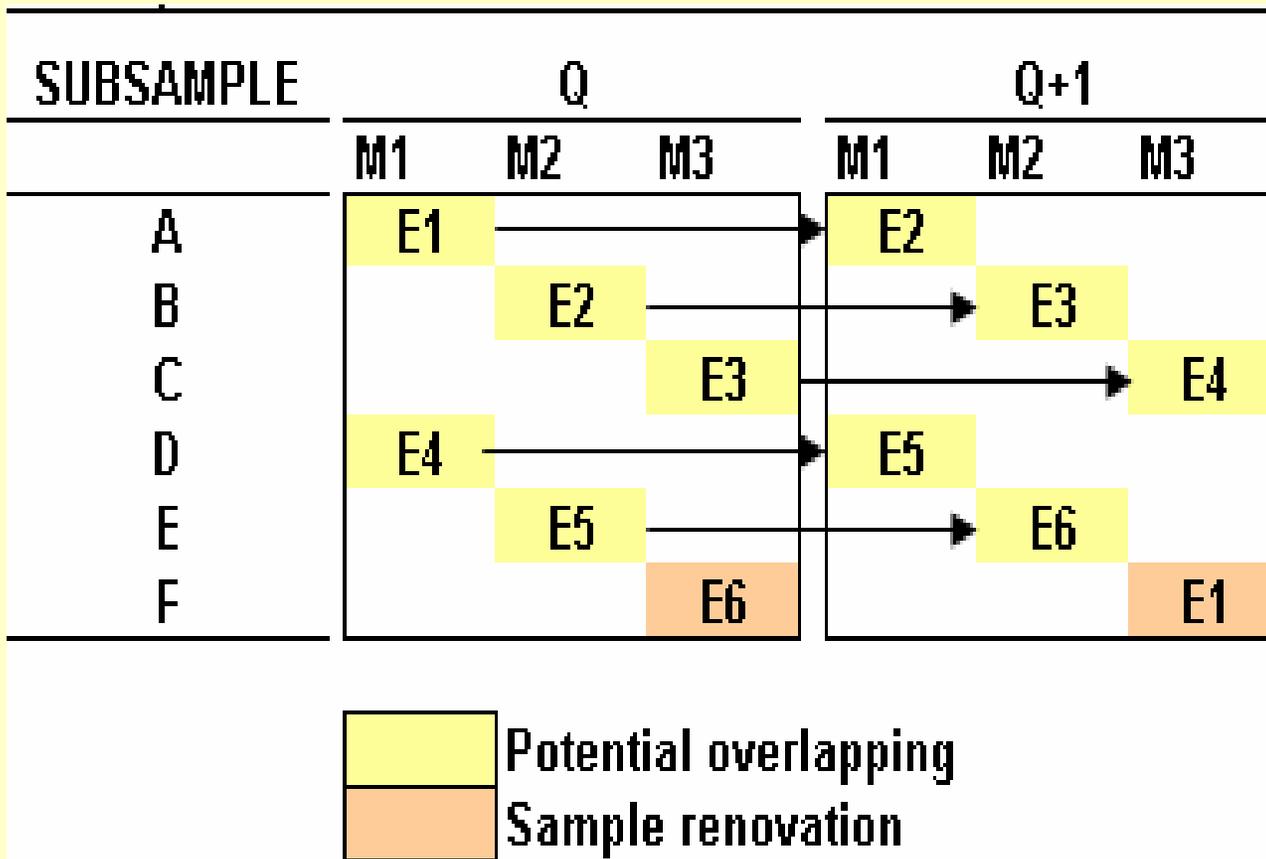
# Weekly scheme in the LFS quarters



# Understanding the request

- **What do we call ‘monthly estimate’?**
- **Is this a silly question?**
- **I’d say not...in fact I think it is a crucial one to answer before start working.**
- **The LFS survey is (typically) designed to produce quarterly estimates and monitor the change between consecutive quarters.**
- **To ‘zoom’ this approach at ‘monthly’ level is not straightforward**
- **The sample for the month is much less (around one third of the quarter)**
- **Usually the ‘common sample’ for consecutive months is not available.**

