

# THE 2006 REFORM OF THE EU DOMESTIC POLICY REGIME FOR BANANAS: AN ASSESSMENT OF ITS IMPACT ON TRADE\*

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## ABSTRACT

The article provides a quantitative assessment of the possible market implications of the December 2006 reform of the EU domestic policy regime for bananas. It is shown that, depending on implementation choices made at the member country level, the impact on trade of the domestic policy reform can be of a larger order of magnitude than that of the controversial “tariff-only” regime the EU introduced earlier in the same year. The simulations presented in the article show that under the implementation choices made in August 2007 by France, Portugal and Spain EU imports in 2013 will increase by 9% and MFN exports to the EU by 11%. Should they decide to “decouple” payments to their banana producers, EU imports will increase by 13% and MFN exports to the EU by 16%.

**Keywords:** bananas; trade modelling; trade policy; EPA, EU.

**JEL classification codes:** Q18, Q17, F17.

## INTRODUCTION

The European Union (EU), with more than 30% of total imports, is the largest world importer of bananas (the US is the second) and among the top 20 largest producers. Banana production in the EU is concentrated in the French Overseas Departments (Martinique and Guadeloupe) and Spain (Canary Islands), but production also takes place in Portugal (Madeira, Azores and in the continental area), Greece (Crete) and Cyprus. Domestic production is around one sixth of domestic consumption, with imports from MFN and

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preferred African, Caribbean and Pacific (ACP) countries accounting for two thirds and one sixth of the EU market, respectively. Bananas account for an important share of export revenue in all major exporting countries; in 2006 it was around 10 per cent for Costa Rica, Ecuador, Guatemala, Honduras and Panama.

On 1 January 2006 the EU introduced a new import regime for bananas, removing the quota for imports under MFN conditions, setting the MFN tariff equal to 176 €/t and expanding the duty-free quota reserved for imports from ACP countries from 750,000 to 775,000 t. In addition, from 1 January 2006 the Everything But Arms (EBA) initiative, which allows least developed country exports quota- and duty-free access to the EU market, has been fully implemented for bananas.

In December 2006 the EU approved a reform of its domestic policies for bananas. The previous Common Market Organization (CMO) regime for bananas provided generous and fully “coupled” support to domestic producers through a “deficiency payment” scheme; the per unit aid was given by the difference between a reference price, which did not change over time, and the observed domestic price. The reform cancelled the CMO for bananas. For banana production outside the “outermost regions” (Greece, Cyprus and continental Portugal) support (€4.6 million) has been fully “decoupled” and included in the “Single Farm Payment” (SFP) introduced by the June 2003 Fischler reform of the Common Agricultural Policy (CAP). For the “outermost regions” (Guadelupe and Martinique in France; Azores and Madeira in Portugal; Canary Islands in Spain)<sup>1</sup> financial resources of a similar order of magnitude to those previously absorbed by deficiency payments (€278.8 million) have been added to the budget allocation of the *Programme d’Options Spécifiques à l’Eloignement et Insularité* (POSEI) (EC 2006); this programme finances the use in EU’s “outermost regions” of a wide range of policy instruments, whose aim is to increase in these disadvantaged regions the competitiveness of agricultural production as well as food consumption. The decision on which policy instruments to implement is left to the individual member country; feasible actions under the POSEI programme now include direct payments to banana producers.

The goal of the article is to provide a quantitative assessment of the possible impact on trade of this radical change in the EU domestic policy regime for bananas, an issue which seems to have attracted very little attention so far, despite its potential relevance. The next section presents the structure of the model, the data used and the assumptions made. In section two the results of the simulations performed are presented. Section three contains an assessment of the sensitivity of the results obtained to the assumptions made with respect to some of the exogenous parameters used in the model and section four concludes.

## 1. THE MODEL

The model used is a revised and expanded version of the one used in Anania (2006); it differs in two ways: the five EU banana producing member states are now modelled individually and the representation of the domestic policy instruments in the EU is more detailed.

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<sup>1</sup> The “outermost regions” include as well La Réunion and Guyane in France, however, banana production in these regions is negligible.

The model used is a single commodity, spatial, partial equilibrium, mathematical programming model (Takayama and Judge 1971), which considers five sources of domestic supply within the EU, fourteen exporting and eight importing countries/regions (table 1). EU domestic production takes place in France (Martinique and Guadalupe), Spain (Canary islands), Portugal (Madeira and Azores),<sup>2</sup> Greece (Crete) and Cyprus.

**Table 1. Base Model Input Data and Model Calibration (2002)**

| Country/Region  | Base Net imports <sup>1</sup><br>(000 t) | Estimated Net imports<br>(000 t) | Base Net exports<br>(000 t) | Estimated Net exports<br>(000 t) | Import prices (\$/t) | Export prices <sup>2</sup> (\$/t) | Export supply price elasticities | Import demand price elasticities | Domestic demand income elasticities |
|---|--|----------------------------------|-----------------------------|----------------------------------|----------------------|-----------------------------------|----------------------------------|----------------------------------|-------------------------------------|
| EU-15   | 4059,7                                   | 4193,5                           |                             |                                  | 588,6                |                                   |                                  | -0,50                            | 0,5                                 |
| Czech Republic  | 99,6                                     | 103,0                            |                             |                                  | 495,7                |                                   |                                  | -0,75                            | 1                                   |
| Slovakia  | 46,0                                     | 46,4                             |                             |                                  | 458,4                |                                   |                                  | -0,80                            | 1                                   |
| Poland  | 232,0                                    | 233,4                            |                             |                                  | 446,3                |                                   |                                  | -0,80                            | 1                                   |
| Hungary   | 101,6                                    | 75,5                             |                             |                                  | 391,5                |                                   |                                  | -0,75                            | 1                                   |
| Other six EU new member states                            | 60,3                                     | 60,8                             |                             |                                  | 549,3                |                                   |                                  | -0,80                            | 1                                   |
| USA   | 3490,4                                   | 3411,0                           |                             |                                  | 272,4                |                                   |                                  | -0,40                            | 0,4                                 |
| Other importers   | 4510,3                                   | 4433,9                           |                             |                                  | 375,0                |                                   |                                  | -0,80                            | 0,5                                 |
| Spain   |  |                                  | 407,3                       | 407,3                            |                      | 681,5                             | 1,0                              |                                  |                                     |
| France  |  |                                  | 358,9                       | 358,9                            |                      | 519,7                             | 1,0                              |                                  |                                     |
| Portugal  |  |                                  | 21,9                        | 21,9                             |                      | 584,7                             | 1,0                              |                                  |                                     |
| Greece  |  |                                  | 2,4                         | 2,4                              |                      | 719,8                             | 1,0                              |                                  |                                     |
| Cyprus  |  |                                  | 10,5                        | 13,3                             |                      | 257,5                             | 1,0                              |                                  |                                     |
| Ivory Coast   |  |                                  | 256,0                       | 247,5                            |                      | 289,1                             | 1,5                              |                                  | 0,5                                 |
| Cameroon  |  |                                  | 238,4                       | 231,1                            |                      | 217,1                             | 1,5                              |                                  | 0,5                                 |
| Dominican Republic, Belize and Suriname                   |  |                                  | 179,2                       | 171,7                            |                      | 404,5                             | 1,0                              |                                  | 0,5                                 |
| Jamaica, Windward Islands and other ACP non-EBA countries |  |                                  | 156,2                       | 97,0                             |                      | 455,1                             | 1,0                              |                                  | 0,5                                 |
| ACP EBA exporters   |  |                                  | 2,6                         | 2,6                              |                      | 205,1                             | 1,5                              |                                  | 0,5                                 |
| Ecuador   |  |                                  | 4199,2                      | 4318,8                           |                      | 223,0                             | 1,3                              |                                  | 0,5                                 |
| Colombia  |  |                                  | 1418,1                      | 1347,8                           |                      | 283,7                             | 1,3                              |                                  | 0,5                                 |
| Costa Rica  |  |                                  | 1873,2                      | 1863,2                           |                      | 264,3                             | 1,0                              |                                  | 0,5                                 |
| Panama  |  |                                  | 403,9                       | 399,4                            |                      | 270,9                             | 1,0                              |                                  | 0,5                                 |
| Honduras  |  |                                  | 437,2                       | 441,2                            |                      | 246,4                             | 1,5                              |                                  | 0,5                                 |
| Brazil  |  |                                  | 241                         | 266,9                            |                      | 156,1                             | 1,0                              |                                  | 0,5                                 |
| Guatemala   |  |                                  | 974,0                       | 981,8                            |                      | 221,7                             | 1,5                              |                                  | 0,5                                 |
| Other MFN exporters                                       |  |                                  | 1327,9                      | 1338,5                           |                      | 186,4                             | 1,0                              |                                  | 0,5                                 |
| EBA non-ACP exporters                                     |  |                                  | 47,1                        | 46,1                             |                      | 190,6                             | 1,5                              |                                  | 0,5                                 |

