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### Publication Date

1991-05-01

Peer reviewed

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Working Paper No. 91-167

**A Note on Internationally Coordinated  
Policy Packages Intended to Be Robust  
Under Model Uncertainty  
or  
Policy Cooperation Under Uncertainty:  
The Case for Some Disappointment**

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May 1991

Key words: coordination, cooperation, model uncertainty

JEL Classification: F42

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The computer work for this note was done by Scott Erwin, Northwestern University, under the direction of Katharine Rockett, Assistant Professor.



## Abstract

Holtham and Hughes Hallett, and a number of other authors, have suggested that a printout of all 1,000 cases of coordination considered in Frankel and Rockett (1988) should be made available. They wish to check whether, if coordination is restricted to policy packages that they call "strong" bargains, it would raise welfare a higher percentage of the time. We now make those results available. The results show that if coordination is restricted to packages that are robust with respect to model uncertainty, such as the so-called "strong" bargains, it does indeed improve the odds in favor of gains from coordination.



**A Note on Internationally Coordinated Policy Packages  
Intended to be Robust Under Model Uncertainty**

Empirical work on the international coordination of macroeconomic policy has made a lot of progress over the last eight years. Much of it is quite pessimistic, relative to earlier theoretical arguments that coordination would necessarily improve economic welfare.<sup>1</sup>

Frankel and Rockett (1988) showed that when national policy-makers do not necessarily know the correct model, they will still in general be able to agree on a package of macroeconomic policy changes that each believes will leave its country better off, but that the package could turn out to lower welfare as easily as raise it, when judged in the light of some "true" model that may differ from the two models subscribed to by the two policy-makers. We used ten multi-country econometric models that had participated in simulation exercises under the auspices of the Brookings Institution, to see what would happen if the U.S. policy-makers believed one of the ten models, policy-makers in other OECD countries believed another, and reality was represented by a third. A computer count of the 1,000 ( $=10 \times 10 \times 10$ ) possible combinations showed that monetary coordination raised U.S. welfare in 63 per cent of the cases where there was a significant effect. For the other countries, coordination raised welfare in 62 per cent of

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<sup>1</sup> Oudiz and Sachs (1984), for example, found that the gains to coordination, though necessarily positive in their framework, were nevertheless quite small empirically.

these cases.<sup>2</sup>

The point that coordination under conditions of model uncertainty could turn out to lower welfare in some circumstances has been readily accepted. But a common reaction has been to argue that the odds in favor of coordination may be better than our calculations suggest, provided policy-makers intelligently take into account their own uncertainty regarding the correct model.

A number of observers have claimed that coordination is in fact unlikely to take place in those cases where a policy-maker's model predicts that the package of policy changes being proposed would make the other country worse off, even though it predicts that his own country will be better off. Currie, Holtham and Hughes Hallett (1989) and Holtham and Hughes Hallett (1987, 1989) have called such cases "weak bargains," and have been cited approvingly by Bryant (1990, p.147) and Kenen (1990, p.83-84). They call cases where both policy-makers expect the package in question to raise welfare for both countries "strong" bargains. They conjecture that if one restricted the test to such "strong condition" bargains, it would show results more favorable to coordination.

There would appear to be little reason why a policy-maker would be altruistic enough to refuse to coordinate, out of concern

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<sup>2</sup> If one believes that there are in fact thousands of possible models and the probability of one of the policy-makers' models being exactly correct is nil, then the computed odds are biased a little in favor of gains from coordination, by including the 190 combinations where reality coincides with one of the policymakers' models. This issue is addressed in the last part of this note.

for his neighbor's welfare, when he believed that the proposed package would be good for himself but would diminish his neighbor's welfare. The argument of Holtham and Hughes Hallett (HHH) is essentially that such a policy-maker will figure that it is not a good idea to go ahead with a "weak" bargain because the other policy-maker, though he believes now that he will benefit from the proposed package, will be proven wrong next period and will abrogate the deal.

Whatever one thinks of the HHH argument as a positive prediction that policy-makers are in fact unlikely to agree on a package unless each thinks that the package will benefit both, a normative argument could be made. In the presence of uncertainty, policy-makers should check to see if a proposed policy package is robust, i.e., whether it can be expected to prove beneficial under a variety of possible models. A complete analysis would have a policy-maker assign probability weights to many possible models and then negotiate coordinated packages so as to maximize the expected value of his objective function.<sup>3</sup> But there is also something to be said for seeing what would happen under simpler checks for robustness of a proposed package.

A very simple check would be to have the countries go ahead with coordination only in the special case where they share the same model. The results in Frankel and Rockett (1988, p.330)

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<sup>3</sup> This was done in an extension of the original Frankel and Rockett (1988, p.337-38) analysis, for the simple case of equal weights on all ten models. Ghosh and Masson (1988) and Hughes Hallett (1989) take this approach further.

showed that under such a restriction, the odds in favor of coordination do change, but only a little: to 65 per cent for the United States and 59 per cent for the others. Holtham and Hughes Hallett (1987, p.25) and Hughes Hallett (1989, p.318-322) obtained similar results.<sup>4</sup>

I personally am unsure that each policy-maker would find the other country's model a particularly compelling test for robustness. But Currie, Holtham and Hughes Hallett (1989), Holtham and Hughes Hallett (1987, 1989), Bryant (1990, p.147) and Kenen (1990, p.83-84), have all expressed the belief that it would be an informative exercise to compute the frequency of gains from coordination restricted to "strong" bargains, and have lamented the fact that it was not possible to perform this computation from the reported results in Frankel and Rockett (1988).

When we were writing our paper, we did not see any use for the details of the 1,000 individual cases and so we did not have the computer print them out (let alone publish the output in a table). But in light of the interest in these results that has been expressed over the last four years, we have now re-done the entire exercise, and printed out the 1,000 individual cases. The purpose of this note is to present the results. The raw results showing the outcomes for each combination of models are available in an Appendix available on request. [Table 3 shows the changes in

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<sup>4</sup> Cooper (1989) offers an historical illustration that supports the positive proposition that a prerequisite for governments agreeing on international coordination is that they come to agreement on a model.

monetary policy entailed in the coordination package, and its perceived effects, for all 100 combinations of models. Table 4 shows the true resulting effects on welfare, for all 1000 possible outcomes.] A repeat of the Frankel-Rockett count shows that coordination raises U.S. welfare in 60.2 per cent of the cases and rest-of-OECD welfare in 61.9 per cent.<sup>5</sup>

What do the results say about the HHH suggestion to restrict the coordination experiment to "strong" bargains? Under this restriction, coordination will only take place in 410 cases out of 1,000. But within that set, coordination does indeed result in welfare gains more often than it does in the unrestricted set: 78.1 per cent of the time for the United States and 75.9 per cent for the other OECD countries. In other words the HHH conjecture turns out to be right.

If the point of the exercise -- of restricting the set of packages to those that raise a country's welfare according to both models -- is to try out a normative proposal to enhance robustness, then the process can naturally be carried further. Why shouldn't a policy-maker who is concerned about robustness check to see if the proposed package would be beneficial according to other models, in addition to the ones that he and the other player favor? We

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<sup>5</sup> The numbers differ slightly from those in Frankel and Rockett (1988) because the decimal accuracy of the program used this time around divided all cases into gains and losses, whereas the earlier program placed some in the category of no effect to four significant digits. [It is also possible that the difference in algorithm used to find the bargaining solution and in initial conditions might matter in some small way.]

checked the new results to see what happens if coordination is restricted to those cases where the package appears to raise welfare under at least two models: the two that the players believe in or, in the case where they agree on the same model, that one plus some second model. We found that coordination under this restriction would only take place in 390 cases. (In other words, in a few of the cases of model agreement classified as "strong bargains" before, no second model could be found that would imply welfare gains to both countries.). But we also found that coordination would raise U.S. welfare in 80 per cent of those 390 cases, and welfare in other countries in 77.4 per cent. The results are reported in Table 1, under panel 2.

We next strengthened the requirement for a coordination package further, so that it must appear to improve welfare under three models; and then proceeded to four models, five, and so on to ten. The results are also reported in Table 1, under panels 3, 4, and so on. As one would expect, the number of cases that survive the criterion dwindles as the requirement is strengthened. But conditional on coordination taking place, the odds in favor of welfare gains from coordination remain high, and in fact rise each time the requirement is strengthened.

The results reported in the Appendix [first part] and summarized in Table 1 assume an initial GNP gap of -4.15 % for the United States and -6.05 % for the rest of the OECD. By way of sensitivity analysis, we also tried the exercise for an initial GNP gap of -1.26 % for the U.S. and -4.18 % for the rest of the OECD.

When coordination is restricted to strong bargains as defined by HHH, the odds in favor of coordination are a little better under the assumption of these smaller initial GNP gaps: gains occur 81 per cent for the U.S. and 77 per cent of the time for the rest of the OECD. But when the criterion is strengthened to the level where the proposed package must raise welfare under five or more models, the frequency of gains becomes slightly worse under the smaller GNP gaps than was the case in Table 1.<sup>6</sup>

One reason why the odds in favor of coordination rise as the criterion is strengthened in Table 1 may be spurious. Each model against which the countries are assumed to check the package's effects before proceeding to coordinate is included in the list of ten models by which the success of the coordination is judged, guaranteeing a favorable outcome in at least those cases. In reality there are thousands of models, rather than ten, and no one model is likely to be precisely right. An unbiased test would judge the outcome with a list of models that does not overlap with the list of models that the countries consult before agreeing on their package. The effect of the bias in the test of Table 1 rises with the number of models checked. For example in those few cases where a package raised welfare according to all ten models, whatever model was chosen to represent reality was necessarily one of those that had already been checked, and so success occurred 100

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<sup>6</sup> The final results showing the frequency of coordination and of resulting gains and losses, in analogous form to Table 1, are reported in the Appendix [Table 1b]. The raw results showing the outcomes for each combination of models are reported in Tables [3a and 4a, analogous to Tables 3 and 4,] also available on request.

per cent of the time by construction.

A test can be easily constructed that eliminates this bias. Each time a policy package has been found that appears to raise welfare according to the specified number of models  $k$ , those  $k$  models are excluded from the list of models whereby success is judged. The results are reported in the Appendix [Table 2]. We necessarily lose observations by this procedure. For example, in the most stringent form of the criterion, where the package must satisfy all ten models, we lose all observations. Nevertheless, we learn that the odds in favor of coordination, for criterion-strengths 1 through 9, are only a little worse than under the first test. They start out, under the HHH "strong" criterion, at a 72.7 per cent success rate for U.S. welfare and 70.0 per cent for the rest of the OECD (and again rise gradually with the strength of the robustness criterion). This still represents a significantly greater success rate than when coordination is undertaken without any checks for robustness under other models.<sup>7</sup>

In short, restricting coordination to those cases where the proposed policy package meets a criterion of robustness with regard to the assumed model does indeed raise the frequency of actual outcomes under which coordination is estimated to improve economic welfare.

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<sup>7</sup> By way of sensitivity analysis, we again tried the exercise for an initial GNP gap of -1.26 % for the U.S. and -4.18 % for the rest of the OECD. The frequency counts are available in the Appendix [Table 2b]. The odds in favor of coordination are again not much different with these smaller initial GNP gaps. Overall our results do not appear to be very sensitive to the assumed initial conditions.