# Scheme of sample distribution in a small province in Spain



# Understanding the request

- **The timeliness is crucial**
  - ◆ For a monthly estimate it is 'natural' to have results close to the end of the reference period (at least within the next month after the end of the reference month).
  - ◆ Combining the sample of three months is a possibility but...
  - ◆ The 'moving average' results usually 'refer' to the 'central month' because of the 'now-casts' used for weighting.
  - ◆ This means having the results of M-estimate after a minimum of two months later. This option is not considered timely enough

# Outlining the output

- **What do we call monthly estimates based on the LFS?**
  - ◆ **A pre-defined / fixed set of indicators?**
  - ◆ **What is the degree of use of LFS data?**
  - ◆ **What's the role of modelling?**
    - ☞ **Seasonal adjustments**
    - ☞ **Combination of data of other sources?**
- **We already have answers to these questions (see harmonised unemployment figures)**
- **When we speak about enhancing the LFS information in order to provide monthly estimates (Recommendation R3), are we assuming the same answers for the future?...**
- **Or, would it be pertinent to introduce changes?**

# Outlining the output

- **Currently, the EU harmonised monthly data based on LFS has the following features:**
  - ◆ **Limited to unemployment rates, by sex, and age-group (under 25, 25+) for each country**
  - ◆ **Several methods are applied to elaborate such estimates, depending on the information available for each country**
  - ◆ **Usually other sources (in particular registered unemployment data) are used**
  - ◆ **The more visible output figures are seasonal adjusted**
  - ◆ **The coherence between the monthly and quarterly data is 'forced' when necessary**

# Outlining the output

- **What could be the future? I see two main approaches in the 'nature' of 'monthly estimates' based in LFS:**
  - ☞ The monthly estimate could be the 'average' estimate in the 'reference month' from the situation defined in the RWs composing the month.
  - ☞ Alternatively, they can be considered as early (monthly) estimates for the quarterly (final) LFS estimate
- **To have estimates on the 'reference month' means:**
  - ☞ To have a sample design to support efficiently such estimates
  - ☞ To ensure whole 'coherence' to quarterly and annual figures becomes 'natural'
  - ☞ Due to match the timeliness requirements, the use of alternative (more timely) sources of information is needed and consequently, the use of different models is compulsory
- **What If the 'monthly data' is conceived as 'advance estimate' of quarterly figures?**

# A short reference to the estimate procedure tested in Spain

- **The procedure was presented at the LFS-Workshop in Ljubljana (2009)**
- **Extension of ‘small areas methodology’ to time dimension.**
- **Composite estimator (‘direct’ and ‘synthetic’ component).**
- **Empirical Best Linear Unbiased Predictor (EBLUP) estimates.**
- **Main ‘terms of reference’:**
  - ◆ **Automation of the ‘current’ procedures in Spanish LFS**
  - ◆ **Total transparency in methods applied**
  - ◆ **Flexible output**
  - ◆ **Timely results (the third week after the end of reference month)**