<sup>1</sup>: For EU-15 apparent consumption (imports + domestic production - exports).

<sup>2</sup>: For Spain, France, Portugal and Greece farm gate prices, including basic aid; for Cyprus farm gate price.

Import demand and export supply functions, as well as domestic supply functions in the EU, are assumed to be linear, or to be well approximated by linear functions in the portion relevant for the simulations conducted. Import demand and export supply functions in the base year are obtained from observed imported and exported quantities, observed import and export prices, and import demand and export supply price elasticities at the equilibrium in each country/region (table 1); analogously, supply functions in the EU are obtained from observed produced quantities, relevant prices and supply elasticities. The values of the elasticities used are exogenously determined; they are based on those used in other studies (Arias *et al.* 2005; Guyomard, Laroche and Le Mouël 1999; Kersten 1995; Spreen *et al.* 2004; Vanzetti, Fernandez de Cordoba and Chau 2005). Sensitivity analyses with respect to some of the values of the elasticities used have been performed and the results obtained have proved

<sup>2</sup> Banana production in continental Portugal is negligible and has been ignored.

to be robust (these are presented in section 3). The sources for the data in the model are the FAOSTAT and COMTRADE databases, the World Bank and the European Commission.

The base model time reference is 2002. The representation of the EU-15 import regime in 2002 includes:

- a. quota A/B: a 2,653,300 t import quota, with all imports occurring on a non-preferential basis subject to a 75 €/t tariff (ACP exports can enter quota A/B duty-free);
- b. quota C: a 750,000 t quota allocated to duty-free imports from ACP countries only;
- c. an out-of-quotas MFN import tariff of 680 €/t (380 €/t for imports from ACP countries).

The 2002 base model calibration appears satisfactory (table 1). The simple average percentage difference, in absolute value, between observed and predicted exports in 2002 is 5.3%; the analogous value for imports is 4.8%. If the exports- and imports-weighted per cent differences, in absolute value, are considered instead, the average differences drop to 2.7% and 2.6%, respectively.

In the 2002 base model solution both EU-15 tariff rate quotas (TRQs) - quotas A/B and C - are binding; ACP exports to the EU-15 equal the C quota (750,000 t) and those by non-ACP countries equal the A/B quota (2,653,000 t).

Simulations for all policy scenarios considered have been generated with reference to 2013, when the reform of the CMO is to be fully implemented in all countries<sup>3</sup> and it is possible to assess the market effects of the adjustments in production decisions as a result of the changes in both the EU import and domestic policy regimes.

The 2002 base model has been “extended” to 2013:

- a. by modelling the 2004 enlargement of the EU-15 to the 10 new member states;<sup>4</sup>
- b. by modelling the introduction on 1 January 2006 of the EU “tariff-only” import regime;
- c. by modelling the implementation of the EBA initiative;
- d. by modelling the changes in import demand and export supply functions in all countries/regions resulting from expected shifts in domestic demand and supply functions; and
- e. by assuming a €/€ exchange rate equal to 1.25.<sup>5</sup>

The 2004 EU enlargement has been modelled by removing barriers to trade between the 10 new member states and the EU-15 and by extending to them the import regime in place in the EU-15.

<sup>3</sup> In Cyprus the full implementation of the reform will take place in 2013.

<sup>4</sup> The 2007 enlargement to Bulgaria and Romania has been ignored in this exercise (total banana imports by these two countries were in 2005 less than 50,000 t).

<sup>5</sup> The exchange rate in 2002 was 0.9456. For the new member states it has been assumed that the exchange rates between their currencies and the US dollar change with the €/€ exchange rate (i.e. their exchange rates with respect to the euro remain constant).

MFN imports are subject to a 176 €/t tariff only (they are not subject to any quantitative limitation); ACP countries are granted preferential duty-free access within a 775,000 t TRQ (out-of-quota ACP exports to the EU are subject to the 176 €/t MFN tariff).

Banana exports from EBA countries<sup>6</sup> are assumed to enter the EU tariff-free and are not subject to any quantitative limitation.

Import demand and export supply functions shift according to expected changes, *ceteris paribus*, in the quantities produced and consumed in each country/region.<sup>7</sup> Consumption has been assumed to vary over time based on per cent yearly changes in population between 1990 and 2003 and in per capita income between 1997-1999 and 2000-2002 (in both cases the data source is the World Bank); the values used for domestic demand income elasticities are provided in table 1. Production in each country/region is assumed to change over time in line with the observed per cent yearly change in banana yields<sup>8</sup> between 1991-1993 and 2000-2002.<sup>9</sup>

With respect to the developments in the WTO Doha Development Agenda round of negotiations, it is assumed that no agreement is reached.

## 2. THE REFORM OF THE EU COMMON MARKET ORGANIZATION FOR BANANAS

Because of the nature of the POSEI programme, the reform gives ample flexibility to Spain, France and Portugal in the use of the conspicuous resources which have been added to those available under these schemes (EC 2006). In August 2007 the Commission approved the proposals by France, Portugal and Spain on how to introduce in their national POSEI programmes measures supporting banana producers. Although it is unlikely that the choices made will be changed in the near future, these measures can be easily modified if these countries wish to do so. For this reason, and being the time frame used for the simulations 2013 (i.e. relatively far away), three alternative policy choices by France, Portugal and Spain - all feasible within the POSEI framework - are considered in this study (all scenarios assume full “decoupling” of support in Greece and Cyprus; this support equals 4.5 million €):

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<sup>6</sup> Least developed countries beneficiary of the EBA initiative where in 2006 banana production exceeded 100,000 t are: Angola, Bangladesh, Cambodia, Central African Republic, Democratic Republic of Congo, Ethiopia, Guinea, Haiti, Liberia, Madagascar, Tanzania, Togo and Uganda; those which in recent years exported bananas include Bangladesh, Burkina Faso, Comoros, Congo, Eritrea, Liberia, Madagascar, Mozambique, Myanmar, Rwanda, Somalia, Tanzania, Uganda and Zambia.

