

APPENDIX

TABLE A.1
Cost shares employed to obtain agricultural TFP

Northwestern Europe except UK	1961-70	1971-80	1981-90	1991-2000	2001-10
Labor	0.334	0.334	0.244	0.235	0.22
Land	0.04	0.04	0.074	0.079	0.069
Livestock	0.261	0.02	0.024	0.017	0.013
Machinery	0.073	0.073	0.104	0.134	0.134
Chemicals	0.292	0.533	0.554	0.535	0.564
Southern Europe	1961-70	1971-80	1981-90	1991-2000	2001-10
Labor	0.577	0.577	0.45	0.404	0.469
Land	0.085	0.085	0.124	0.154	0.096
Livestock	0.016	0.016	0.018	0.014	0.01
Machinery	0.059	0.059	0.076	0.114	0.105
Chemicals	0.263	0.263	0.331	0.313	0.319
CEEC	1961-70	1971-80	1981-90	1991-2000	2001-10
Labor	0.104	0.104	0.104	0.19	0.19
Land	0.257	0.257	0.257	0.23	0.23
Livestock	0.453	0.453	0.453	0.42	0.42
Machinery	0.043	0.043	0.043	0.09	0.09
Chemicals	0.143	0.143	0.143	0.07	0.07
UK	1961-70	1971-80	1981-90	1991-2000	2001-10
Labor	0.327	0.164	0.136	0.137	0.137
Land	0.084	0.126	0.179	0.216	0.216
Livestock	0.251	0.333	0.284	0.235	0.235
Machinery	0.183	0.199	0.202	0.204	0.204
Chemicals	0.155	0.178	0.199	0.209	0.209

Source: Fuglie (2012); Northern and Southern Europe except UK (Ball *et al.*, 2010; capital decomposition (Butzer *et al.*, 2012); USSR from 1965 to 1990 (Lerman *et al.*, 2003), after 1992 (Cungu & Swinnen, 2003); UK (Thirtle *et al.*, 2008).

The construction of the *agricultural openness* variable

This variable is a quotient between agricultural exports and production. To obtain the agricultural exports, we have followed the steps below. We have obtained the Export Value Base Price variable from FAOSTAT (2009). We have to complete the series after the year 1951. However, this variable from FAOSTAT begins in 1961. We have completed this variable with the data from the FAO (1948-2004b) during the 1950s and more decades, in some specific cases.

These data from the FAO are the sum of food and agricultural products excluding forest product exports in current values. We then transformed them into constant values into 2000 constant prices in dollars. Furthermore, the obtained series is linked to the FAOSTAT series to achieve a whole series from 1951 to 2006.

There are some specific cases, for which the FAO yearbook does not offer data. These cases are Albania, Czechoslovakia, German Democratic Republic, Greece, Hungary, Poland, Romania and Switzerland. In these cases, we have built a series of agricultural exports based on the sum of exports of several products: wheat, barley, sugar, potato, oranges, apple, beef, pork, poultry, mutton, cheese, wine and olive oil. Then, we have transformed these exports into 2000 constant prices in dollars.

Finally, we have divided the agricultural exports and the agricultural production (2000 prices in dollars) to obtain the agricultural openness.

The construction of the *openness* variable

We have followed the classification of Sachs and Warner (1995). The main problem is the omission of certain countries in that paper. For the countries for which those authors have no data, we use the World Development Indicators and Maddison data. In cases where neither database allowed us to make a decision, we have assumed EU members to be open countries.

The construction of the *subsidies* variable

Our data come from Anderson and Valenzuela's (2008) database, which begins in 1956. For the countries included therein, we have assumed that aid to agriculture was the same between 1951-55 and 1956.

The principal problems of the Anderson and Valenzuela (2008) database are the lack of some countries or some years for several countries; some countries, such as Belgium, Luxembourg, Albania, Bosnia-Herzegovina, Croatia, Czechoslovakia, Macedonia, Serbia-Montenegro and Yugoslavia, do not appear. This has required us to make a series of assumptions, with a certain risk on occasions, for which we have based ourselves on the studies cited in the bibliography.

For Belgium-Luxembourg, we have assumed that they followed the evolution of the Netherlands. For the other countries from Eastern Europe, we have assumed that they did not assist agriculture.

Neither do the German republics appear. We have assumed that the data which appear for Germany in this database since 1956 correspond to the German Federal Republic. We have hypothesized that the German Democratic Republic, like the other former Communist countries, did not assist the agricultural sector.

Other countries appear in this database, but their first datum is post-1956. These countries could be divided in two groups. On the one hand, the data for Norway and Switzerland begin in 1979. We have assumed that they maintained the policy of strong support for agriculture prior to that year.

On the other hand, the data for Bulgaria, Hungary and Romania begin subsequent to the collapse of the Communist bloc. We have assumed that before this implosion these countries did not subsidize their agricultural sectors.

Econometric test results (P-values)

Estimation 1

Wooldridge test for autocorrelation: 0.0241

Wald test for heteroskedasticity: 0.0000

F-test: 0.0169

Breusch-Pagan test: 0.0895

Estimation 2

Wooldridge test for autocorrelation: 0.0186

Wald test for heteroskedasticity: 0.0000

F-test: 0.0327

Breusch-Pagan test: 0.1167

Estimation 3

Wooldridge test for autocorrelation: 0.0200

Wald test for heteroskedasticity: 0.0000

F-test: 0.0331

Breusch-Pagan test: 0.1184

Estimation 4

Wooldridge test for autocorrelation: 0.0310

Wald test for heteroskedasticity: 0.0000

F-test: 0.0042

Breusch-Pagan test: 0.0982

Estimation 5

Wooldridge test for autocorrelation: 0.0219

Wald test for heteroskedasticity: 0.0000

F-test: 0.0139

Breusch-Pagan test: 0.1340

Estimation 6

Wooldridge test for autocorrelation: 0.0254

Wald test for heteroskedasticity: 0.0000

F-test: 0.0121

Breusch-Pagan test: 1.0000

Estimation 7

Wooldridge test for autocorrelation: 0.0246

Wald test for heteroskedasticity: 0.0000

F-test: 0.0036

Breusch-Pagan test: 0.0060

Hausman test: 0.0278

Estimation 8

Wooldridge test for autocorrelation: 0.0190

Wald test for heteroskedasticity: 0.0000

F-test: 0.0058

Breusch-Pagan test: 0.0095

Hausman test: 0.2269

Estimation 9

Wooldridge test for autocorrelation: 0.0204

Wald test for heteroskedasticity: 0.0000

F-test: 0.0065

Breusch-Pagan test: 1.0000

Estimation 10

Wooldridge test for autocorrelation: 0.0312

Wald test for heteroskedasticity: 0.0000

F-test: 0.0007

Breusch-Pagan test: 0.0094

Hausman test: 0.1860

Estimation 11

Wooldridge test for autocorrelation: 0.0221

Wald test for heteroskedasticity: 0.0000

F-test: 0.0022

Breusch-Pagan test: 0.0174

Hausman test: 0.2189

Estimation 12

Wooldridge test for autocorrelation: 0.0255

Wald test for heteroskedasticity: 0.0000

F-test: 0.0019

Breusch-Pagan test: 1.0000