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Table 1

19-Nov-90

## MORE STRINGENT CONSENSUS VARIANTS

CASE OF INITIAL U.S. GNP GAP OF -4.15% AND NON-U.S. OECD GAP OF -6.0

This table summarizes cases for which coordination of U.S. and Non-U.S. OECD money supplies according to the Nash Bargaining Solution allows for welfare improvements when the decision to coordinate is subject to a more stringent requirement than just each of the players perceiving they will be better off solely according to the model each player believes in.

In each of the cases below, the countries proceed with coordination on the condition both countries obtain positive gains when the true model is either one

## 1. of the models which the players believe in

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 320    | 78.1       |
| negative U.S. gains | 90     | 21.9       |
| TOTAL CASES         | 410    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 311 | 75.9 |
| negative Non-U.S. OECD gains | 99  | 24.1 |
| TOTAL CASES                  | 410 | 100  |

## 2. of two models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 312    | 80         |
| negative U.S. gains | 78     | 20         |
| TOTAL CASES         | 390    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 302 | 77.4 |
| negative Non-U.S. OECD gains | 88  | 22.6 |
| TOTAL CASES                  | 390 | 100  |

## 3. of three models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 298    | 82.8       |
| negative U.S. gains | 62     | 17.2       |
| TOTAL CASES         | 360    | 100        |

19-Nov-90

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 288 | 80  |
| negative Non-U.S. OECD gains | 72  | 20  |
| TOTAL CASES                  | 360 | 100 |

## 4. of four models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 279    | 87.2       |
| negative U.S. gains | 41     | 12.8       |
| TOTAL CASES         | 320    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 263 | 82.2 |
| negative Non-U.S. OECD gains | 57  | 17.8 |
| TOTAL CASES                  | 320 | 100  |

## 5. of five models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 247    | 91.5       |
| negative U.S. gains | 23     | 8.5        |
| TOTAL CASES         | 270    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 233 | 86.3 |
| negative Non-U.S. OECD gains | 37  | 13.7 |
| TOTAL CASES                  | 270 | 100  |

## 6. of six models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 213    | 92.6       |
| negative U.S. gains | 17     | 7.4        |
| TOTAL CASES         | 230    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 210 | 91.3 |
| negative Non-U.S. OECD gains | 20  | 8.7  |
| TOTAL CASES                  | 230 | 100  |

## 7. of seven models or more

|  | Number | Percentage |
|--|--------|------------|
|--|--------|------------|

19-Nov-90

|                     |     |      |
|---------------------|-----|------|
| -----               |     |      |
| positive U.S. gains | 178 | 93.7 |
| negative U.S. gains | 12  | 6.3  |
| =====               |     |      |
| TOTAL CASES         | 190 | 100  |

|                              |     |      |
|------------------------------|-----|------|
| -----                        |     |      |
| positive Non-U.S. OECD gains | 182 | 95.8 |
| negative Non-U.S. OECD gains | 8   | 4.2  |
| =====                        |     |      |
| TOTAL CASES                  | 190 | 100  |

8. of eight models or more

|                     |        |            |
|---------------------|--------|------------|
|                     | Number | Percentage |
| -----               |        |            |
| positive U.S. gains | 137    | 97.9       |
| negative U.S. gains | 3      | 2.1        |
| =====               |        |            |
| TOTAL CASES         | 140    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| -----                        |     |      |
| positive Non-U.S. OECD gains | 138 | 98.5 |
| negative Non-U.S. OECD gains | 2   | 1.5  |
| =====                        |     |      |
| TOTAL CASES                  | 140 | 100  |

9. of nine models or more

|                     |        |            |
|---------------------|--------|------------|
|                     | Number | Percentage |
| -----               |        |            |
| positive U.S. gains | 128    | 98.5       |
| negative U.S. gains | 2      | 1.5        |
| =====               |        |            |
| TOTAL CASES         | 130    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| -----                        |     |      |
| positive Non-U.S. OECD gains | 129 | 99.2 |
| negative Non-U.S. OECD gains | 1   | 0.8  |
| =====                        |     |      |
| TOTAL CASES                  | 130 | 100  |

10. of ten models or more

|                     |        |            |
|---------------------|--------|------------|
|                     | Number | Percentage |
| -----               |        |            |
| positive U.S. gains | 100    | 100        |
| negative U.S. gains | 0      | 0          |
| =====               |        |            |
| TOTAL CASES         | 100    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| -----                        |     |     |
| positive Non-U.S. OECD gains | 100 | 100 |

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|                              |     |     |
|------------------------------|-----|-----|
| negative Non-U.S. OECD gains | 0   | 0   |
| =====                        |     |     |
| TOTAL CASES                  | 100 | 100 |

\* all gains, positive and negative, are greater than 0.0001 in absolute value.

May 1, 1991

Appendix to  
A Note on Internationally Coordinated Policy Packages  
Intended to be Robust Under Model Uncertainty

Jeffrey A. Frankel

The computer work was done by Scott Erwin, Northwestern University,  
under the direction of Katharine Rockett, Assistant Professor.

# Table 1

## MORE STRINGENT CONSENSUS VARIANTS

CASE OF INITIAL U.S. GNP GAP OF -4.15% AND NON-U.S. OECD GAP OF -6.0

This table summarizes cases for which coordination of U.S. and Non-U.S. OECD money supplies according to the Nash Bargaining Solution allows for welfare improvements when the decision to coordinate is subject to a more stringent requirement than just each of the players perceiving they will be better off solely according to the model each player believes in.

In each of the cases below, the countries proceed with coordination on the condition both countries obtain positive gains when the true model is either one

### 1. of the models which the players believe in

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 320    | 78.1       |
| negative U.S. gains | 90     | 21.9       |
| TOTAL CASES         | 410    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 311 | 75.9 |
| negative Non-U.S. OECD gains | 99  | 24.1 |
| TOTAL CASES                  | 410 | 100  |

### 2. of two models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 312    | 80         |
| negative U.S. gains | 78     | 20         |
| TOTAL CASES         | 390    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 302 | 77.4 |
| negative Non-U.S. OECD gains | 88  | 22.6 |
| TOTAL CASES                  | 390 | 100  |

### 3. of three models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 298    | 82.8       |
| negative U.S. gains | 62     | 17.2       |
| TOTAL CASES         | 360    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 288 | 80  |
| negative Non-U.S. OECD gains | 72  | 20  |
| TOTAL CASES                  | 360 | 100 |

### 4. of four models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 279    | 87.2       |
| negative U.S. gains | 41     | 12.8       |
| TOTAL CASES         | 320    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 263 | 82.2 |
| negative Non-U.S. OECD gains | 57  | 17.8 |
| TOTAL CASES                  | 320 | 100  |

### 5. of five models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 247    | 91.5       |
| negative U.S. gains | 23     | 8.5        |
| TOTAL CASES         | 270    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 233 | 86.3 |
| negative Non-U.S. OECD gains | 37  | 13.7 |
| TOTAL CASES                  | 270 | 100  |

### 6. of six models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 213    | 92.6       |
| negative U.S. gains | 17     | 7.4        |
| TOTAL CASES         | 230    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 210 | 91.3 |
| negative Non-U.S. OECD gains | 20  | 8.7  |
| TOTAL CASES                  | 230 | 100  |

### 7. of seven models or more

|  | Number | Percentage |
|--|--------|------------|
|--|--------|------------|

|                     |     |      |
|---------------------|-----|------|
| -----               |     |      |
| positive U.S. gains | 178 | 93.7 |
| negative U.S. gains | 12  | 6.3  |
| =====               |     |      |
| TOTAL CASES         | 190 | 100  |

|                              |     |      |
|------------------------------|-----|------|
| -----                        |     |      |
| positive Non-U.S. OECD gains | 182 | 95.8 |
| negative Non-U.S. OECD gains | 8   | 4.2  |
| =====                        |     |      |
| TOTAL CASES                  | 190 | 100  |

8. of eight models or more

|                     |        |            |
|---------------------|--------|------------|
|                     | Number | Percentage |
| -----               |        |            |
| positive U.S. gains | 137    | 97.9       |
| negative U.S. gains | 3      | 2.1        |
| =====               |        |            |
| TOTAL CASES         | 140    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| -----                        |     |      |
| positive Non-U.S. OECD gains | 138 | 98.5 |
| negative Non-U.S. OECD gains | 2   | 1.5  |
| =====                        |     |      |
| TOTAL CASES                  | 140 | 100  |

9. of nine models or more

|                     |        |            |
|---------------------|--------|------------|
|                     | Number | Percentage |
| -----               |        |            |
| positive U.S. gains | 128    | 98.5       |
| negative U.S. gains | 2      | 1.5        |
| =====               |        |            |
| TOTAL CASES         | 130    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| -----                        |     |      |
| positive Non-U.S. OECD gains | 129 | 99.2 |
| negative Non-U.S. OECD gains | 1   | 0.8  |
| =====                        |     |      |
| TOTAL CASES                  | 130 | 100  |

10. of ten models or more

|                     |        |            |
|---------------------|--------|------------|
|                     | Number | Percentage |
| -----               |        |            |
| positive U.S. gains | 100    | 100        |
| negative U.S. gains | 0      | 0          |
| =====               |        |            |
| TOTAL CASES         | 100    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| -----                        |     |     |
| positive Non-U.S. OECD gains | 100 | 100 |

|                              |     |     |
|------------------------------|-----|-----|
| negative Non-U.S. OECD gains | 0   | 0   |
| =====                        |     |     |
| TOTAL CASES                  | 100 | 100 |

\* all gains, positive and negative, are greater than 0.0001 in absolute value.

Dec 11, '90

Table 1b

MORE STRINGENT CONSENSUS VARIANTS  
CASE OF INITIAL U.S. GNP GAP OF -1.26% AND NON-U.S. OECD GAP OF -4.18%

This table summarizes cases for which coordination of U.S. and Non-U.S. OECD money supplies according to the Nash Bargaining Solution allows for welfare improvements when the decision to coordinate is subject to a more stringent requirement than just each of the players perceiving they will be better off solely according to the model each player believes in.