<sup>7</sup> FAOSTAT is the source used for production and consumption in 2002.

<sup>8</sup> The source is FAOSTAT.

<sup>9</sup> Some of the parameters governing these shifts have been judged to be unsustainable over time; in particular, this was the case for (a) negative and (b) very high rates of change in yields, and (c) for extreme (both, positive and negative) rates of change in per capita incomes. As a result, per cent yearly yield changes above 5% have been replaced by 5%, and below 0% by 0%; per cent yearly per capita income changes above 7% have been replaced by 7%, and below -3% by -3% (table 2). The use of the observed per cent changes in population and per capita income for the EBA countries, both ACP and non-ACP ones, would have had a marked negative effect on their export supply over time, leading to decreased or no exports. In order to make these countries more responsive to the structural change associated with the implementation of the EBA initiative than could be predicted on past performance, the rates of change of both variables for ACP and non-ACP EBA exporters have been set equal 0.

Table 2. Time Shift Parameters

| Country   | unadjusted per cent yearly |                   |              | adjusted* per cent yearly |                   |          |
|---|----------------------------|-------------------|--------------|---------------------------|-------------------|----------|
|   | population                 | per capita income | yields       | population                | per capita income | yields   |
| Spain   |                            |                   | 1,05         |                           |                   | 1,05     |
| France  |                            |                   | 3,13         |                           |                   | 3,13     |
| Portugal  |                            |                   | -2,75        |                           |                   | 0        |
| Greece  |                            |                   | -1,12        |                           |                   | 0        |
| Cyprus  |                            |                   | <b>5,65</b>  |                           |                   | <b>5</b> |
| Ivory Coast   | 2,7                        | <b>-3,28</b>      | 2,38         | 2,7                       | <b>-3</b>         | 2,38     |
| Cameroon  | 2,5                        | -2,6              | <b>-8,28</b> | 2,5                       | -2,6              | 0        |
| Dominican Republic, Belize and Suriname                   | 1,6                        | 4,34              | 0,36         | 1,6                       | 4,34              | 0,36     |
| Jamaica, Windward Islands and other ACP non-EBA countries | 2                          | -0,25             | <b>-1,17</b> | 2                         | -0,25             | 0        |
| ACP EBA exporters   | <b>2,5</b>                 | <b>0,37</b>       | <b>-0,24</b> | <b>0</b>                  | <b>0</b>          | <b>0</b> |
| Ecuador   | 1,8                        | <b>-4,16</b>      | 2,3          | 1,8                       | <b>-3</b>         | 2,3      |
| Colombia  | 1,8                        | <b>-6,54</b>      | 0,02         | 1,8                       | <b>-3</b>         | 0,02     |
| Costa Rica  | 2,1                        | <b>13,75</b>      | 0,26         | 2,1                       | <b>7</b>          | 0,26     |
| Panama  | 1,7                        | 4,62              | <b>-0,51</b> | 1,7                       | 4,62              | 0        |
| Honduras  | 2,8                        | 6,83              | <b>-8,84</b> | 2,8                       | 6,83              | 0        |
| Brazil  | 1,4                        | <b>-11,57</b>     | 0,45         | 1,4                       | <b>-3</b>         | 0,45     |
| Guatemala   | 2,6                        | 2,11              | <b>8,03</b>  | 2,6                       | 2,11              | <b>5</b> |
| Other MFN exporters                                       | 1,7                        | 1,04              | 1,77         | 1,7                       | 1,04              | 1,77     |
| EBA non-ACP exporters                                     | <b>2</b>                   | <b>5,11</b>       | <b>-2,12</b> | <b>0</b>                  | <b>0</b>          | <b>0</b> |
| EU-15   | 0,3                        | 2,08              |              | 0,3                       | 2,08              |          |
| Czech Republic  | -0,1                       | 0,97              |              | -0,1                      | 0,97              |          |
| Slovakia  | 0,1                        | 1,08              |              | 0,1                       | 1,08              |          |
| Poland  | 0                          | 4,35              |              | 0                         | 4,35              |          |
| Hungary   | -0,2                       | 2,93              |              | -0,2                      | 2,93              |          |
| Other six EU new member states                            | -0,5                       | 3,54              | <b>5,49</b>  | -0,5                      | 3,54              | <b>5</b> |
| USA   | 1,2                        | 5,04              | 3,17         | 1,2                       | 5,04              | 3,17     |
| Other importers   | 1,1                        | 0,44              | 3,44         | 1,1                       | 0,44              | 3,44     |

\*: per cent yearly yield changes above 5% replaced by 5%, below 0% by 0%; per cent yearly per capita income changes above 7% replaced by 7%, below -3% by -3%. ACP and non-ACP EBA countries per capita income and population per cent yearly changes have been set equal to zero in order to make them more responsive to the structural change associated with the preferential treatment due to the implementation of the EBA initiative.

- a. a “*Status quo*” scenario, in which France, Portugal and Spain use all financial resources to provide banana producers in their “outermost regions” with fully “coupled” support analogous to that which they enjoyed under the previous policy regime;
- b. a “*Full decoupling*” scenario, in which all financial resources are used to provide banana producers with direct payments fully “decoupled” from production; and
- c. a “*2007 decision*” scenario, which is based on the actual choices France, Portugal and Spain made in 2007:
  - i. in Spain available financial resources (€41.1 million) are devoted to “decoupled” payments and to a specific aid to support open air banana production (1,200 €/ha to be paid on a maximum of 7,600 ha). “Decoupled”

payments to individual farms are calculated based on the historical support they received in a reference period; however, in order to receive the “decoupled” payment they are entitled to, farms are required to produce at least 70% of what they produced, on average, in the reference period;

- ii. in France available financial resources (€129.1 million) are entirely devoted to “decoupled” payments. “Decoupled” payments to individual farms are calculated based on the historical support they received in a reference period. However, in order to receive the entire “decoupled” payment they are entitled to, farms are required to produce at least 80% of what they produced, on average, in the reference period; if production is between 70% and 80% of what it was in the reference period the farm will receive 80% of the “decoupled” payment; if it is below 70% it will receive the same percentage of the “decoupled” payment.
- iii. in Madeira and Azores all financial resources (€8.7 million) are devoted to a fixed (rather than variable, as in the “deficiency payment” scheme in place in the pre-2007 regime), fully “coupled” production subsidy.

A scenario with no policy change whatsoever with respect to the situation before 2007 is simulated as well to generate a reference for the assessment of the impact of the three policy choices considered.

### “No policy change”

In this reference scenario no change in the domestic aspects of the CMO for bananas takes place; only changes in market access conditions and expected developments in demand and supply functions between 2002 and 2013 are simulated.