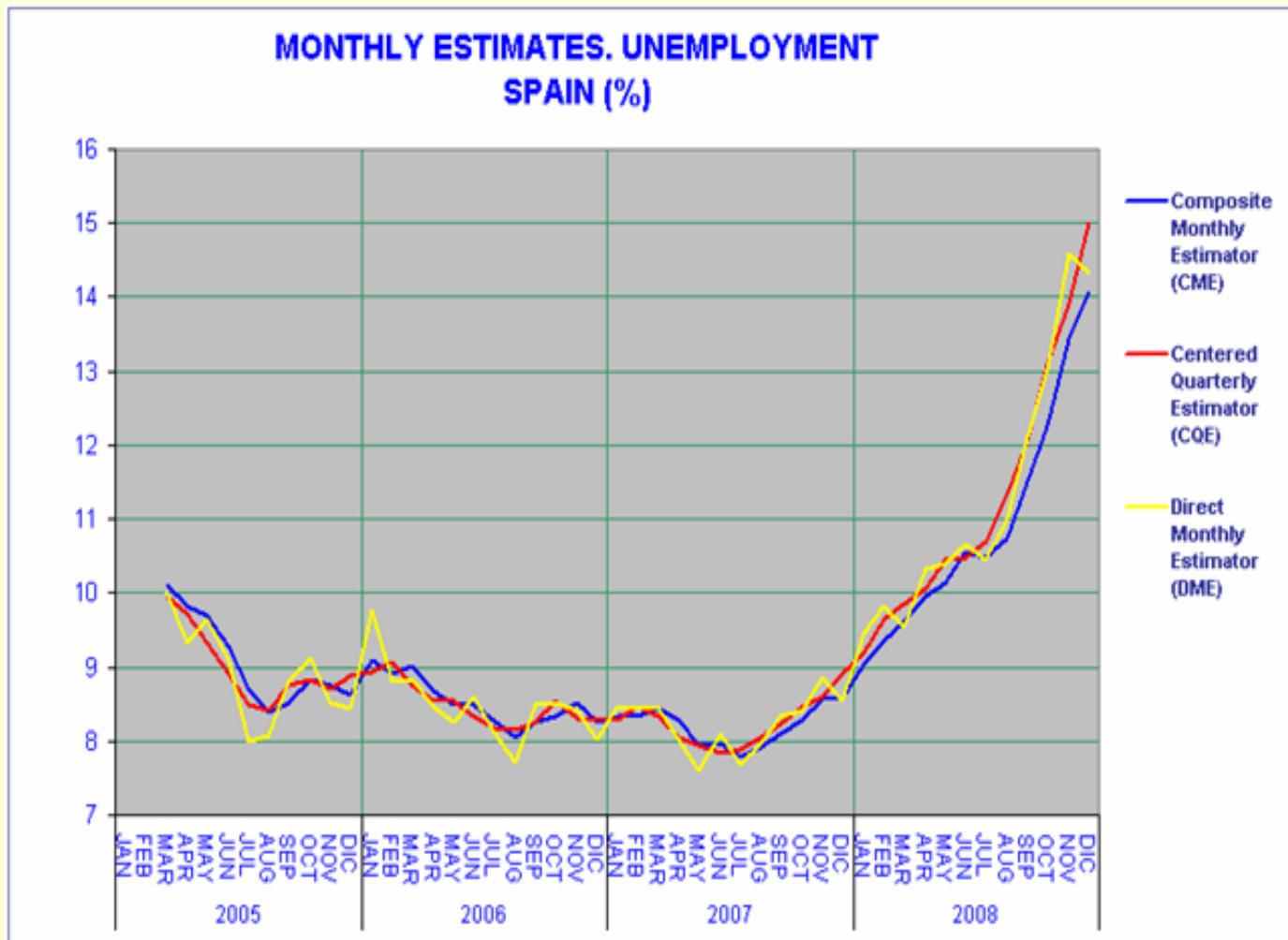
# A short reference to the estimate procedure tested in Spain

$$\theta_{\text{CMT}} = \gamma_i \theta_{\text{DM}} + (1 - \gamma_i) (\theta_{\text{MQE}}); \quad 0 \leq \gamma_i \leq 1$$

