Predictions Euro 2016

June 25, 2016

1 Predictions

Round of 16 [1]

Svizzera 1-1 Polonia
Galles 0-0 Irlanda del Nord
Croazia 1-1 Portogallo
Francia 1-0 Irlanda
Germania 1-1 Slovacchia
Ungheria 0-2 Belgio
Spagna 0-0 Italia
Inghilterra 1-1 Islanda

2 Appendix - The model and the data

Let be $m = 1, ..., M$ the number of matches, y_{m1} the number of goals scored by the team 1 in match m, y_{m2} the number of goals scored by the team 2 in match m, T the number of teams, *type* the type of game - Friendly=1, Eliminatory groups=2, Qualifiers=3 - the model specification is:

$$y_{m1} \sim Poisson(\theta_{m1})$$
$$y_{m1} \sim Poisson(\theta_{m2})$$

with the following specification for θ's parameters:

$$\log(\theta_{m1}) = att_{m1} + def_{m2} + \gamma_{type[m]}$$
$$\log(\theta_{m2}) = att_{m2} + def_{m1} + \gamma_{type[m]}$$

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[1]Results within regulamentar 90 minutes

and group-level specification for random effects parameters:

$$att_m \sim N(\mu_{att} + b * RankingAtt + c * RankingUefa, \sigma_{att}^2)$$
$$def_m \sim N(-d * RankingDef - c * RankingUefa, \sigma_{def}^2)$$

with priors:

$$\mu_{att} \sim N(0,1)$$
$$\sigma_{att}, \sigma_{def} \sim Cauchy^+(0, 2.5)$$
$$b \sim Uniform(0,1)$$
$$c, d \sim Uniform(0.5, 1)$$
$$\gamma_k \sim N(0,1), \ k = 1, ..., 3$$

Data details: M=124, T=24. For estimating the model, I used all the 88 matches -both friendly and qualifiers- played by the 24 teams of Euro 2016 one against each other in the time period September 2014-June 2016 and the 36 matches of eliminatory groups. The model takes care of the different types of matches: friendly (1), eliminatory groups (2), qualifiers (3).