The EU “basic” (or “compensation”) aid for banana producers is modelled as a fully “coupled” deficiency payment. The per unit payment is calculated as the difference between the given reference price (which does not change over time) and the domestic market price. As long as the domestic market price remains below the reference price, the relevant domestic producer price in the EU (market price + per unit “basic” aid) does not change. As a result, domestic production does not adjust to changes in the EU domestic market (consumer) price; what does change with the latter is the per unit “basic” aid paid to producers and the budgetary cost of the CMO.

The “supplementary aid” is paid only in those countries where the price is lower than the average EU price by more than 10%.<sup>10</sup> In the model both “basic” and “supplementary” direct payments are subject to the “stabilization” mechanism which was part of the pre-2007 CMO.<sup>11</sup> Production decisions are assumed not to react to cuts in “basic” aid in the previous year, if any, as a result of domestic production exceeding the maximum guaranteed volume on which payments are made. This is because farmers are assumed to act as rational “free riders”, i.e. they believe that the other farmers will reduce their production expecting the same

<sup>10</sup> Supplementary aid payments in the 2000-2005 period were between €1.7 million in 2001 and 43.1 in 2005.

<sup>11</sup> If total domestic banana production exceeds the sum of the maximum guaranteed volumes in the producing countries (867,500 t), then a cut in the volume of bananas on which the payments are made is applied in the countries where production has exceeded the maximum guaranteed volume; this cut is adjusted by

cut to apply in the following year (hence, there is no reason for them to do so, because, if the others reduce production, there will be no reduction in aid).

Payments are assumed not to be subject to reductions as a result of the existing overall “budget discipline” constraint. “Modulation” does not apply to payments to producers in “outermost regions”, which account for about 98% of EU domestic production of bananas, and has been ignored in the simulations.

On 1 January 2008 the EU implemented the “interim” Economic Partnership Agreements (EPA) negotiated with many ACP countries (EC 2007); barriers to trade between the EU and several groups of ACP countries will be progressively removed, creating free trade areas expected to be compatible with WTO rules (a WTO waiver allowing the EU to grant trade preferences to ACP countries under the Cotonou Agreement expired at the end of 2007). The “interim” EPA allow from 1 January 2008 ACP countries to export bananas to the EU quota- and duty-free. In this reference scenario, however, EPA are ignored.

Under a continuation of the domestic policies in place in 2006, banana consumption in the EU-25 in 2013 is expected to reach 6 million t and domestic production and imports to be 1,034 and 4,976 thousand t, respectively (table 3). Even if the relevant farm price (market price + deficiency payment) does not change, domestic production will increase over time because of increasing yields in Cyprus, France and Spain (table 2) and exceed the 854,000 t threshold which “triggers” the financial stabilizer mechanism (cuts in aid payments to be applied in Cyprus, France and Spain).

Imports from ACP countries equal the duty-free 775,000 t quota; those from MFN countries equal 4.103 million t, those from EBA countries 98,000 t.

Increased imports – driven by the increased competitiveness of MFN exports on the EU market as a result of the new import regime in place since 1 January 2006 – are responsible for most of the forecasted reduction in market prices in the EU, and, as a result, of the increase in the per unit “basic” aid, which in 2002 was equal to 303.3 €/t and is simulated to reach 419.8 €/t in 2013.<sup>12</sup> Total EU budget expenditure (i.e. the budget expenditure for both “basic” and “supplementary” aid payments) equals €73.3 million, well above CMO budget costs observed in the past.<sup>13</sup>

Tariff revenue, on the contrary, is now much higher than under the pre-2006 import regime, when imports from MFN countries were subject to a binding quota and a lower tariff (75 €/t) was imposed; it increases from less than €200 million before 1 January 2006 to €722.1 million.

### “Status quo”

In this scenario France, Portugal and Spain are assumed to decide not to change the support provided to banana producers with respect to the pre-2007 CMO for bananas, while support is now fully “decoupled” in Greece and Cyprus.

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redistributing *pro rata* among the countries where the cuts apply the difference between maximum guaranteed volume and production in those countries where, on the contrary, this difference is greater than zero.

<sup>12</sup> In the 2000-2005 period the per unit “basic aid” varied between 382.9 €/t in 2000 and 59 €/t in 2005.

<sup>13</sup> In the 1994-2005 period it exceeded €300 million only in 2000, when it was equal to €301.9 million.

Table 3. Simulation Results (2013)

|  | No policy change            |                | without EPA   |               | with EPA       |               |
|--|-----------------------------|----------------|---------------|---------------|----------------|---------------|
|  | Status quo                  | 2007 decision  | Status quo    | 2007 decision | Status quo     | 2007 decision |
| <b>EU-25 production (000 t)</b>                    | <b>1,034</b>                | <b>1,006.1</b> | <b>596.1</b>  | <b>595.7</b>  | <b>1,006.7</b> | <b>595.7</b>  |
| Spain  | 457                         | 457            | 294           | 294           | 457            | 294           |
| France   | 504                         | 504            | 255           | 255           | 504            | 255           |
| Portugal   | 22                          | 22             | 22            | 22            | 22             | 22            |
| Greece   | 2                           | 0.7            | 0.7           | 0.7           | 0.7            | 0.7           |
| Cyprus   | 49                          | 23             | 24            | 24            | 23             | 24            |
| <b>EU-25 imports (000 t)</b>                       | <b>4,976</b>                | <b>5,002</b>   | <b>5,392</b>  | <b>5,401</b>  | <b>5,010</b>   | <b>5,401</b>  |
| from MFN countries                                 | 4,103                       | 4,129          | 4,517         | 4,558         | 3,985          | 4,358         |
| from ACP countries                                 | 775                         | 775            | 775           | 943           | 927            | 953           |
| from EBA countries                                 | 98                          | 98             | 100           | 100           | 98             | 100           |
| <b>USA imports (000 t)</b>                         | <b>4,893</b>                | <b>4,890</b>   | <b>4,853</b>  | <b>4,869</b>  | <b>4,904</b>   | <b>4,847</b>  |
| Rest of the world net imports (000 t)              | 2,373                       | 2,371          | 2,343         | 2,355         | 2,381          | 2,339         |
| <b>MFN countries, total exports</b>                | <b>11,369</b>               | <b>11,390</b>  | <b>11,714</b> | <b>11,581</b> | <b>11,271</b>  | <b>11,769</b> |
| <b>EU-25 border (tariff inclusive) price (€t)</b>  | <b>465.0</b>                | <b>465.2</b>   | <b>469.3</b>  | <b>467.6</b>  | <b>463.7</b>   | <b>470.0</b>  |
| <b>EU-25 consumption (000 t)</b>                   | <b>6,010</b>                | <b>6,008</b>   | <b>5,988</b>  | <b>5,997</b>  | <b>6,016</b>   | <b>5,985</b>  |
| <b>EU-25 budget expenditure (mill €)</b>           | <b>373.3 <sup>(1)</sup></b> | <b>283.4</b>   | <b>283.4</b>  | <b>283.4</b>  | <b>283.4</b>   | <b>283.4</b>  |
| Basic aid (€t)                                     | 419.8                       |                |               |               |                |               |
| Production subsidy in Spain (€t) <sup>(2)</sup>    | 308.8                       |                |               |               | 308.8          |               |
| Production subsidy in France (€t) <sup>(2)</sup>   | 256.3                       |                |               |               | 256.3          |               |
| Production subsidy in Portugal (€t) <sup>(2)</sup> | 392.7                       |                | 386.9         |               | 392.7          | 388           |
| <b>EU-25 tariff revenue (mill €)</b>               | <b>722.1</b>                | <b>726.7</b>   | <b>795.0</b>  | <b>767.0</b>  | <b>701.4</b>   | <b>806.7</b>  |

(1) Includes supplementary aid budget expenditure computed using the "standard formula".