In each of the cases below, the countries proceed with coordination on the condition both countries obtain positive gains when the true model is either one \*

1. of the models which the players believe in

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 356    | 80.9       |
| negative U.S. gains | 84     | 19.1       |
| TOTAL CASES         | 440    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 397 | 77  |
| negative Non-U.S. OECD gains | 103 | 23  |
| TOTAL CASES                  | 440 | 100 |

2. of two models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 347    | 83         |
| negative U.S. gains | 73     | 17         |
| TOTAL CASES         | 420    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 329 | 78  |
| negative Non-U.S. OECD gains | 91  | 22  |
| TOTAL CASES                  | 420 | 100 |

3. of three models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 329    | 84         |
| negative U.S. gains | 61     | 16         |
| TOTAL CASES         | 390    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 318 | 82  |
| negative Non-U.S. OECD gains | 72  | 18  |
| TOTAL CASES                  | 390 | 100 |

4. of four models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 311    | 89         |
| negative U.S. gains | 39     | 11         |
| TOTAL CASES         | 350    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 291 | 83  |
| negative Non-U.S. OECD gains | 59  | 17  |
| TOTAL CASES                  | 350 | 100 |

5. of five models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 300    | 91         |
| negative U.S. gains | 30     | 9          |
| TOTAL CASES         | 330    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 277 | 84  |
| negative Non-U.S. OECD gains | 53  | 16  |
| TOTAL CASES                  | 330 | 100 |

6. of six models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 242    | 93         |
| negative U.S. gains | 18     | 7          |
| TOTAL CASES         | 260    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 235 | 90  |
| negative Non-U.S. OECD gains | 25  | 10  |
| TOTAL CASES                  | 260 | 100 |

7. of seven models or more

|  | Number | Percentage |
|--|--------|------------|
|--|--------|------------|

|                     |     |     |
|---------------------|-----|-----|
| positive U.S. gains | 204 | 13  |
| negative U.S. gains | 16  | 7   |
| TOTAL CASES         | 220 | 100 |

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 211 | 96  |
| negative Non-U.S. OECD gains | 9   | 4   |
| TOTAL CASES                  | 220 | 100 |

8. of eight models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 164    | 96.5       |
| negative U.S. gains | 6      | 3.5        |
| TOTAL CASES         | 170    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 166 | 97.6 |
| negative Non-U.S. OECD gains | 4   | 2.4  |
| TOTAL CASES                  | 170 | 100  |

9. of nine models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 137    | 97.8       |
| negative U.S. gains | 3      | 2.1        |
| TOTAL CASES         | 140    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 139 | 99.3 |
| negative Non-U.S. OECD gains | 1   | 0.7  |
| TOTAL CASES                  | 140 | 100  |

10. of ten models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 100    | 100        |
| negative U.S. gains | 0      |            |
| TOTAL CASES         | 100    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 100 | 100 |
|------------------------------|-----|-----|

|                              |     |     |
|------------------------------|-----|-----|
| negative Non-U.S. OECD gains | 0   | 0   |
| <hr/>                        |     |     |
| TOTAL CASES                  | 100 | 100 |

\* all gains, positive and negative, are greater than 0.0001 in absolute value.

03/20/91

Table 2

*Exclusion of Initial beliefs*

MORE STRINGENT CONSENSUS VARIANTS  
CASE OF INITIAL U.S. GNP GAP OF -4.15% AND NON-U.S. OECD GAP OF -6.05%

This table summarizes cases for which coordination of U.S. and Non-U.S. OECD money supplies according to the Nash Bargaining Solution allows for welfare improvements when the decision to coordinate is subject to a more stringent requirement than just each of the players perceiving they will be better off solely according to the model each player believes in.

In each of the cases below, the countries proceed with coordination on the condition both countries obtain positive gains when the true model is either one \*

1. of the models which the players believe in

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 240    | 72.7       |
| negative U.S. gains | 10     | 27.3       |
| TOTAL CASES         | 330    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 231 | 70  |
| negative Non-U.S. OECD gains | 99  | 30  |
| TOTAL CASES                  | 330 | 100 |

2. of two models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 234    | 75         |
| negative U.S. gains | 78     | 25         |
| TOTAL CASES         | 312    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 224 | 71.8 |
| negative Non-U.S. OECD gains | 88  | 28.2 |
| TOTAL CASES                  | 312 | 100  |

3. of three models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 190    | 75.4       |
| negative U.S. gains | 62     | 24.6       |
| TOTAL CASES         | 252    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 180 | 71.4 |
| negative Non-U.S. OECD gains | 72  | 28.6 |
| TOTAL CASES                  | 252 |      |

4. of four models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 151    | 78.6       |
| negative U.S. gains | 41     | 21.4       |
| TOTAL CASES         | 192    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 135 | 70.3 |
| negative Non-U.S. OECD gains | 57  | 29.7 |
| TOTAL CASES                  | 192 | 100  |

5. of five models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 112    | 83         |
| negative U.S. gains | 23     | 17         |
| TOTAL CASES         | 135    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 98  | 72.6 |
| negative Non-U.S. OECD gains | 37  | 27.4 |
| TOTAL CASES                  | 135 | 100  |

6. of six models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 75     | 81.5       |
| negative U.S. gains | 17     | 18.5       |
| TOTAL CASES         | 92     | 100        |

|                              |    |      |
|------------------------------|----|------|
| positive Non-U.S. OECD gains | 72 | 78.3 |
| negative Non-U.S. OECD gains | 20 | 21.7 |
| TOTAL CASES                  | 92 | 100  |

7. of seven models or more

|  | Number | Percentage |
|--|--------|------------|
|--|--------|------------|

|                     |    |      |
|---------------------|----|------|
| positive U.S. gains | 45 | 78.9 |
| negative U.S. gains | 12 | 21.1 |
| TOTAL CASES         | 57 | 100  |

|                              |    |     |
|------------------------------|----|-----|
| positive Non-U.S. OECD gains | 49 | 86  |
| negative Non-U.S. OECD gains | 8  | 14  |
| TOTAL CASES                  | 57 | 100 |

8. of eight models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 25     | 89.3       |
| negative U.S. gains | 3      | 10.7       |
| TOTAL CASES         | 28     | 100        |

|                              |    |      |
|------------------------------|----|------|
| positive Non-U.S. OECD gains | 26 | 92.9 |
| negative Non-U.S. OECD gains | 2  | 7.1  |
| TOTAL CASES                  | 28 | 100  |

9. of nine models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 11     | 84.6       |
| negative U.S. gains | 2      | 15.4       |
| TOTAL CASES         | 13     | 100        |

|                              |    |      |
|------------------------------|----|------|
| positive Non-U.S. OECD gains | 12 | 92.3 |
| negative Non-U.S. OECD gains | 1  | 7.7  |
| TOTAL CASES                  | 13 | 100  |

10. of ten models or more — —

\* all gains, positive and negative, are greater than 0.0001 in absolute value.

Exclusion of initial beliefs.

03/25/91

Table 2b

MORE STRINGENT CONSENSUS VARIANTS  
CASE OF INITIAL U.S. GNP GAP OF -1.26% AND NON-U.S. OECD GAP OF -4.18%

This table summarizes cases for which coordination of U.S. and Non-U.S. OECD money supplies according to the Nash Bargaining Solution allows for welfare improvements when the decision to coordinate is subject to a more stringent requirement than just each of the players perceiving they will be better off solely according to the model each player believes in.

In each of the cases below, the countries proceed with coordination on the condition both countries obtain positive gains when the true model is either one \*

1. of the models which the players believe in

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 270    | 76.3       |
| negative U.S. gains | 84     | 23.7       |
| TOTAL CASES         | 354    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 251 | 70.9 |
| negative Non-U.S. OECD gains | 103 | 29.1 |
| TOTAL CASES                  | 354 | 100  |

2. of two models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 263    | 78.3       |
| negative U.S. gains | 73     | 21.7       |
| TOTAL CASES         | 336    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 245 | 72.9 |
| negative Non-U.S. OECD gains | 91  | 27.1 |
| TOTAL CASES                  | 336 | 100  |

3. of three models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 212    | 77.7       |
| negative U.S. gains | 61     | 22.3       |
| TOTAL CASES         | 273    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 201 | 73.6 |
| negative Non-U.S. OECD gains | 72  | 26.4 |
| TOTAL CASES                  | 273 | 100  |

## 4. of four models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 171    | 81.4       |
| negative U.S. gains | 39     | 18.6       |
| TOTAL CASES         | 210    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 151 | 71.9 |
| negative Non-U.S. OECD gains | 59  | 28.1 |
| TOTAL CASES                  | 210 | 100  |

## 5. of five models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 135    | 81.8       |
| negative U.S. gains | 30     | 18.2       |
| TOTAL CASES         | 165    | 100        |

|                              |     |      |
|------------------------------|-----|------|
| positive Non-U.S. OECD gains | 112 | 67.9 |
| negative Non-U.S. OECD gains | 53  | 32.1 |
| TOTAL CASES                  | 165 | 100  |

## 6. of six models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 86     | 82.7       |
| negative U.S. gains | 18     | 17.3       |
| TOTAL CASES         | 104    | 100        |

|                              |     |     |
|------------------------------|-----|-----|
| positive Non-U.S. OECD gains | 79  | 76  |
| negative Non-U.S. OECD gains | 25  | 24  |
| TOTAL CASES                  | 104 | 100 |

## 7. of seven models or more

|  | Number | Percentage |
|--|--------|------------|
|--|--------|------------|

|                     |    |      |
|---------------------|----|------|
| positive U.S. gains | 50 | 75.8 |
| negative U.S. gains | 16 | 24.2 |
| TOTAL CASES         | 66 | 100  |

|                              |    |      |
|------------------------------|----|------|
| positive Non-U.S. OECD gains | 57 | 86.4 |
| negative Non-U.S. OECD gains | 9  | 13.6 |
| TOTAL CASES                  | 66 | 100  |

8. of eight models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 28     | 82.4       |
| negative U.S. gains | 6      | 17.6       |
| TOTAL CASES         | 34     | 100        |

|                              |    |      |
|------------------------------|----|------|
| positive Non-U.S. OECD gains | 30 | 88.2 |
| negative Non-U.S. OECD gains | 4  | 11.8 |
| TOTAL CASES                  | 34 | 100  |

9. of nine models or more

|                     | Number | Percentage |
|---------------------|--------|------------|
| positive U.S. gains | 11     | 78.6       |
| negative U.S. gains | 3      | 21.4       |
| TOTAL CASES         | 14     | 100        |

|                              |    |      |
|------------------------------|----|------|
| positive Non-U.S. OECD gains | 13 | 92.9 |
| negative Non-U.S. OECD gains | 1  | 7.1  |
| TOTAL CASES                  | 14 | 100  |

10. of ten models or more

\* all gains, positive and negative, are greater than 0.0001 in absolute value.