In Figures 1 and 2, the posterior predictive distribution for the goals scored by the two teams involved in the round of 16 are plotted. These graphs go beyond the points prediction - the medians of the MCMC chains - of page 1, since they take into account also some other likely results. For instance, according to points predictions England and Iceland are predicted to equalize 1-1, but the posterior predictive distributions in Figure 2 show that England has a small advantage, and could also win.
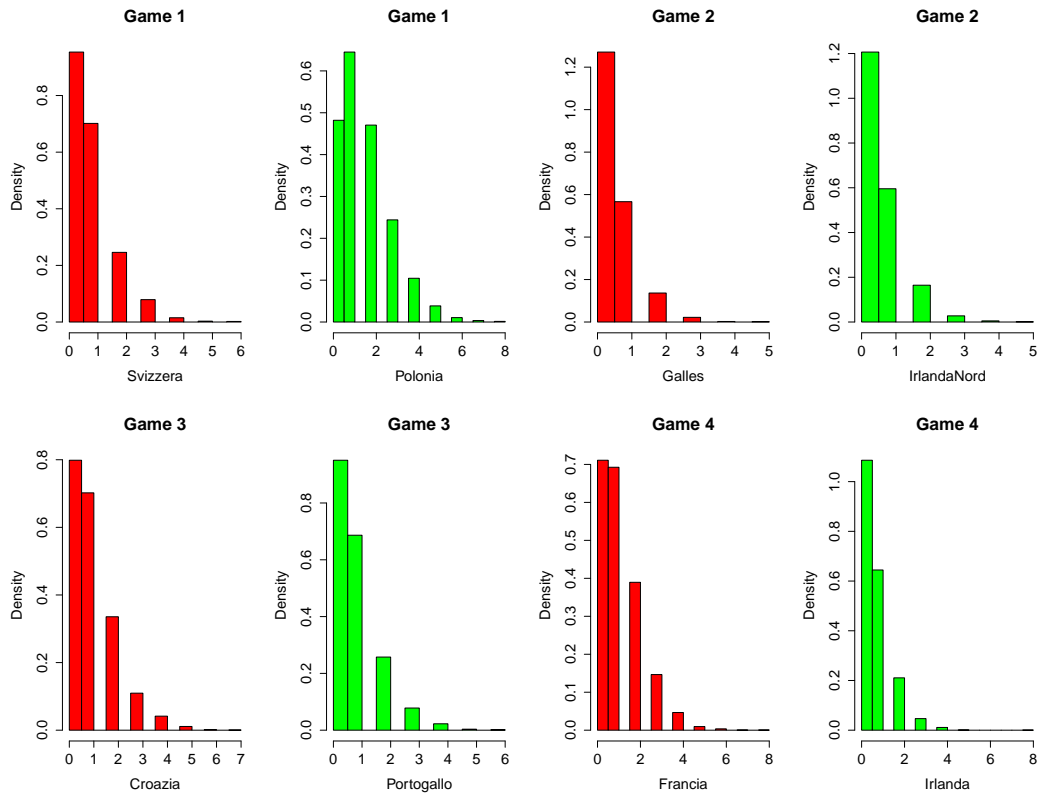
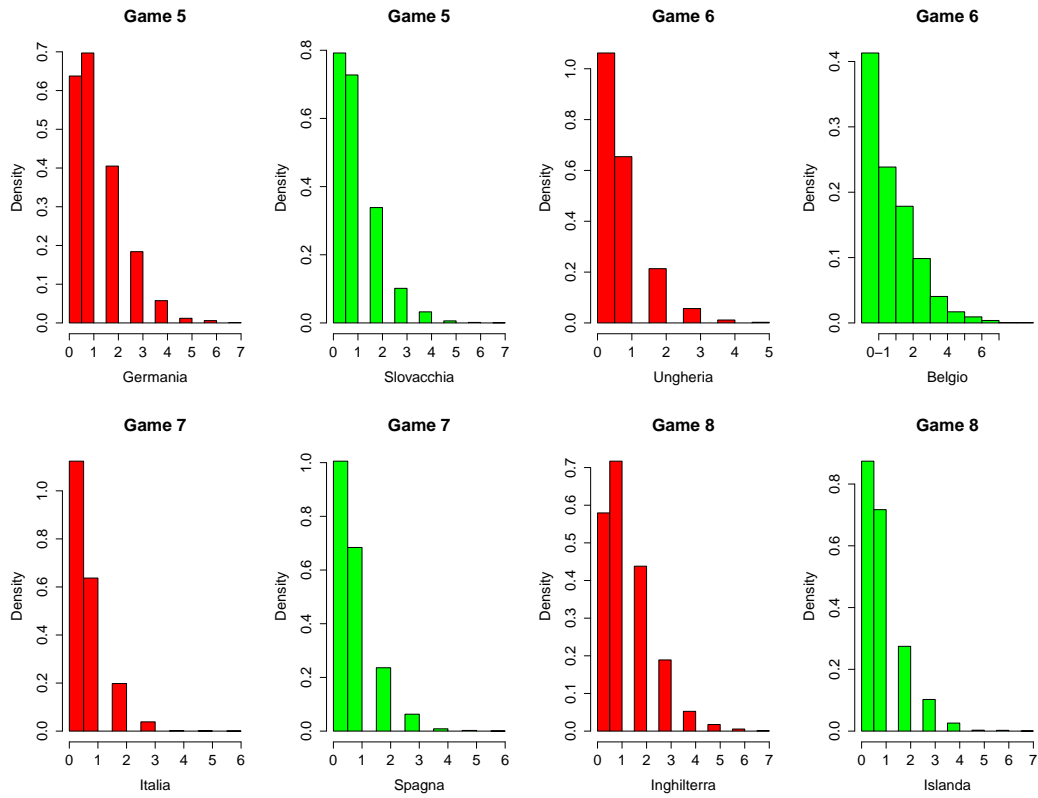Figure 1: Posterior predictive distributions for the goal scored in the round of 16, first four matches.

Figure 2: Posterior predictive distributions for the goal scored in the round of 16, next four matches. For what concerns Belgium, the shape of the histogram can be confusing, due to the fact that the R function `hist` collects together values 0 and 1. Actually, as the point prediction suggests -Belgium's victory - the value 1 is the most likely according to the posterior predictive distribution.