(2) after reduction, if any, as a result of the financial stabilizer.

The “supplementary” aid is eliminated, and France, Portugal and Spain use all financial resources for the “basic” aid. The per unit payment to banana producers is calculated as the difference between the given reference price (unchanged with respect to the previous regime) and the domestic market price. Farms in Greece and Cyprus are assumed to satisfy cross-compliance conditions at no extra cost.

The financial stabilizer mechanism is now assumed to guarantee that budget expenditure does not exceed the financial resources which the 2006 reform added to the budget of each country’s POSEI programme (€129.1 million in France, 8.6 in Portugal and 141.1 in Spain). If expected expenditure in one of the three countries exceeds the financial allocation, then the per unit “basic” aid is reduced in order to make total subsidy expenditure equal that country’s financial allocation. Again, production decisions are assumed to be independent of the financial stabilization mechanism.

If France, Portugal and Spain had decided (or will decide between now and 2013) to keep the policy support granted to their banana producers in their “outermost regions” as in the pre-2007 regime, the reform of the CMO for bananas will bring very little change (table 3). The main impact will be through the reduction in banana production in Cyprus and Greece as a result of the “decoupling” of support. However, because of the small amount of bananas being produced in these two countries with respect to that produced in the Canary Islands, Guadalupe, Martinique, Madeira and the Azores, this change will have a very small market impact. If the Economic Partnership Agreements are ignored, then EU domestic price would be expected to increase and consumption decline only marginally. The small increase in imports (26 thousand t) comes almost entirely from MFN countries (ACP exports are constrained by the TRQ and EBA exports increase by a negligible amount). The most significant change is in EU budget expenditure, which is now equal to the maximum amount decided with the reform (€283.3 million) while it is forecasted to increase to €373.3 million when no reform of the policy regime is assumed.

If EPA are introduced in the model then ACP exports enter the EU market duty- and quota-free, as those from EBA countries, and displace part of MFN and EBA exports. The impact of the implementation of EPA on the EU market simulated by the model is minimal, while its effects on trade flows are significant. In fact, when ACP bananas are assumed to enter the EU duty-free and without any quantitative restriction, EU production remains unaffected (in France, Portugal and Spain production depends on the domestic policy regime only) and imports increase only marginally, but MFN exports to the EU decline by 144,000 t<sup>14</sup> and ACP exports increase by 152,000 t.<sup>15</sup> EU tariff revenue declines with respect to the scenario in which the EPA are not implemented as a result of the lower imports from MFN suppliers.

### “Full decoupling”

Under this scenario in all countries both “basic” and “supplementary” aid payments in the pre-2007 policy regime are removed and replaced by direct payments to farms fully

<sup>14</sup> Total MFN exports decline by 98,000 t only, as lower prices will make banana consumption and imports in third markets increase.

<sup>15</sup> EBA exports decline by 800 t.

“decoupled” from the quantity of bananas produced, analogous to those introduced in other sectors with the Fischler reforms of the CAP.<sup>16</sup>

The costs of satisfying “cross-compliance” requirements are assumed to be negligible.

Everything else held constant, the “decoupling” of support is expected to induce a sharp reduction in banana production in the EU, while the impact on farm incomes may be either positive or negative. This is so because, on the one hand, “decoupled” payments now equal €83.4 million, well below those farmers would have received under the previous regime (€73.3 million), but, on the other hand, they now produce only what is profitable at market prices (in the “No policy change” scenario domestically produced bananas are sold on the market at a price below the marginal cost of production).

In this scenario, if EPA are assumed not to have been implemented, EU production is forecasted to equal in 2013 351 thousand t (in the same year under the “Status quo” option it is forecasted to exceed one million t) (table 3). EU banana consumption is only slightly below the level under the reference scenario and the “Status quo” option, as domestic price increases by one per cent only. Increased imports (+ 650 thousand t, +13.1% with respect to the “No policy change” reference scenario) replace in EU consumption the marked reduction in domestic banana production. The small increase in the EU market price drives up prices worldwide and US imports and “Rest of the world” net imports decline by 1.3% and 1.9%, respectively. If EPA are ignored, benefits for exporters from the reform of the EU domestic policy regime for bananas are limited to MFN and EBA countries; ACP exports are still competitive on the EU market only and remain constrained by the duty-free TRQ (the quota rent increases with respect to the “No policy change” scenario from 47.5 \$/t to 56 \$/t). MFN exports are now 4.749 million t, 646,000 t above the level forecasted when no policy change is assumed (table 3).<sup>17</sup>

EU budget expenditure is well below that expected under the “No policy change” scenario, while tariff revenue is higher with respect to both the reference and the “Status quo” scenarios, due to increased imports from MFN countries.

If the effects of the EPA are taken into account, the EU market equilibrium does not change significantly, while the distribution of imports between MFN and ACP suppliers does. MFN exports to the EU are forecasted to be lower than those which would occur under the same domestic policy scenario and no EPA by 165,000 t and ACP ones higher by 178,000 t (table 3).

### **“2007 decision”**

This policy option is the one actually implemented in 2007; however, as mentioned above, France, Portugal and Spain are allowed to modify in the future their choice on how to use the financial resources added to their POSEI programmes as a result of the reform of the CMO for bananas.

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<sup>16</sup> The June 2003 reform of the CAP “decoupled” support for arable crops, dairy products and meats; later direct payments for olive oil, tobacco, cotton, sugar and processed fruit and vegetables have also been “decoupled” and included in the “Single Farm Payment”.

<sup>17</sup> Total MFN exports increase by a smaller amount (538,000 t), as some of the increase in exports to the EU are exports previously directed elsewhere.

Under this option the “basic” and “supplementary” aid payments are removed and replaced by different policy schemes in each country, within the given financial envelopes decided with the December 2006 reform.

The different policy instruments applied in the different countries are modelled as follows:

- a. in France the entire budget allocation is devoted to “decoupled” payments. In order to receive their full entitlement of “decoupled” payments, farms have to produce at least 80% of what they produced, on average, in the reference period (globally 255,267 t); if production is between 70% and 80% of what it was in the reference period, the farm receives 80% of its entitlement of decoupled payments; if it is below 70% it receives the same percentage of the entitlement. It turns out that the financial incentive is large enough to ensure that farms find it profitable to produce the minimum volume of bananas needed for them to claim the entire amount of “decoupled” payments they are eligible for (these payments are around 11,600 €/ha);
- b. in Spain the aid for open air banana production is assumed to be used to its maximum extent (€7,600 ha; 9.1 million) and the remaining budget allocation (€132 million) to be devoted to “decoupled” payments. In order to receive their full entitlement of “decoupled” payments, farms have to produce at least 70% of what they produced, on average, in the reference period (in total, 294,000 t). In this case too it turns out that the financial incentive is large enough to ensure that farms find it profitable to produce the minimum volume of bananas needed for them to claim the entire amount of “decoupled” payments they are eligible for (“decoupled” payments are in this case around 11,800 €/ha);
- c. in Portugal 100% of the financial allocation is devoted to the introduction of a fully “coupled” production subsidy. The fixed per unit subsidy is given by the financial allocation divided by the volume of banana production in Madeira and Azores used in the proposal put forward to the Commission by Portugal in 2007; this yields a subsidy equal to 455.2 €/t.<sup>18</sup> The subsidy expenditure cannot exceed Portugal’s financial allocation (€8.7 million); if production is such that expenditure would exceed the maximum allowed, the per unit subsidy is cut *pro rata* so that the expenditure equals the budget allocation.