10<sup>2</sup> Nov-90

Table 3

## The Cooperative Bargain

Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |
| MCM                           |           |           |           |           |           |           |           |           |           |           |
| Bargaining Change in Policy   |           |           |           |           |           |           |           |           |           |           |
| Meur                          | 0.2408115 | 0.027914  | 2.2294406 | 0.8772065 | 0.6245635 | 1.4939112 | 1.2947949 | 0.7857004 | 4113.1690 | 0.814339  |
| Mus                           | -0.142244 | -0.051269 | -0.473178 | 0.2801086 | 0.2429168 | 0.3686883 | 0.3481691 | -0.263573 | -21.42741 | -0.311885 |
| Perceived Change in Targets   |           |           |           |           |           |           |           |           |           |           |
| Europe Y                      | 0.1151971 | 0.0027914 | 0.3428343 | 0.1964494 | 0.1188397 | 0.1115644 | 0.2763674 | 0.1703187 | 2.1427416 | 0.0095283 |
| CA                            | -0.053341 | -0.019225 | -0.177441 | 0.1050407 | 0.0910938 | 0.1382581 | 0.1305634 | -0.098840 | -8.035281 | -0.116957 |
| United States Y               | 0.0034475 | 0.0064803 | 0.2104347 | -0.003063 | -0.002792 | -0.118592 | -0.083675 | 0.0195493 | -0.678980 | 0.0148543 |
| CA                            | 0.0029609 | 0.0010318 | 0.0107065 | -0.005019 | -0.004435 | -0.006403 | -0.006116 | 0.0056901 | 2.8921642 | 0.0066639 |
| Perceived Gain for            |           |           |           |           |           |           |           |           |           |           |
| Europe                        | 0.0114842 | 0.0005779 | 0.824122  | 0.0360648 | 0.0147446 | 0.1889845 | 0.1704329 | 0.0316076 | 17.388101 | 0.010225  |
| United States                 | 0.0034962 | 0.0003703 | 0.0282708 | 0.0120922 | 0.0081442 | 0.0205873 | 0.0172273 | 0.0108432 | 87.329821 | 0.0082054 |
| LIVPL                         |           |           |           |           |           |           |           |           |           |           |
| Bargaining Change in Policy   |           |           |           |           |           |           |           |           |           |           |
| Meur                          | 0.2868595 | 0.3900253 | 281.39914 | -37.82698 | -3.309225 | 5.6406493 | 6.0764980 | 0.3995638 | 3.3386337 | -0.027277 |
| Mus                           | -1.558626 | -6.628190 | -306.9272 | 69.095040 | 8.002216  | 8.5984566 | 8.9753766 | 0.379437  | -3.470473 | -0.039978 |
| Perceived Change in Targets   |           |           |           |           |           |           |           |           |           |           |
| Europe Y                      | 0.3803319 | 0.0390025 | 18.552129 | -2.383268 | -0.861900 | 1.1418781 | 1.6640684 | 0.0609409 | 0.3470473 | -0.005361 |
| CA                            | 0.0757781 | -0.009694 | 104.88647 | -13.40341 | -1.123634 | 2.4712211 | 2.6549836 | 0.1693114 | 1.2486916 | -0.011910 |
| United States Y               | 0.0166093 | 0.0704461 | -2.337012 | 1.5575344 | 0.0918994 | -0.596228 | -0.275962 | -0.001662 | 0.0888836 | -0.009039 |
| CA                            | 0.1146175 | 0.5309891 | 10.762888 | -3.762790 | -0.492050 | -1.011525 | -1.065767 | -0.052546 | 0.1134650 | 0.0047582 |
| Perceived Gain for            |           |           |           |           |           |           |           |           |           |           |
| Europe                        | 0.0769844 | 0.0794102 | 937.97330 | 59.321745 | 0.8747613 | 9.501623  | 10.348684 | 0.0964909 | 0.2710765 | 0.000562  |
| United States                 | 1.2828226 | 1.649703  | 7572.8398 | 202.14657 | 2.8258856 | 9.5143602 | 8.9796568 | 0.0240704 | 1.4100500 | 0.0247765 |
| VAR                           |           |           |           |           |           |           |           |           |           |           |
| Bargaining Change in Policy   |           |           |           |           |           |           |           |           |           |           |
| Meur                          | -1.862910 | -0.055826 | 42.987862 | -8.734573 | -1.993172 | -6.928843 | -4.754029 | -2.562184 | -52.14675 | 485.44156 |
| Mus                           | -2.138492 | -0.243154 | -32.01481 | 8.8339807 | 3.3542987 | 4.7165158 | 4.7959179 | -2.640381 | -2.365450 | -238.2090 |
| Perceived Change in Targets   |           |           |           |           |           |           |           |           |           |           |
| Europe Y                      | -0.324355 | -0.005582 | 4.3213942 | -1.084366 | -0.482491 | 0.1252094 | -0.711010 | -0.380417 | 0.2365450 | 0.4511765 |
| CA                            | -2.162742 | -0.199113 | -11.11475 | 4.0051136 | 1.9177722 | 1.4587338 | 2.1707295 | -2.748941 | -17.41811 | -33.02429 |
| United States Y               | 0.0024802 | -0.014135 | 1.3816211 | 0.2346093 | 0.0431881 | 0.4176528 | 0.4038077 | 0.0153468 | 0.0769091 | -0.002704 |
| CA                            | 0.0516014 | -0.004022 | -3.721091 | 0.8285087 | 0.2306858 | 0.5859723 | 0.4505585 | 0.0803266 | 3.2325389 | -38.18529 |
| Perceived Gain for            |           |           |           |           |           |           |           |           |           |           |
| Europe                        | 0.2590217 | 0.0027431 | 74.850229 | 1.7057339 | 0.1982067 | 2.2425049 | 2.1373386 | 0.2356255 | 0.1188900 | 10.218448 |
| United States                 | 2.946526  | 0.0390751 | 153.49965 | 23.454959 | 5.76448   | 4.6380052 | 8.1407423 | 5.537395  | 431.34766 | 5495.1793 |

10-Nov-90

# The Cooperative Bargain

Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |
| OECD                          |           |           |           |           |           |           |           |           |           |           |
| Bargaining Change in Policy   |           |           |           |           |           |           |           |           |           |           |
| Meur                          | 0.3833641 | 0.0926259 | 13.630202 | 2.3427443 | 2.0804231 | 3.7950492 | 3.9888186 | 1.3775836 | -3321.886 | 22.851135 |
| Mus                           | -0.790938 | -0.514865 | -7.817278 | 2.1047229 | 2.1606874 | 2.9645339 | 3.0819571 | -1.620316 | 37.587448 | -11.06142 |
| Perceived Change in Targets   |           |           |           |           |           |           |           |           |           |           |
| Europe Y                      | 0.2821758 | 0.0092625 | 1.6035575 | 0.6264030 | 0.3620674 | 0.4862058 | 0.9518615 | 0.3565325 | -3.758744 | 0.0364138 |
| CA                            | -0.306791 | -0.203630 | -2.786156 | 0.9004577 | 0.9162855 | 1.2806898 | 1.3325033 | -0.613686 | -68.01217 | -3.853293 |
| United States Y               | 0.0105687 | 0.0203314 | 0.7108802 | 0.0156399 | 0.0019144 | -0.343041 | -0.225826 | 0.0604513 | 0.0230509 | 0.0255802 |
| CA                            | 0.0481088 | 0.0290098 | 0.6201518 | -0.078585 | -0.085446 | -0.103408 | -0.106865 | 0.1072614 | -50.85017 | 0.9299104 |
| Perceived Gain for            |           |           |           |           |           |           |           |           |           |           |
| Europe                        | 0.0542196 | 0.0058956 | 15.75489  | 0.3318308 | 0.1475803 | 1.5658695 | 1.6420874 | 0.1359816 | 13.153516 | 0.459916  |
| United States                 | 0.2175813 | 0.044847  | 7.341442  | 1.0552067 | 0.7995419 | 2.021176  | 1.791075  | 0.6420579 | 23760.487 | 10.44106  |
| LINK                          |           |           |           |           |           |           |           |           |           |           |
| MCM                           | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |           |
| LINK                          |           |           |           |           |           |           |           |           |           |           |
| Bargaining Change in Policy   |           |           |           |           |           |           |           |           |           |           |
| Meur                          | 0.3818372 | 0.1512526 | 29.475163 | 2.9214856 | 3.4463497 | 4.9732214 | 6.2207462 | 1.5717749 | 12269.593 | 70.575376 |
| Mus                           | -1.247226 | -1.277253 | -22.12143 | 4.1917808 | 5.2556090 | 6.3801102 | 7.4123464 | -2.924875 | -143.9902 | -34.52501 |
| Perceived Change in Targets   |           |           |           |           |           |           |           |           |           |           |
| Europe Y                      | 0.3614535 | 0.0151252 | 2.9460097 | 0.8986806 | 0.5578797 | 0.8866720 | 1.6147665 | 0.4605987 | 14.399029 | 0.076267  |
| CA                            | -0.302260 | -0.315532 | -4.793480 | 1.1209823 | 1.4000610 | 1.7193580 | 2.0086052 | -0.691924 | 270.74225 | -6.866870 |
| United States Y               | 0.0146615 | 0.0317159 | 0.9274432 | 0.0470221 | 0.0170846 | -0.500940 | -0.310753 | 0.0932938 | 0.0484707 | 0.0176871 |
| CA                            | 0.0559859 | 0.0519388 | 1.5038058 | -0.093554 | -0.122170 | -0.130546 | -0.141702 | 0.1465102 | 281.53747 | 2.8998966 |
| Perceived Gain for            |           |           |           |           |           |           |           |           |           |           |
| Europe                        | 0.079509  | 0.0148645 | 50.252779 | 0.6265444 | 0.3650187 | 3.2280699 | 3.9355416 | 0.2295420 | 212.55053 | 1.456139  |
| United States                 | 0.3504419 | 0.108723  | 23.864673 | 1.981188  | 1.8126067 | 4.265001  | 4.126839  | 1.0924085 | 591074.50 | 51.986863 |
| MSG                           |           |           |           |           |           |           |           |           |           |           |
| MCM                           | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |           |
| MSG                           |           |           |           |           |           |           |           |           |           |           |
| Bargaining Change in Policy   |           |           |           |           |           |           |           |           |           |           |
| Meur                          | 0.402122  | 0.4910211 | -0.056536 | 24.801882 | 0.9929109 | 107.39795 | 2.3479835 | -0.331821 | -14.06463 | -0.027082 |
| Mus                           | -1.760280 | -9.368243 | -0.180176 | -58.28967 | 1.5293801 | -258.3756 | 8.3354926 | -0.325042 | -3.048018 | -0.039870 |
| Perceived Change in Targets   |           |           |           |           |           |           |           |           |           |           |
| Europe Y                      | 0.4588448 | 0.0491021 | -0.027911 | 0.5886506 | 0.1603476 | -20.46767 | 0.8863713 | -0.050112 | 0.3048018 | -0.005341 |
| CA                            | -0.101861 | -0.665791 | -0.017753 | -2.511584 | 0.1891718 | -11.32333 | 0.8012607 | -0.049264 | -1.283449 | -0.005021 |
| United States Y               | 0.0194616 | 0.0852074 | -0.027801 | -1.249263 | 0.0050484 | -2.657128 | -0.029241 | 0.0016054 | 0.0831630 | -0.009005 |
| CA                            | 0.0015265 | -0.118690 | -0.007356 | 0.9338271 | 0.1018954 | 3.9440283 | 0.3197626 | -0.030945 | -1.132472 | -0.002748 |
| Perceived Gain for            |           |           |           |           |           |           |           |           |           |           |
| Europe                        | 0.1157902 | 0.1145481 | 0.0055471 | 15.184250 | 0.1153051 | 366.75944 | 0.7963226 | 0.1003901 | 0.2058093 | 0.000555  |
| United States                 | 0.0752405 | 0.474367  | 0.397582  | 20.045964 | 0.0594670 | 387.06484 | 1.3297667 | 0.0044852 | 9.3211932 | 0.0607895 |