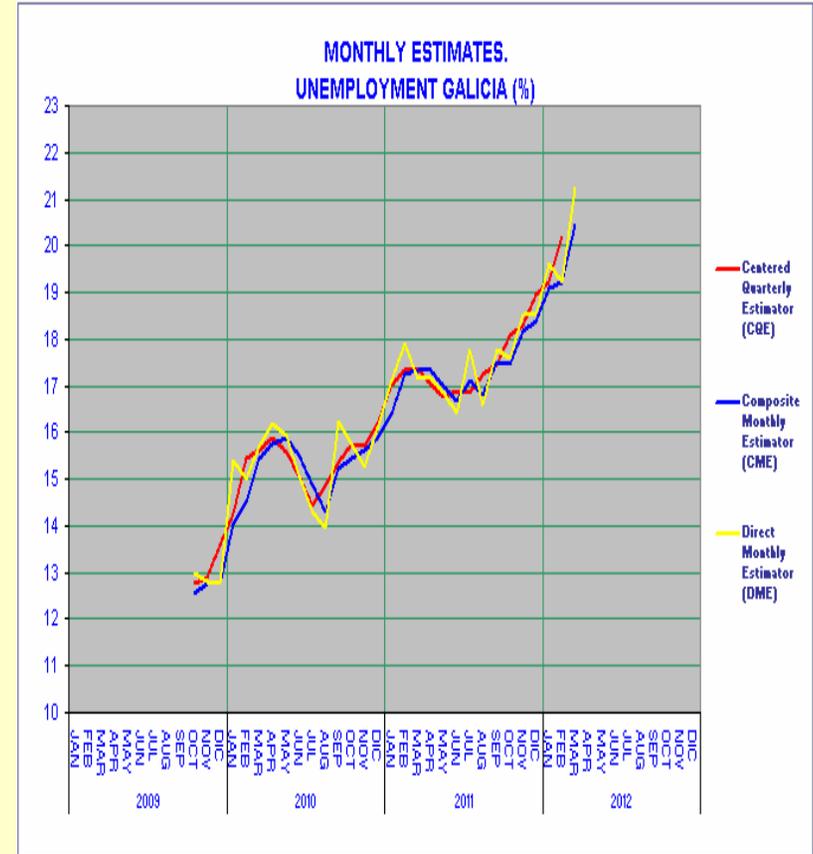
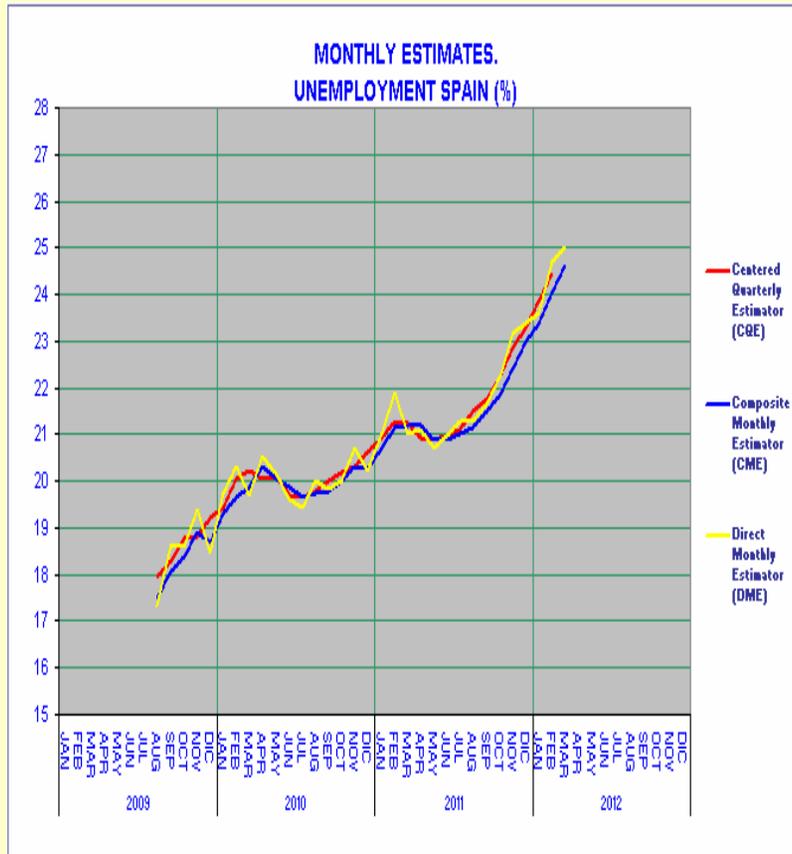
$\theta_{\text{DM}}$  (Direct Monthly Estimator) is the preliminary estimator, playing here the role of 'direct' component', based on the available sub sample for the target month  $i$ .

$\theta_{\text{MQE}}$  (Moving Quarter Estimator) refers to the estimator based on the full available sample for the quarter that finalises in target month  $i$  ('synthetic' component).