The expected impact of this policy option is between those of the “Status quo” and “Full decoupling” scenarios.

In France and Spain banana production equals the minimum threshold required to receive the full amount of “decoupled” payments: 255 and 294 thousand t, respectively, vs. 173 and 145 thousand t produced when farms, under the “Full decoupling” option, are free to produce what they find profitable at market prices, and vs. 504 and 457 thousand t produced when in these two countries the pre-2007 policy regime is extended to 2013. In Portugal, where support is fully “coupled”, production equals 22 thousand t, while it is forecasted to equal 8 thousand t when it is “decoupled”. In Greece and Cyprus, where payments are “decoupled” in

<sup>18</sup> The actual policy choice by Portugal is to introduce two different subsidies in Madeira and the Azores, equal to 446 €/t and 600 €/t, respectively; however, the structure of the model does not allow considering banana production in the two outermost regions separately.

all three scenarios, the minor differences observed in the volume of bananas produced are driven by the small changes in the equilibrium price in the EU market.

EU domestic production is now 596.1 thousand t and imports equal 5,392 million t. MFN and EBA exports are 4,517 and 100 thousand t, while ACP exports remain equal to the volume of the TRQ (the only change is for the quota rent, which now equals 53.0 \$/t).

In this case too the impact of the implementation of EPA shows almost entirely in the change in the composition of EU imports. MFN exports to the EU decline from 4.517 to 4.358 million t and ACP ones increase from 775,000 to 943,000 t (table 3).

### 3. SENSITIVITY ANALYSES

As is always the case when attempts are made to model the many forces at work to forecast the outcome of alternative economic policy choices, the results depend, to a certain extent, on the information used and the assumptions made. The main issues to keep in mind when considering the results of a model such as the one used in this study are:

- a. the quality of the data available;
- b. the assumption that other actors apart from the EU – i.e. multinationals involved in banana production and trade, large retail agglomerations and other countries – behave competitively;
- c. the assumption that bananas are a homogeneous product;
- d. the assumption that the supply of transportation services is infinitely elastic (i.e. banana trading is not constrained by transportation capacity, and transportation and other transaction costs do not vary either as a function of the volume traded or over time);
- e. the assumption that farmers in the EU make production decisions without taking into account expectations on possible cuts in “coupled” direct payments, when they are in place, as a result of financial stabilization mechanisms.

The assumption that the banana market is perfectly competitive seems particularly sensitive, despite the fact that it has been used in all analyses of policy issues in this market so far, that there is no definite evidence of multinationals exerting market power (Deodhar and Sheldon 1996; Herrmann and Sexton 2001; McCorrison 2000), and that the sign of the impact of the import regime introduced by the EU on January 1 2006 on the structure of the banana market remains *a priori* ambiguous (will the elimination of quota A/B licences make the banana market more or less competitive?).

Was the assumption that when farmers make their production decisions they ignore possible cuts of “coupled” direct payments not to hold, the simulations would overestimate production in all EU countries in the “No policy change” reference scenario, and in France, Portugal and Spain in the “Status quo” scenario.

The sensitivity of the results generated by the model to the parameters used has been assessed with respect to those which appear potentially more critical:

- a. the €/\$ exchange rate;
- b. the export supply elasticities in the main ACP exporters; and

c. the demand price elasticity in the EU-15.

These simulations should provide the reader with a sense of “by how much” and “in which direction” the results presented above would change if different assumptions were made with respect to these parameters.

The sensitivity analyses have been conducted only for three of the seven scenarios considered above: the “Status quo”, “Full decoupling” and “2007 decision” scenarios (all of them include the implementation of the EPA).

In the simulations presented above the €\$ exchange rate used is 1.25; two alternative values have been considered to test the sensitivity of the results to this parameter: 1.10 and 1.40 (table 4). Changes in the exchange rate modify the competitiveness of imports *vis a vis* domestic production, with a higher exchange rate increasing their competitiveness and a lower exchange rate, on the contrary, making imported bananas less competitive on the EU market. Everything else held constant, when the exchange rate is 1.40 imports are higher and domestic prices lower than those in the simulations presented in section 3; the opposite is the case when the exchange rate is set equal 1.10. When the results presented in table 4 are compared with those presented above, the differences appear relatively small. For example, when the €\$ exchange rate is 1.40 EU imports increase by 3.2% in the “Status quo” scenario, by 3.5% under “Full decoupling” and by 3.1% in the “2007 decision” one; when the exchange rate is set equal 1.10 EU imports decline by 4.1%, 4.4% and 4.4%, respectively.

The sensitivity of the results obtained to the assumptions made with respect to the elasticity of the export supply functions in the ACP countries has been assessed by assuming those of Ivory Coast and Cameroon (these two countries alone account for two thirds of ACP banana exports) to be much less price responsive, being equal to 1 instead of 1.5 (table 5).

This assessment is specifically relevant for the results obtained when the EPA are included in the modelling and ACP banana exports can enter the EU market duty- and quota-free. When the three simulation scenarios are considered, EU market equilibrium and imports are only marginally effected by the marked change in the price responsiveness of the excess supply functions in Cameroon and Ivory Coast, while the composition of EU imports by supplier, as expected, appears to be relatively sensitive to the assumption made with respect to these parameters; in fact, in all three scenarios ACP exports are lower and MFN exports higher by roughly the same amount in absolute terms, 100,000 t.

Finally, the sensitivity of the results obtained to the assumption made on the price elasticity of the demand function in the EU-15 has been assessed by setting it equal to two extreme values, -0.2 and -0.8, instead of -0.5 (table 6). Under such extreme assumptions regarding the price responsiveness of banana consumption in the EU-25, its consumption and imports change significantly: under all three scenarios, when the demand price elasticity is -0.8 EU consumption and imports are above those when it is -0.5 by 320-330 thousand t; on the contrary, when the demand price elasticity is -0.2 EU consumption and imports are below those when it is -0.5 by 330-350 thousand t.