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The Cooperative Bargain

Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |
| EEC                           |           |           |           |           |           |           |           |           |           |           |
| Bargaining Change in Policy   |           |           |           |           |           |           |           |           |           |           |
| Meur                          | 0.3958215 | 0.126715  | 24.569974 | 2.2786881 | 2.7582576 | 4.0771368 | 4.8897349 | 1.8565347 | -458.0515 | 61.009363 |
| Mus                           | -1.122991 | -0.919668 | -16.82772 | 3.0354019 | 3.7755119 | 4.4477977 | 5.0459889 | -2.859091 | 4.7700348 | -29.77901 |
| Perceived Change in Targets   |           |           |           |           |           |           |           |           |           |           |
| Europe Y                      | 0.3449566 | 0.0126715 | 2.616973  | 0.6833927 | 0.4572637 | 0.6486366 | 1.2302464 | 0.5142614 | -0.477003 | 0.0725667 |
| CA                            | -0.270852 | -0.226749 | -3.592681 | 0.8158176 | 1.0128344 | 1.2138778 | 1.3837406 | -0.668359 | -10.25878 | -5.919519 |
| United States Y               | 0.0136693 | 0.0270819 | 0.9615798 | 0.0325656 | 0.0100981 | -0.394555 | -0.256671 | 0.0967335 | 0.0138715 | 0.0265332 |
| CA                            | 0.0250428 | 0.0180999 | 0.6026527 | -0.026837 | -0.034308 | -0.030319 | -0.031173 | 0.0741133 | -5.674090 | 1.2803365 |
| Perceived Gain for            |           |           |           |           |           |           |           |           |           |           |
| Europe                        | 0.0746181 | 0.0106179 | 36.594778 | 0.3729328 | 0.2478308 | 2.0664723 | 2.5110092 | 0.2800090 | 0.1728227 | 1.253567  |
| United States                 | 0.208588  | 0.050396  | 10.39723  | 0.9445116 | 0.8982508 | 1.868368  | 1.834261  | 0.7928401 | 480.73026 | 23.158953 |
| MINIMOD                       |           |           |           |           |           |           |           |           |           |           |
| Bargaining Change in Policy   |           |           |           |           |           |           |           |           |           |           |
| Meur                          | -1.951340 | -0.053158 | -2.250554 | -0.682685 | -0.647930 | -1.925386 | -1.411077 | -5.857470 | -25.58774 | -0.028358 |
| Mus                           | -1.86414  | -0.206921 | -1.570905 | 0.5595236 | 0.5353642 | 0.6937062 | 0.6628381 | -3.774690 | -6.586405 | -0.038858 |
| Perceived Change in Targets   |           |           |           |           |           |           |           |           |           |           |
| Europe Y                      | -0.405528 | -0.005315 | -0.550937 | -0.094572 | -0.142970 | -0.026898 | -0.249073 | -0.982759 | 0.6586405 | -0.005303 |
| CA                            | -0.319684 | -0.047743 | -0.223934 | 0.1910823 | 0.1824358 | 0.3178305 | 0.2715403 | -0.504362 | 0.2724792 | -0.007587 |
| United States Y               | -0.000784 | -0.013376 | -0.451904 | 0.0160376 | 0.0094325 | 0.1287658 | 0.1077623 | -0.016026 | 0.1782642 | -0.008939 |
| CA                            | -0.016001 | -0.003230 | -0.008089 | 0.0160913 | 0.0153496 | 0.0295532 | 0.0244233 | -0.015435 | 0.1098342 | -0.000443 |
| Perceived Gain for            |           |           |           |           |           |           |           |           |           |           |
| Europe                        | 0.1872296 | 0.0022155 | 1.867722  | 0.0178705 | 0.0251736 | 0.4446388 | 0.328543  | 0.7689271 | 0.455261  | 0.000554  |
| United States                 | 0.0926504 | 0.0025807 | 0.1332574 | 0.0292527 | 0.0305591 | 0.0711981 | 0.058019  | 0.3461594 | 1.3333327 | 0.0022468 |
| EPA                           |           |           |           |           |           |           |           |           |           |           |
| Bargaining Change in Policy   |           |           |           |           |           |           |           |           |           |           |
| Meur                          | 0.2932852 | 0.0381271 | 3.2933967 | 1.0603901 | 0.8506635 | 1.9060234 | 1.7271933 | 1.0553375 | 5655.6253 | 1.660517  |
| Mus                           | -0.241630 | -0.094164 | -0.909120 | 0.4791180 | 0.4465208 | 0.6489580 | 0.6310276 | -0.476401 | -35.87868 | -0.704788 |
| Perceived Change in Targets   |           |           |           |           |           |           |           |           |           |           |
| Europe Y                      | 0.1522672 | 0.0038127 | 0.4854324 | 0.2480118 | 0.1589696 | 0.1601969 | 0.3769900 | 0.2348875 | 3.5878682 | 0.012547  |
| CA                            | -0.072489 | -0.028249 | -0.272736 | 0.1437354 | 0.1339562 | 0.1946874 | 0.1893083 | -0.142920 | -10.76360 | -0.211436 |
| United States Y               | 0.0048142 | 0.0087693 | 0.2862967 | -0.001236 | -0.002843 | -0.154986 | -0.108970 | 0.0290240 | -0.767429 | 0.018631  |
| CA                            | 0.0026406 | 0.0009833 | 0.0112490 | -0.004250 | -0.004044 | -0.005475 | -0.005400 | 0.0054925 | 3.7593377 | 0.0081851 |
| Perceived Gain for            |           |           |           |           |           |           |           |           |           |           |
| Europe                        | 0.0191146 | 0.001065  | 1.630955  | 0.0556523 | 0.0266416 | 0.3203733 | 0.3020258 | 0.0599366 | 28.087999 | 0.025185  |
| United States                 | 0.006877  | 0.000786  | 0.063466  | 0.023235  | 0.017237  | 0.041409  | 0.035846  | 0.023124  | 166.97695 | 0.024948  |

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# The Cooperative Bargain

Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

| =====                         |           |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |           |
| -----                         |           |           |           |           |           |           |           |           |           |           |           |
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |           |
| -----                         |           |           |           |           |           |           |           |           |           |           |           |
| WHARTON                       |           |           |           |           |           |           |           |           |           |           |           |
| Bargaining Change in Policy   |           |           |           |           |           |           |           |           |           |           |           |
| Meur                          | 0.3648445 | 0.2051348 | 34.440149 | 3.08765   | 5.1368793 | 6.0859379 | 8.9594622 | 1.752512  | 346.82865 | 68.697829 |           |
| Mus                           | -1.503403 | -2.223663 | -28.66624 | 6.2863673 | 10.283026 | 10.853969 | 14.532973 | -4.042429 | -7.086741 | -33.66073 |           |
| Perceived Change in Targets   |           |           |           |           |           |           |           |           |           |           |           |
| Europe                        | Y         | 0.3999123 | 0.0205134 | 3.1604014 | 1.0890075 | 0.7703002 | 1.3896938 | 2.5185410 | 0.5526238 | 0.7086741 | 0.0688183 |
|                               | CA        | -0.263095 | -0.389141 | -5.016593 | 1.1001142 | 1.7995295 | 1.8994446 | 2.5432702 | -0.707425 | -1.240179 | -5.890627 |
| United States                 | Y         | 0.0168142 | 0.0413436 | 0.7541814 | 0.082291  | 0.0457951 | -0.675776 | -0.386232 | 0.1216773 | 0.079498  | 0.0080357 |
|                               | CA        | 0.0614376 | 0.0801675 | 2.0509375 | -0.109273 | -0.175988 | -0.164516 | -0.194338 | 0.1898847 | 11.333088 | 3.3125007 |
| Perceived Gain for            |           |           |           |           |           |           |           |           |           |           |           |
| Europe                        |           | 0.0922392 | 0.0263467 | 68.823363 | 0.8381994 | 0.6900857 | 5.5546519 | 7.6469958 | 0.3410288 | 0.8577332 | 1.419572  |
| United States                 |           | 0.419771  | 0.173889  | 30.612416 | 2.7029299 | 3.1339869 | 6.814334  | 7.383234  | 1.4126328 | 656.35136 | 54.293649 |

Table 4

True Gains to Coordination for the United States

Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

(Total gains for U.S.: 602/1,000)

| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |
| MCM                           |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.0034962 | 0.0003702 | 0.0282708 | 0.0120921 | 0.0081441 | 0.0205872 | 0.0172273 | 0.0108431 | 87.329821 | 0.0082054 |
| LIVPL                         | -0.896508 | 0.3563037 | 76.546177 | -10.26191 | -8.513636 | 7.3710031 | -3.553687 | -7.997737 | 4376397.1 | 32.886762 |
| VAR                           | -0.507365 | -0.285229 | 24.831745 | -12.00920 | -10.03108 | 2.5858914 | -6.659273 | -4.795336 | 2851100.7 | 4.6424687 |
| OECD                          | 0.5262204 | 0.1299966 | 3.4007290 | -0.039512 | -0.153783 | 0.6154662 | 0.2991203 | 1.2234381 | 54330.846 | 1.4222956 |
| LINK                          | 0.4288211 | 0.0921487 | 5.1721604 | 0.6996869 | 0.4330601 | 1.8363004 | 1.3458774 | 1.1026988 | 104189.86 | 2.1375118 |
| MSG                           | 0.3311365 | 0.0588929 | 26.061399 | 1.2369541 | 0.6638094 | 8.3082492 | 4.6910215 | 0.2825264 | 1126326.7 | 10.258768 |
| EEC                           | 0.1868592 | 0.0099244 | 1.9563888 | 0.5588970 | 0.3744070 | 1.3290304 | 1.0069393 | 0.5866824 | 42929.876 | 0.5624662 |
| MINIMOD                       | -0.556942 | -0.057626 | 2.3947122 | -0.058054 | 0.0809270 | -0.222997 | -0.209352 | -1.616641 | 148792.91 | 1.6365014 |
| EPA                           | -0.042525 | -0.017371 | -0.096452 | 0.1288851 | 0.1069280 | 0.1813333 | 0.1668081 | -0.067651 | 170.33814 | -0.086486 |
| WHARTON                       | 0.4320618 | 0.1126708 | 7.9735897 | 1.0916251 | 0.7367798 | 2.5677649 | 1.9356831 | 1.0874719 | 175953.69 | 3.5369519 |
| LIVPL                         |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | -22.73596 | -78.18256 | -1772.705 | 1296.1401 | 148.65084 | 118.79350 | 124.21674 | 6.8781753 | -62.60829 | -0.762892 |
| LIVPL                         | 1.2828226 | 1.6497029 | 7572.8398 | 202.14657 | 2.8258856 | 9.5143602 | 8.9796567 | 0.0240704 | 1.4100500 | 0.0247765 |
| VAR                           | -84.09857 | -341.1329 | -10355.48 | 3337.5044 | 450.69592 | 538.95536 | 563.88094 | 32.617014 | -156.9798 | -3.245025 |
| OECD                          | -24.68560 | -83.86005 | -1398.994 | 1395.8901 | 162.51830 | 136.76608 | 143.21782 | 8.2790136 | -65.69835 | -0.898724 |
| LINK                          | -9.485040 | -32.24516 | -45.11892 | 539.03861 | 62.513024 | 58.845890 | 61.759826 | 3.5951192 | -23.65205 | -0.378011 |
| MSG                           | -1.658124 | -12.85775 | 2090.6867 | -1.326412 | 0.5795170 | 42.662584 | 45.016237 | 2.3628971 | 8.1712340 | -0.178059 |
| EEC                           | -10.07635 | -36.50158 | -722.2792 | 517.62737 | 62.007621 | 61.050304 | 64.001999 | 3.6230513 | -23.69966 | -0.378396 |
| MINIMOD                       | -13.37992 | -42.33556 | -422.1316 | 940.21940 | 97.041754 | 54.207256 | 56.332550 | 2.6145043 | -46.43989 | -0.341999 |
| EPA                           | -14.94287 | -51.85367 | -1225.146 | 844.21471 | 96.877873 | 78.418477 | 81.997378 | 4.5001356 | -40.78871 | -0.497941 |
| WHARTON                       | -4.335463 | -12.90520 | 874.84478 | 310.70105 | 32.694411 | 30.316202 | 31.913075 | 1.8402841 | -11.94001 | -0.193440 |
| VAR                           |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | -5.507884 | 0.3583288 | 351.61325 | 20.151895 | 9.6976119 | -11.20721 | -0.102776 | -10.78083 | -44.42293 | 3949.9430 |
| LIVPL                         | 21.231973 | 0.6425325 | 1778.1949 | 19.719228 | -2.689889 | -69.70229 | -22.78762 | 39.899899 | 2363.8162 | 36633.687 |
| VAR                           | 2.9465262 | 0.0390751 | 153.49965 | 23.454958 | 5.7644796 | 4.6380051 | 8.1407423 | 5.5373955 | 431.34766 | 5495.1793 |
| OECD                          | -3.429547 | 0.8948280 | 514.36857 | -3.415596 | 2.2499244 | -29.27694 | -14.66679 | -9.099268 | -92.60750 | 5542.0974 |
| LINK                          | -2.836204 | 0.3389682 | 304.68770 | -8.948365 | -0.844624 | -20.73471 | -11.21889 | -5.532449 | -34.26130 | 3705.8090 |
| MSG                           | -6.376348 | -0.685965 | 470.73931 | -8.420675 | -0.982933 | -29.76465 | -11.43320 | -5.075147 | 378.84329 | 9658.8252 |
| EEC                           | -3.834594 | 0.0546802 | 151.71416 | 1.0476232 | 2.2514592 | -8.911544 | -3.292005 | -6.430090 | -65.83418 | 1698.5939 |
| MINIMOD                       | -5.181605 | -0.050000 | 374.80204 | 43.072750 | 16.065287 | -1.626795 | 10.705219 | -8.311977 | 216.83584 | 5833.6061 |
| EPA                           | -4.294831 | 0.1387358 | 212.1584  | 15.687734 | 7.2844533 | -5.581670 | 1.5276583 | -7.828807 | -30.29372 | 2426.4131 |
| WHARTON                       | -2.741043 | 0.2489926 | 352.60306 | -10.31066 | -1.482506 | -23.63941 | -12.41306 | -4.645346 | 41.768356 | 4865.2372 |