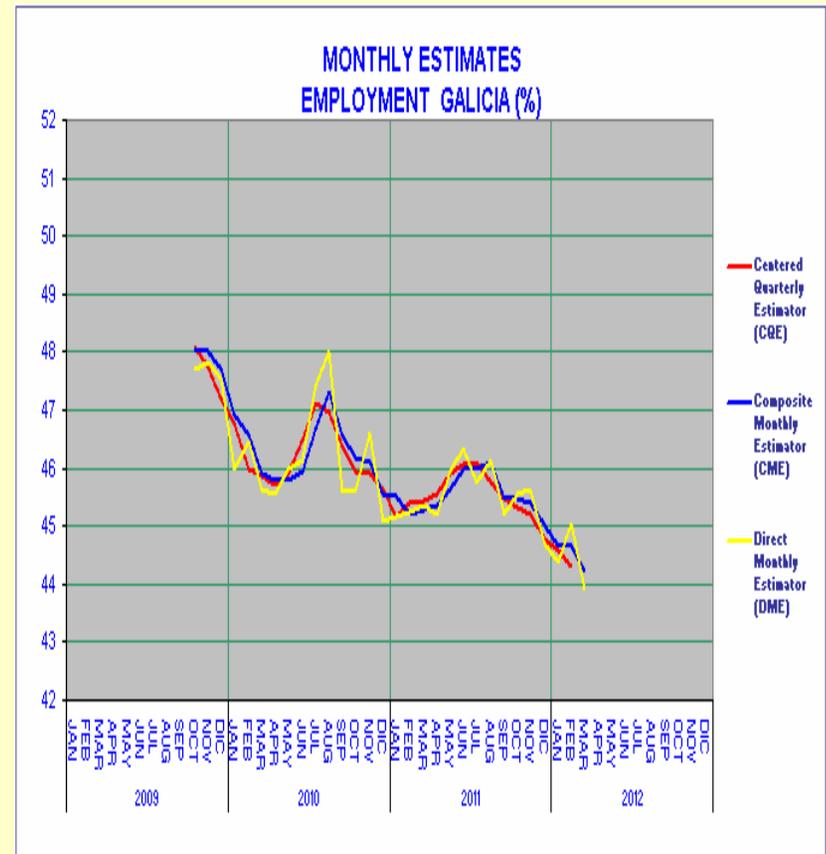
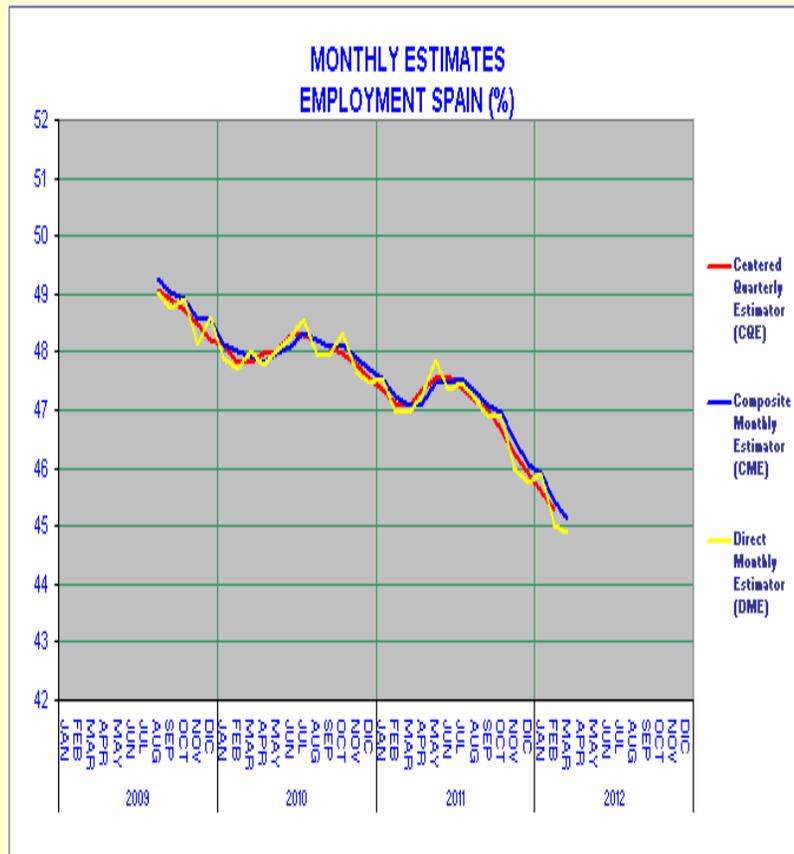
# Some monthly data. Spain



# Unemployment data Spain & Galicia



# Employment data Spain & Galicia



# Final remarks

- **The current monthly data requirements at EU level, are covered in a satisfactory way?**
- **If not, what are the problems...**
  - ◆ **Concerning methodology?**
  - ◆ **Set of indicators?**
- **What does it mean for the new legal basis?**

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# Thanks for your attention!

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