Table 4. Sensitivity Analysis, €/ \$ Exchange Rate (2013)

|   | Status quo, with EPA |                |                | 2007 decision, with EPA |               |               | Full decoupling, with EPA |               |               |
|---|----------------------|----------------|----------------|-------------------------|---------------|---------------|---------------------------|---------------|---------------|
|   | 1 €=1.25 \$          | 1 €=1.10 \$    | 1 €=1.40 \$    | 1 €=1.25 \$             | 1 €=1.10 \$   | 1 €=1.40 \$   | 1 €=1.25 \$               | 1 €=1.10 \$   | 1 €=1.40 \$   |
| <b>EU-25 production (000 t)</b>                   | <b>1,006.7</b>       | <b>1,009.8</b> | <b>1,004.6</b> | <b>595.7</b>            | <b>599.4</b>  | <b>593.2</b>  | <b>346.7</b>              | <b>393.8</b>  | <b>309.6</b>  |
| <i>Spain</i>                                      | 457                  | 457            | 457            | 294                     | 294           | 294           | 144                       | 163           | 128           |
| <i>France</i>                                     | 504                  | 504            | 504            | 255                     | 255           | 255           | 171                       | 195           | 153           |
| <i>Portugal</i>                                   | 22                   | 22             | 22             | 22                      | 23            | 22            | 7                         | 8             | 7             |
| <i>Greece</i>                                     | 0.7                  | 0.8            | 0.6            | 0.7                     | 0.8           | 0.6           | 0.7                       | 0.8           | 0.6           |
| <i>Cyprus</i>                                     | 23                   | 26             | 21             | 24                      | 27            | 21            | 24                        | 27            | 21            |
| <b>EU-25 imports (000 t)</b>                      | <b>5,010</b>         | <b>4,805</b>   | <b>5,172</b>   | <b>5,401</b>            | <b>5,194</b>  | <b>5,566</b>  | <b>5,638</b>              | <b>5,388</b>  | <b>5,837</b>  |
| <i>from MFN countries</i>                         | 3,985                | 3,883          | 4,047          | 4,358                   | 4,254         | 4,422         | 4,584                     | 4,439         | 4,680         |
| <i>from ACP countries</i>                         | 927                  | 835            | 1,017          | 943                     | 851           | 1,034         | 953                       | 859           | 1,045         |
| <i>from EBA countries</i>                         | 98                   | 87             | 108            | 100                     | 89            | 110           | 101                       | 90            | 112           |
| <b>USA imports (000 t)</b>                        | <b>4,904</b>         | <b>4,914</b>   | <b>4,898</b>   | <b>4,869</b>            | <b>4,879</b>  | <b>4,862</b>  | <b>4,847</b>              | <b>4,861</b>  | <b>4,838</b>  |
| <b>Rest of the world net imports (000 t)</b>      | <b>2,381</b>         | <b>2,389</b>   | <b>2,377</b>   | <b>2,355</b>            | <b>2,362</b>  | <b>2,350</b>  | <b>2,339</b>              | <b>2,349</b>  | <b>2,332</b>  |
| <b>MFN countries, total exports</b>               | <b>11,271</b>        | <b>11,186</b>  | <b>11,322</b>  | <b>11,581</b>           | <b>11,149</b> | <b>11,634</b> | <b>11,769</b>             | <b>11,648</b> | <b>11,850</b> |
| <b>EU-25 border (tariff inclusive) price (€t)</b> | <b>463.7</b>         | <b>501.7</b>   | <b>433.5</b>   | <b>467.6</b>            | <b>506.2</b>  | <b>437.0</b>  | <b>470.0</b>              | <b>508.4</b>  | <b>439.4</b>  |
| <b>EU-25 consumption (000 t)</b>                  | <b>6,016</b>         | <b>5,815</b>   | <b>6,176</b>   | <b>5,997</b>            | <b>5,793</b>  | <b>6,159</b>  | <b>5,985</b>              | <b>5,782</b>  | <b>6,146</b>  |
| <b>EU-25 budget expenditure (mill €)</b>          | <b>283.4</b>         | <b>283.4</b>   | <b>283.4</b>   | <b>283.4</b>            | <b>283.4</b>  | <b>283.4</b>  | <b>283.4</b>              | <b>283.4</b>  | <b>283.4</b>  |
| <b>EU-25 tariff revenue (mill €)</b>              | <b>701.4</b>         | <b>683.5</b>   | <b>712.3</b>   | <b>767.0</b>            | <b>748.6</b>  | <b>778.2</b>  | <b>806.7</b>              | <b>781.2</b>  | <b>823.8</b>  |

**Table 5. Sensitivity Analysis, Price Elasticity of the Export Supply Functions in Cameroon and Ivory Coast (2013)**

|   | Status quo, with EPA |                | 2007 decision, with EPA |               | Full decoupling, with EPA |               |
|---|----------------------|----------------|-------------------------|---------------|---------------------------|---------------|
|   | $\eta = 1.5$         | $\eta = 1$     | $\eta = 1.5$            | $\eta = 1$    | $\eta = 1.5$              | $\eta = 1$    |
| <b>EU-25 production (000 t)</b>                   | <b>1,006.7</b>       | <b>1,006.7</b> | <b>595.7</b>            | <b>596.1</b>  | <b>346.7</b>              | <b>349.7</b>  |
| Spain   | 457                  | 457            | 294                     | 294           | 144                       | 145           |
| France  | 504                  | 504            | 255                     | 255           | 171                       | 172           |
| Portugal  | 22                   | 22             | 22                      | 22            | 7                         | 8             |
| Greece  | 0.7                  | 0.7            | 0.7                     | 0.7           | 0.7                       | 0.7           |
| Cyprus  | 23                   | 23             | 24                      | 24            | 24                        | 24            |
| <b>EU-25 imports (000 t)</b>                      | <b>5,010</b>         | <b>5,005</b>   | <b>5,401</b>            | <b>5,396</b>  | <b>5,638</b>              | <b>5,630</b>  |
| from MFN countries                                | 3,985                | 4,074          | 4,358                   | 4,451         | 4,584                     | 4,678         |
| from ACP countries                                | 927                  | 833            | 943                     | 845           | 953                       | 851           |
| from EBA countries                                | 98                   | 98             | 100                     | 100           | 101                       | 101           |
| <b>USA imports (000 t)</b>                        | <b>4,904</b>         | <b>4,896</b>   | <b>4,869</b>            | <b>4,860</b>  | <b>4,847</b>              | <b>4,838</b>  |
| <b>Rest of the world net imports (000 t)</b>      | <b>2,381</b>         | <b>2,375</b>   | <b>2,355</b>            | <b>2,348</b>  | <b>2,339</b>              | <b>2,332</b>  |
| <b>MFN countries, total exports</b>               | <b>11,271</b>        | <b>11,345</b>  | <b>11,581</b>           | <b>11,659</b> | <b>11,769</b>             | <b>11,848</b> |
| <b>EU-25 border (tariff inclusive) price (€t)</b> | <b>463.7</b>         | <b>464.7</b>   | <b>467.6</b>            | <b>468.6</b>  | <b>470.0</b>              | <b>471.0</b>  |
| <b>EU-25 consumption (000 t)</b>                  | <b>6,016</b>         | <b>6,012</b>   | <b>5,997</b>            | <b>5,992</b>  | <b>5,985</b>              | <b>5,980</b>  |
| <b>EU-25 budget expenditure (mill €)</b>          | <b>283.4</b>         | <b>283.4</b>   | <b>283.4</b>            | <b>283.4</b>  | <b>283.4</b>              | <b>283.4</b>  |
| <b>EU-25 tariff revenue (mill €)</b>              | <b>701.4</b>         | <b>717.0</b>   | <b>767.0</b>            | <b>783.4</b>  | <b>806.7</b>              | <b>823.4</b>  |