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True Gains to Coordination for the United States  
Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |
| OECD                          |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | -1.580734 | -0.871844 | -16.43012 | 3.5823856 | 3.6637161 | 3.7091505 | 4.2301531 | -3.600846 | 928.82805 | -26.93631 |
| LIVPL                         | 2.2092719 | 2.1545414 | 418.31194 | -37.52332 | -35.79932 | 9.0371214 | -20.29453 | -4.649047 | 2464241.5 | 792.18933 |
| VAR                           | -0.775159 | -6.221548 | -67.93056 | -33.45134 | -32.67670 | 32.711530 | -4.291349 | 0.2474299 | 1493989.4 | -18.36863 |
| OECD                          | 0.2175813 | 0.0448469 | 7.3414425 | 1.0552066 | 0.7995418 | 2.0211758 | 1.7910751 | 0.6420579 | 23760.487 | 10.441059 |
| LINK                          | 0.4756657 | 0.2074937 | 26.891363 | 2.2038044 | 1.8854617 | 4.4132150 | 4.1991002 | 1.3581698 | 51772.782 | 45.543438 |
| MSG                           | 0.2143751 | -0.426201 | 132.44761 | 3.7270523 | 3.3001431 | 23.875499 | 16.969970 | 0.5496537 | 610557.17 | 250.83493 |
| EEC                           | -0.347918 | -0.445274 | 0.6137771 | 2.9276134 | 2.7456452 | 5.5679946 | 5.2392930 | -0.233760 | 17023.833 | 3.1266043 |
| MINIMOD                       | -2.985709 | -0.925271 | 10.044002 | 4.6601057 | 5.2008287 | 2.5931288 | 4.0913199 | -8.224057 | 102866.48 | 20.465476 |
| EPA                           | -1.273006 | -0.733395 | -12.86281 | 3.0749039 | 3.1398259 | 3.4995227 | 3.8749021 | -2.822352 | 525.33141 | -20.44835 |
| WHARTON                       | 0.5931672 | 0.5155599 | 51.310958 | 2.9964865 | 2.6615593 | 5.0123014 | 5.1667181 | 1.2916748 | 95552.754 | 86.917707 |
| LINK                          |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | -2.758654 | -2.737994 | -109.2354 | 6.2091503 | 6.9854682 | 6.8674754 | 7.1788478 | -7.251625 | 1039.2067 | -230.4794 |
| LIVPL                         | 4.7603590 | 4.6497141 | 800.93982 | -58.23863 | -72.57974 | 0.4273726 | -48.94311 | 1.8995709 | 25444608. | 1803.9333 |
| VAR                           | -1.210912 | -17.84514 | -479.2401 | -58.51149 | -78.05530 | 56.250017 | -22.15156 | 5.3670012 | 16299060. | -270.7370 |
| OECD                          | -0.173363 | -0.681662 | -65.63783 | -0.436668 | -1.784199 | -0.121037 | -2.523071 | -0.471761 | 299443.49 | -140.5432 |
| LINK                          | 0.3504419 | 0.1087227 | 23.864673 | 1.9811879 | 1.8126067 | 4.2650006 | 4.1268391 | 1.0924085 | 591074.50 | 51.986863 |
| MSG                           | -0.159743 | -1.505415 | 250.03148 | 5.1230991 | 5.7031581 | 34.678536 | 28.227519 | 0.2244161 | 6498451.3 | 632.57553 |
| EEC                           | -0.841982 | -1.430920 | -32.86527 | 4.0972388 | 4.5505873 | 8.6470084 | 8.3697571 | -1.421498 | 233227.41 | -44.09629 |
| MINIMOD                       | -4.580390 | -2.517898 | -26.01830 | 11.081614 | 13.996446 | 7.3131433 | 11.91343  | -14.02864 | 908522.82 | -110.7732 |
| EPA                           | -2.181302 | -2.185455 | -76.33894 | 5.4949693 | 6.3779036 | 6.7464376 | 7.3397692 | -5.593121 | 1017.9147 | -156.4986 |
| WHARTON                       | 0.5532809 | 0.9719637 | 90.856555 | 3.5444062 | 4.0041540 | 4.5501520 | 6.2954242 | 1.0292046 | 1017439.1 | 171.58689 |
| MSG                           |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 10.410512 | 303.47266 | -18.39804 | 817.04036 | -8.657899 | 13450.614 | -175.4980 | 0.7502976 | -55.75732 | -1.218171 |
| LIVPL                         | 11.255596 | 130.72546 | 1.1576021 | 399.6098  | -27.64497 | 5365.5203 | -123.2229 | 7.5490115 | 285.57578 | 0.8326036 |
| VAR                           | 59.662918 | 1120.6256 | -60.52858 | 2998.0302 | -77.60802 | 39496.433 | -820.7420 | 13.965396 | -234.9229 | -3.615284 |
| OECD                          | 17.646257 | 398.78784 | -22.42669 | 1166.7376 | -14.19210 | 17175.081 | -238.4430 | 1.5760563 | -77.41781 | -1.438789 |
| LINK                          | 7.5091522 | 162.86237 | -9.037451 | 500.44743 | -4.922293 | 7200.1410 | -94.11343 | 0.3813197 | -36.83207 | -0.587178 |
| MSG                           | 0.0752405 | 0.4743669 | 0.3975812 | 20.045964 | 0.0594670 | 387.06484 | 1.3297667 | 0.0044852 | 9.3211932 | 0.0607895 |
| EEC                           | 5.2628627 | 134.31187 | -8.118702 | 377.73206 | -3.788177 | 5800.4482 | -78.96877 | 0.2398095 | -39.76904 | -0.555676 |
| MINIMOD                       | -0.409257 | 130.91262 | -9.242738 | 271.11384 | 0.3415108 | 7135.6942 | -58.12582 | -0.427828 | 17.342301 | -0.606408 |
| EPA                           | 5.9743216 | 188.80170 | -11.71330 | 497.10450 | -4.913250 | 8425.6616 | -108.0860 | 0.3513071 | -36.74432 | -0.786098 |
| WHARTON                       | 4.1324797 | 92.803568 | -4.945915 | 311.02965 | -1.317753 | 4598.2823 | -46.47681 | -0.145372 | -13.94763 | -0.314467 |

10-Nov-90

True Gains to Coordination for the United States  
Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| EEC                           |           |           |           |           |           |           |           |           |           |           |
| MCM                           | -0.442205 | 0.4138675 | 1.7969259 | -0.161202 | -0.341257 | -5.304863 | -4.197826 | -2.664279 | 91.232886 | -30.10235 |
| LIVPL                         | 4.2990584 | 4.1596446 | 787.16617 | -44.03840 | -58.57172 | 3.4679379 | -39.22586 | -1.982316 | 122214.48 | 2300.3572 |
| VAR                           | 6.8638687 | -3.842484 | -185.2086 | -63.42157 | -86.67423 | -4.253266 | -65.36356 | 17.686750 | 68656.025 | -4.890927 |
| OECD                          | 2.4464158 | 2.5009286 | 54.089253 | -6.056782 | -7.934027 | -12.26590 | -12.81444 | 5.2701603 | 829.90420 | 77.295990 |
| LINK                          | 1.3982496 | 1.3055506 | 67.635266 | -0.698962 | -1.117237 | -1.141803 | -0.942016 | 3.6066757 | 2207.7997 | 147.17888 |
| MSG                           | -0.002989 | -0.896543 | 234.92205 | 3.9389252 | 3.5459137 | 27.406321 | 20.171594 | 0.2677726 | 29059.355 | 709.49864 |
| EEC                           | 0.2085880 | 0.0503958 | 10.397229 | 0.9445116 | 0.8982507 | 1.8683678 | 1.8342605 | 0.7928400 | 480.73026 | 23.158953 |
| MINIMOD                       | -3.308347 | -0.698098 | 50.629096 | 6.0144058 | 7.9049872 | 1.0294576 | 4.6552106 | -12.02733 | 6054.2020 | 105.53571 |
| EPA                           | -0.670117 | -0.063002 | -4.283019 | 1.0342967 | 1.1952374 | -1.671747 | -0.739607 | -2.658446 | 48.149725 | -28.21983 |
| WHARTON                       | 1.0845064 | 1.3842120 | 112.66474 | 1.6875843 | 2.0162748 | 2.0743779 | 3.3792922 | 2.5637885 | 4538.7933 | 260.72448 |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MINIMOD                       |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 11.283418 | 0.4106110 | -6.648606 | -3.056128 | -3.530145 | -1.428566 | -2.687637 | 25.979037 | -116.7584 | -0.163385 |
| LIVPL                         | 42.021312 | 0.5547352 | -77.91107 | 1.2332893 | 3.5895058 | -15.64585 | -1.238093 | 137.37280 | -2487.930 | -1.061830 |
| VAR                           | 110.13866 | 0.4991509 | -134.4118 | -6.688621 | -8.782871 | 2.358388  | 1.6576022 | 312.30801 | -3180.981 | -2.715609 |
| OECD                          | 17.801518 | 0.8898146 | -9.186510 | -5.553514 | -6.076605 | -4.819581 | -5.813013 | 39.829997 | -209.5212 | -0.190023 |
| LINK                          | 5.5516388 | 0.3334839 | -6.536897 | -2.905182 | -3.016266 | -4.274704 | -3.854122 | 11.362467 | -140.1479 | -0.105426 |
| MSG                           | -0.589543 | -0.604738 | -33.15089 | -0.701919 | -0.059617 | -9.049362 | -3.623167 | 5.8337181 | -765.3980 | -0.497113 |
| EEC                           | 4.5644785 | 0.0907042 | -7.152745 | -1.793253 | -2.001480 | -1.928898 | -2.056452 | 10.531751 | -124.0062 | -0.144388 |
| MINIMOD                       | 0.0926504 | 0.0025807 | 0.1332573 | 0.0292527 | 0.0305591 | 0.0711980 | 0.0580189 | 0.3461594 | 1.3333327 | 0.0022467 |
| EPA                           | 6.4332000 | 0.1848317 | -4.828197 | -1.752150 | -2.060088 | -0.704038 | -1.499644 | 14.964251 | -76.96963 | -0.118067 |
| WHARTON                       | 0.5870381 | 0.2268960 | -4.655159 | -2.329137 | -2.202440 | -5.280781 | -3.953196 | -1.053646 | -110.9545 | -0.039642 |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| EPA                           |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.1354006 | 0.0528301 | 0.4861719 | -0.273717 | -0.256676 | -0.374271 | -0.365521 | 0.2634351 | 25.587099 | 0.3738250 |
| LIVPL                         | -0.723541 | 0.5832731 | 113.60898 | -13.43711 | -12.79873 | 8.6391438 | -6.224051 | -10.14473 | 4879938.8 | 68.579540 |
| VAR                           | 0.4182077 | -0.358248 | 28.090465 | -18.14090 | -17.27830 | 1.3034794 | -12.68491 | -4.279060 | 3184998.4 | 6.6194714 |
| OECD                          | 0.9653490 | 0.2914116 | 5.7963988 | -0.770173 | -0.852878 | -0.113554 | -0.499121 | 2.2477742 | 61637.616 | 3.3931137 |
| LINK                          | 0.6563477 | 0.1760406 | 8.0804395 | 0.5569730 | 0.3295339 | 1.9668909 | 1.4223672 | 1.7288739 | 117563.00 | 4.6411611 |
| MSG                           | 0.3338871 | 0.0396180 | 37.868298 | 1.5400688 | 0.8456527 | 10.851344 | 6.2653840 | 0.2459999 | 1260038.8 | 21.008246 |
| EEC                           | 0.2905045 | 0.0301574 | 2.8206794 | 0.5056111 | 0.3462929 | 1.5261785 | 1.1384588 | 0.9134832 | 48893.824 | 1.1904451 |
| MINIMOD                       | -0.777533 | -0.074192 | 4.5396865 | 0.2570164 | 0.3865507 | -0.134920 | -0.016191 | -2.378320 | 164103.75 | 3.9986881 |
| EPA                           | 0.0068772 | 0.0007860 | 0.0634658 | 0.0232352 | 0.0172372 | 0.0414088 | 0.0358461 | 0.0231239 | 166.97695 | 0.0249479 |
| WHARTON                       | 0.5998240 | 0.1955983 | 12.525472 | 1.2104078 | 0.9056028 | 3.0398775 | 2.3920728 | 1.5799978 | 197614.18 | 7.6409478 |