Table 6 - Sensitivity Analysis, Price Elasticity of the EU-15 Domestic Demand Function (2013)

|   | Status quo, with EPA |                |                | 2007 decision, with EPA |               |               | Full decoupling, with EPA |               |               |
|---|----------------------|----------------|----------------|-------------------------|---------------|---------------|---------------------------|---------------|---------------|
|   | $\eta = -0.5$        | $\eta = -0.2$  | $\eta = -0.8$  | $\eta = -0.5$           | $\eta = -0.2$ | $\eta = -0.8$ | $\eta = -0.5$             | $\eta = -0.2$ | $\eta = -0.8$ |
| <b>EU-25 production (000 t)</b>                   | <b>1,006.7</b>       | <b>1,006.7</b> | <b>1,006.7</b> | <b>595.7</b>            | <b>595.7</b>  | <b>596.2</b>  | <b>346.7</b>              | <b>340.7</b>  | <b>352.7</b>  |
| Spain   | 457                  | 457            | 457            | 294                     | 294           | 294           | 144                       | 142           | 146           |
| France  | 504                  | 504            | 504            | 255                     | 255           | 255           | 171                       | 168           | 174           |
| Portugal  | 22                   | 22             | 22             | 22                      | 22            | 23            | 7                         | 7             | 8             |
| Greece  | 0.7                  | 0.7            | 0.7            | 0.7                     | 0.7           | 0.7           | 0.7                       | 0.7           | 0.7           |
| Cyprus  | 23                   | 23             | 23             | 24                      | 23            | 24            | 24                        | 23            | 24            |
| <b>EU-25 imports (000 t)</b>                      | <b>5,010</b>         | <b>4,661</b>   | <b>5,345</b>   | <b>5,401</b>            | <b>5,060</b>  | <b>5,727</b>  | <b>5,638</b>              | <b>5,306</b>  | <b>5,954</b>  |
| from MFN countries                                | 3,985                | 3,652          | 4,305          | 4,358                   | 4,033         | 4,669         | 4,584                     | 4,268         | 4,886         |
| from ACP countries                                | 927                  | 913            | 941            | 943                     | 929           | 957           | 953                       | 939           | 966           |
| from EBA countries                                | 98                   | 96             | 99             | 100                     | 98            | 101           | 101                       | 99            | 102           |
| <b>USA imports (000 t)</b>                        | <b>4,904</b>         | <b>4,936</b>   | <b>4,874</b>   | <b>4,869</b>            | <b>4,900</b>  | <b>4,839</b>  | <b>4,847</b>              | <b>4,877</b>  | <b>4,818</b>  |
| <b>Rest of the world net imports (000 t)</b>      | <b>2,381</b>         | <b>2,405</b>   | <b>2,359</b>   | <b>2,355</b>            | <b>2,378</b>  | <b>2,332</b>  | <b>2,339</b>              | <b>2,361</b>  | <b>2,317</b>  |
| <b>MFN countries, total exports</b>               | <b>11,271</b>        | <b>10,993</b>  | <b>11,537</b>  | <b>11,581</b>           | <b>11,310</b> | <b>11,841</b> | <b>11,769</b>             | <b>11,506</b> | <b>12,021</b> |
| <b>EU-25 border (tariff inclusive) price (€t)</b> | <b>463.7</b>         | <b>460.2</b>   | <b>467.1</b>   | <b>467.6</b>            | <b>464.2</b>  | <b>470.9</b>  | <b>470.0</b>              | <b>466.7</b>  | <b>473.2</b>  |
| <b>EU-25 consumption (000 t)</b>                  | <b>6,016</b>         | <b>5,666</b>   | <b>6,352</b>   | <b>5,997</b>            | <b>5,655</b>  | <b>6,324</b>  | <b>5,985</b>              | <b>5,649</b>  | <b>6,307</b>  |
| <b>EU-25 budget expenditure (mill €)</b>          | <b>283.4</b>         | <b>283.4</b>   | <b>283.4</b>   | <b>283.4</b>            | <b>283.4</b>  | <b>283.4</b>  | <b>283.4</b>              | <b>283.4</b>  | <b>283.4</b>  |
| <b>EU-25 tariff revenue (mill €)</b>              | <b>701.4</b>         | <b>642.7</b>   | <b>757.6</b>   | <b>767.0</b>            | <b>709.7</b>  | <b>821.8</b>  | <b>806.7</b>              | <b>751.2</b>  | <b>859.9</b>  |

## 4. CONCLUSIONS

Because of the difficulty at this stage of making assumptions on the specific measures France, Portugal and Spain will have in place in 2013 regarding how to use the resources transferred to their POSEI programmes, an *a priori* assessment of the impact of the December 2006 reform of the CMO for bananas is impossible. What has been done in this article is to simulate the expected market impact of three different feasible policy choices on their part.

The “Status quo” scenario induces very little change, while the full “decoupling” of support is associated with the greatest impact on banana trade; the impact of the “2007 decision” scenario remains between these two.

The “Full decoupling” of support to banana producers induces a sharp reduction in banana production in the EU, from 1 million to 350 thousand t; while consumption in the EU is only slightly below that in the “Status quo” scenario, EU imports (5.626 million t) are higher by more than 600,000 t. With EPA in place, both MFN and ACP exporters benefit from the slightly higher price and increased exports; had the EPA not been introduced, MFN exports would have increased, while ACP exports would have remained constrained by the quota. Under the “2007 decision” scenario production in Spain and France equals 70% and 80% of production in the reference time period used to define “decoupled” payment entitlements for individual farms, as these find it profitable to produce the minimum required to be eligible for the full amount of the payments; EU production and imports are now 596,100 and 5,392,000 t, respectively.

In all three scenarios, the EPA only affects the relative share of the EU market held by MFN and ACP countries (MFN exports are significantly lower and ACP ones higher as a result of the EPA), while EU consumption and imports remain relatively stable.

Sensitivity analyses with respect to some of the parameters of the model which are potentially more critical have been performed; the results of the simulations appear robust with respect to the assumptions made, as the changes in the simulation results appear to be not of an order of magnitude to modify their normative implications.

Available estimates of the trade impact of the introduction of the EU “tariff-only” import regime for bananas are much smaller than some of those presented in this article for the reform of the EU domestic policy regime. Anania (2006) estimates that the introduction of the so-called “tariff-only” import regime on January 1 2006 will lead to an overall 9.9% increase in EU banana imports, while imports from MFN countries increase by 13.2% and those from ACP countries by 3.3%; Guyomard, Le Mouël and Levert (2006) estimate that the new import regime will increase EU imports by 5-6% and MFN exports to the EU by 11-13%, depending on the assumptions made. The simulations of the possible impact of the new EU domestic policy regime for bananas presented in this article show that, *ceteris paribus*, if France, Portugal and Spain decide by 2013 to decouple payments to their banana producers, EU imports will increase by 13% and MFN exports to the EU by 16%; if they decide not to modify the policy choice they made in 2007, EU imports still increase by 8% and MFN exports to the EU by 10%.

Paradoxically, while the reform of the EU import regime for bananas has attracted much attention and generated considerable debate, very little interest seems to have been shown so far to the reform of the EU domestic policies for bananas and its implications for trade.

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