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True Gains to Coordination for the United States  
Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

| =====                         |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |
| -----                         |           |           |           |           |           |           |           |           |           |           |
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |
| -----                         |           |           |           |           |           |           |           |           |           |           |
| WHARTON                       |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | -3.777410 | -9.971370 | -325.5435 | 5.3699038 | 2.2893812 | 25.700057 | 14.999515 | -8.098214 | -119.4105 | -394.2232 |
| LIVPL                         | 6.1824113 | 6.1327551 | 725.89818 | -75.50520 | -133.0771 | -12.14720 | -94.72807 | 7.5270937 | 11213.333 | 1014.7287 |
| VAR                           | -2.919896 | -51.13163 | -1026.281 | -94.69724 | -198.1864 | 143.64871 | -37.74915 | 18.142246 | 13481.559 | -492.8441 |
| OECD                          | -0.856530 | -7.741084 | -310.3362 | -6.616479 | -19.25607 | 15.059794 | -6.701699 | 1.4299856 | 466.74301 | -336.4798 |
| LINK                          | 0.0811874 | -2.518013 | -73.34592 | -0.439227 | -4.021500 | 10.762473 | 4.2724754 | 2.0171556 | 648.85301 | -52.02342 |
| MSG                           | -0.424323 | -3.157359 | 247.64515 | 5.9672125 | 7.5680485 | 46.479313 | 43.532888 | -0.071251 | 4283.8598 | 453.12799 |
| EEC                           | -1.296262 | -4.874296 | -119.4189 | 3.3840771 | 2.3077506 | 18.944829 | 14.109897 | -1.408188 | 500.74909 | -104.4670 |
| MINIMOD                       | -5.604280 | -6.771106 | -177.3505 | 16.562154 | 25.251092 | 20.091299 | 26.853637 | -17.98977 | -770.2424 | -309.7482 |
| EPA                           | -2.917953 | -7.101337 | -215.4813 | 5.7131229 | 5.2350133 | 20.292881 | 14.895855 | -6.522314 | -69.16178 | -259.8646 |
| WHARTON                       | 0.4197710 | 0.1738892 | 30.612415 | 2.7029298 | 3.1339869 | 6.8143342 | 7.3832345 | 1.4126328 | 656.35136 | 54.293649 |

Table 4, continued

10-Nov-90

True Gains to Coordination for the Non-U.S. OECD

Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

(Total gains for Non-U.S. OECD: 619/1,000)

| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |
| MCM                           |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.0114841 | 0.5815082 | 82.678552 | -1.143682 | -1.332745 | 14.030938 | 5.5724754 | -3.726096 | 3500476.1 | 37.881209 |
| LIVPL                         | -14.28725 | 0.0005778 | 273.56669 | -59.67797 | -46.13210 | -2.909908 | -42.62290 | -64.14133 | 18714697. | 124.54010 |
| VAR                           | -5.329032 | 0.8617573 | 0.8241220 | -63.67970 | -49.08898 | -67.99096 | -74.27946 | -31.27587 | 5214524.2 | 5.4154533 |
| OECD                          | 0.0379519 | 0.0288598 | 21.070654 | 0.0360648 | -0.177982 | 5.7009425 | 2.6611417 | -0.632743 | 1016435.6 | 8.391711  |
| LINK                          | 0.1649752 | 0.1305473 | 23.860891 | 0.2682802 | 0.0147446 | 5.4849926 | 2.7013874 | -0.429260 | 1010310.8 | 10.307904 |
| MSG                           | -1.281379 | -0.053275 | 24.958509 | -6.153542 | -4.832233 | 0.1889845 | -4.122619 | -5.893892 | 1854970.4 | 10.556795 |
| EEC                           | -1.071947 | 0.0789567 | 46.416617 | -3.905111 | -3.201975 | 6.2969722 | 0.1704328 | -5.649047 | 2535474.4 | 20.367435 |
| MINIMOD                       | 0.3933786 | 0.2255793 | 28.132332 | 0.5461559 | 0.1883244 | 6.1378256 | 3.1914927 | 0.0316076 | 1091727.1 | 12.496576 |
| EPA                           | 0.3475420 | 0.1256477 | 1.1228504 | -0.704173 | -0.608977 | -0.928051 | -0.876457 | 0.6399106 | 17.388101 | 0.7477739 |
| WHARTON                       | 1.2981995 | 1.4590603 | -4.753156 | -39.76017 | -31.52612 | -43.46680 | -46.42336 | -7.232761 | 2225537.1 | 0.0102251 |
| LIVPL                         |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.0769843 | 19.627165 | 11266.834 | 948.69623 | 54.398769 | -3.366164 | -4.068210 | -1.442365 | -29.20090 | 0.0709137 |
| LIVPL                         | -5.931357 | 0.0794102 | 27203.759 | 3119.4457 | 171.97685 | -178.6296 | -197.4537 | -18.91636 | -148.2072 | 1.4508332 |
| VAR                           | 29.539284 | 130.05736 | 937.97330 | -1063.660 | -124.4578 | -368.8681 | -392.7646 | -18.91883 | 6.1899407 | 1.6512417 |
| OECD                          | -2.053650 | -12.62094 | 1578.2262 | 59.321745 | 6.2117584 | 32.988206 | 34.653021 | 1.7452005 | 2.7147210 | -0.138043 |
| LINK                          | 0.7363092 | 3.2972084 | 2828.3792 | 84.510280 | 0.8747612 | 8.7128314 | 9.1833679 | 0.2803324 | 1.8560117 | -0.013989 |
| MSG                           | -2.858846 | -14.66254 | 1518.3097 | 213.53159 | 17.230779 | 9.5016226 | 9.095749  | -0.031994 | -9.684708 | -0.005373 |
| EEC                           | -2.197682 | -6.999698 | 4715.9256 | 442.35168 | 27.463027 | 10.604850 | 10.348684 | -0.418091 | -14.78010 | 0.0209558 |
| MINIMOD                       | 1.2008436 | 8.4205808 | 3764.5267 | 158.94532 | 5.0896217 | 4.8528772 | 5.1797814 | 0.0964909 | -0.510857 | -0.005848 |
| EPA                           | 0.8296153 | 5.9557151 | 512.51374 | 0.6886130 | -0.077824 | -5.501288 | -5.715884 | -0.026748 | 0.2710765 | -0.002246 |
| WHARTON                       | 6.7941881 | 43.712851 | -265.4737 | -457.6400 | -11.53013 | -102.8114 | -109.8794 | -0.731757 | 1.9441203 | 0.0005624 |
| VAR                           |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.2590216 | 0.7308678 | 2747.3107 | 28.217774 | 10.316162 | -124.1690 | -41.81137 | 6.0932906 | 2154.0793 | 48071.993 |
| LIVPL                         | 99.170319 | 0.0027430 | 7137.7025 | 569.42963 | 133.44928 | -50.38300 | 130.99647 | 188.07510 | 12548.212 | 160530.21 |
| VAR                           | 188.04391 | 11.409754 | 74.850228 | 1.6080093 | -67.37741 | 79.407311 | -1.348420 | 262.54836 | 4297.8637 | 10616.597 |
| OECD                          | -3.334227 | -0.507910 | 388.91723 | 1.7057339 | 1.1281022 | -19.79689 | -5.523211 | -1.352578 | 405.13100 | 8310.9845 |
| LINK                          | -1.807156 | -0.109856 | 629.77270 | -1.431496 | 0.1982067 | -32.72959 | -12.43457 | -0.043974 | 503.34542 | 11581.107 |
| MSG                           | 9.5297454 | -0.215323 | 463.51384 | 45.566243 | 9.4678524 | 2.2425049 | 13.556592 | 18.730681 | 1087.5200 | 12238.658 |
| EEC                           | 2.7776035 | -0.418838 | 1195.6080 | 52.530669 | 14.541298 | -34.10185 | 2.1373386 | 10.748871 | 1497.6149 | 24612.243 |
| MINIMOD                       | -1.174871 | 0.2072657 | 854.94059 | -8.936207 | -1.862555 | -47.21589 | -20.82679 | 0.2356255 | 571.56500 | 14685.372 |
| EPA                           | 4.5724717 | 0.6461629 | 123.34485 | -19.01552 | -6.970995 | -12.94789 | -11.74772 | 5.1278439 | 0.1188900 | 1082.1231 |
| WHARTON                       | 137.49551 | 11.593969 | 289.43655 | -223.7973 | -114.4958 | -57.15591 | -113.0014 | 179.14203 | 1372.2068 | 10.218447 |

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True Gains to Coordination for the Non-U.S. OECD  
Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |
| OECD                          |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.0542196 | 3.4988503 | 523.45037 | -4.532635 | -3.824627 | 21.602539 | 9.7014259 | -9.503715 | 2007623.0 | 935.67667 |
| LIVPL                         | -20.45913 | 0.0058956 | 1479.2243 | -170.9280 | -153.9670 | -25.17540 | -138.4809 | -106.4351 | 10804068. | 2886.7213 |
| VAR                           | 19.441099 | 14.442906 | 15.754889 | -238.6353 | -228.4727 | -244.42   | -308.9573 | 11.712533 | 3069330.8 | 87.617636 |
| OECD                          | -0.163699 | -0.428346 | 104.94511 | 0.3318308 | 0.2486663 | 16.729949 | 10.234790 | -0.947829 | 557615.79 | 201.70990 |
| LINK                          | 0.3270246 | 0.5663997 | 140.47421 | 0.2170625 | 0.1475803 | 12.078060 | 7.4555339 | -0.853809 | 565797.84 | 255.65711 |
| MSG                           | -1.514538 | -0.615470 | 115.30830 | -18.24873 | -16.78178 | 1.5658695 | -12.08702 | -8.025585 | 1053049.9 | 238.10259 |
| EEC                           | -2.178971 | -0.052640 | 255.93978 | -10.13809 | -8.864633 | 15.29134  | 1.6420873 | -10.99233 | 1443826.1 | 484.90824 |
| MINIMOD                       | 1.0003210 | 1.3143307 | 176.14011 | 0.1458167 | -0.032727 | 10.872638 | 6.8031349 | 0.1359816 | 615073.72 | 313.42242 |
| EPA                           | 1.7364369 | 1.1491931 | 16.724636 | -4.758450 | -4.882267 | -6.858696 | -7.094042 | 3.5065526 | 13.153516 | 23.104122 |
| WHARTON                       | 28.452135 | 16.071394 | 6.4809790 | -170.4595 | -167.3837 | -179.3601 | -220.7843 | 49.574935 | 1256007.3 | 0.4599158 |
| LINK                          |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.0795089 | 7.7120288 | 1036.6518 | -3.657973 | -4.078344 | 16.658163 | 9.3920796 | -13.33668 | 20449698. | 1985.0359 |
| LIVPL                         | -19.87371 | 0.0148644 | 2730.7525 | -216.5924 | -260.3724 | -40.88396 | -227.9668 | -120.2476 | 109393490 | 5704.2976 |
| VAR                           | 41.195890 | 37.802632 | 50.252778 | -384.1078 | -474.6215 | -418.3398 | -609.0784 | 71.222543 | 30560765  | -13.38283 |
| OECD                          | -0.450732 | -1.387604 | 193.29457 | 0.6265444 | 0.3737175 | 24.625244 | 17.143792 | -1.336986 | 5878113.1 | 490.94767 |
| LINK                          | 0.3280713 | 1.0967441 | 278.46831 | 0.4186052 | 0.3650187 | 14.597123 | 10.824023 | -1.203435 | 5870976.1 | 591.23245 |
| MSG                           | -1.282717 | -1.603756 | 196.54140 | -24.97875 | -30.66784 | 3.2280698 | -20.80326 | -7.790594 | 10800382. | 500.35968 |
| EEC                           | -2.713288 | -0.487760 | 481.55691 | -10.85931 | -12.98026 | 21.268093 | 3.9355416 | -14.04551 | 14780710. | 1034.4702 |
| MINIMOD                       | 1.2813998 | 2.8624020 | 354.27223 | -0.368364 | -0.651572 | 9.9089889 | 7.4833901 | 0.2295420 | 6353768.0 | 710.25740 |
| EPA                           | 2.7062538 | 2.7760357 | 39.279364 | -9.574192 | -12.10789 | -14.86188 | -17.41049 | 6.2439444 | 212.55053 | 53.233713 |
| WHARTON                       | 49.317525 | 39.729298 | 14.264892 | -298.7451 | -374.0316 | -335.0053 | -474.1395 | 111.59205 | 12908198  | 1.4561387 |
| MSG                           |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.1157901 | 132.11182 | -3.025730 | 459.30946 | -0.484818 | 11358.553 | -23.48684 | 0.7197259 | 275.92435 | 0.3051983 |
| LIVPL                         | -28.62187 | 0.1145480 | 22.018933 | -1189.061 | -79.52624 | 7492.1490 | -98.63464 | 28.859987 | 1841.5755 | 4.8759369 |
| VAR                           | 86.580952 | 701.92155 | 0.0055471 | 2234.8980 | -164.4587 | 12778.247 | -802.7955 | 41.304712 | 814.32551 | 2.8826445 |
| OECD                          | 0.0909850 | 7.6410191 | 0.0779511 | 15.184250 | -1.546895 | 545.67674 | -6.531735 | 0.4651799 | 24.557245 | 0.0687390 |
| LINK                          | -0.089187 | 10.126256 | 0.5172745 | 58.995916 | 0.1153051 | 1486.1395 | 3.2421389 | 0.1289925 | 52.171710 | 0.1358561 |
| MSG                           | 0.2334403 | 19.691470 | 1.1666043 | -59.17678 | -11.83641 | 366.75944 | -38.27694 | 3.5801364 | 141.3373  | 0.3904478 |
| EEC                           | -4.043838 | 7.9448502 | 1.5303925 | -74.22608 | -4.420802 | 2203.8172 | 0.7963226 | 1.9855644 | 190.59288 | 0.4377341 |
| MINIMOD                       | 1.7097083 | 41.609195 | -0.636461 | 189.05063 | -0.253932 | 3306.6648 | -9.555522 | 0.1003900 | 61.982274 | 0.0926946 |
| EPA                           | 5.7158039 | 63.139757 | -1.983420 | 251.09628 | -4.943381 | 2404.8258 | -43.82612 | 0.9085156 | 0.2058093 | -0.062220 |
| WHARTON                       | 115.67025 | 1159.7840 | -30.24298 | 4124.2132 | -149.2085 | 33386.000 | -1007.664 | 32.565052 | 219.26542 | 0.0005552 |

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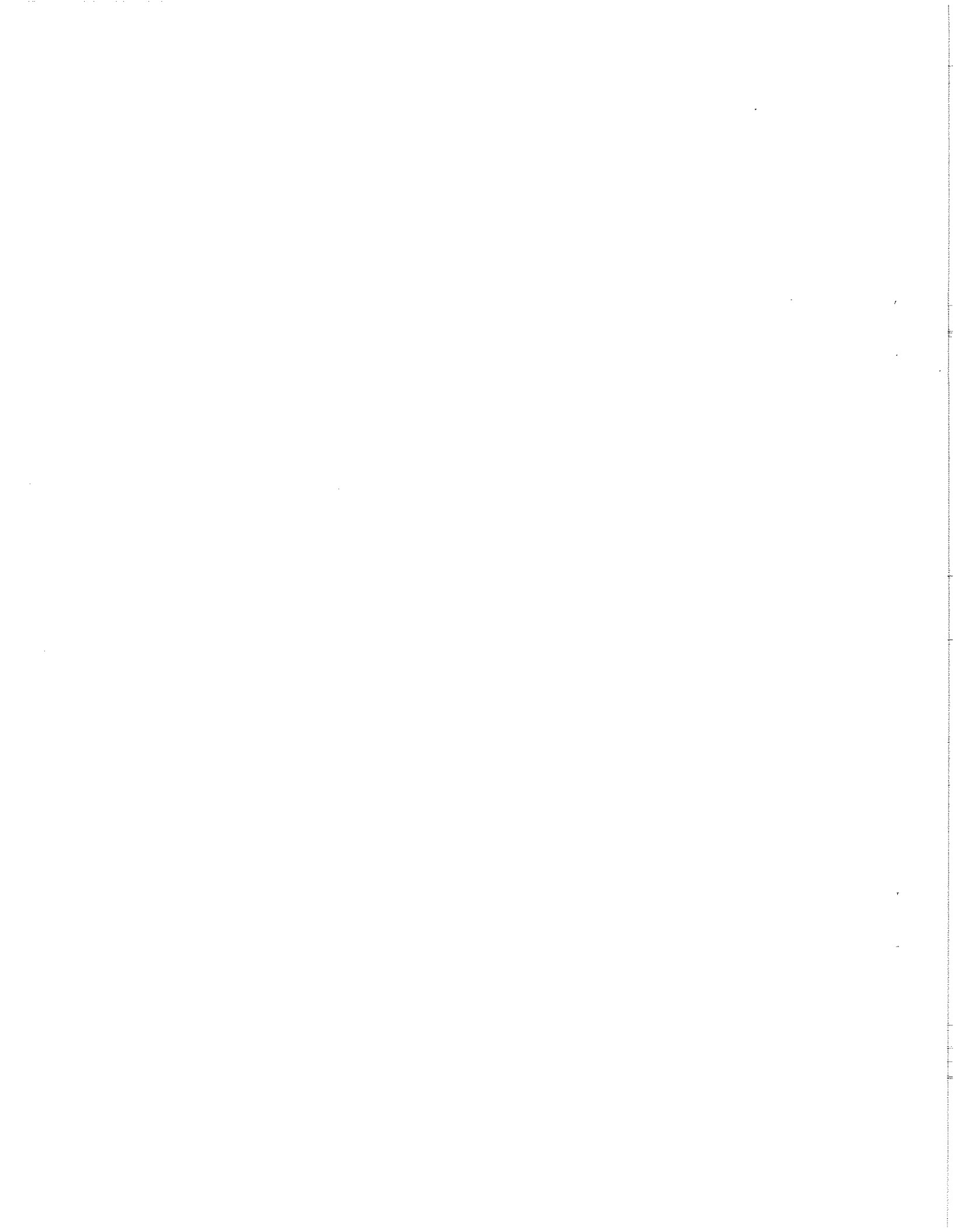
True Gains to Coordination for the Non-U.S. OECD  
Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |
| EEC                           |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.0746180 | 6.4327934 | 1070.1150 | -2.030932 | -3.345094 | 21.114183 | 11.283356 | -14.03697 | 101284.02 | 2766.3384 |
| LIVPL                         | -22.51713 | 0.0106178 | 2875.9889 | -161.1868 | -210.2780 | -12.38439 | -176.9250 | -148.4813 | 549385.35 | 8639.0524 |
| VAR                           | 37.131188 | 29.324564 | 36.594777 | -293.3912 | -370.6101 | -328.378  | -467.3125 | 54.609843 | 159436.58 | 316.27625 |
| OECD                          | -0.298061 | -0.801279 | 186.85004 | 0.3729328 | -0.674781 | 19.167498 | 11.576805 | -1.551764 | 26897.580 | 575.58902 |
| LINK                          | 0.2576264 | 0.8989221 | 272.08078 | 0.7159895 | 0.2478308 | 13.480554 | 9.0015395 | -1.312218 | 27872.220 | 740.6471  |
| MSG                           | -1.327001 | -0.948456 | 205.59888 | -19.24710 | -25.58918 | 2.0664723 | -18.5726  | -10.24936 | 52688.959 | 702.0128  |
| EEC                           | -2.773961 | -0.163863 | 494.51648 | -7.883033 | -11.28940 | 19.372159 | 2.5110092 | -16.32403 | 72396.328 | 1429.0801 |
| MINIMOD                       | 1.2254104 | 2.3350046 | 351.92087 | 0.0935402 | -0.380656 | 10.492457 | 7.1667547 | 0.2800090 | 30474.930 | 913.09909 |
| EPA                           | 2.7061063 | 2.3137300 | 40.919480 | -7.552600 | -9.414599 | -11.70858 | -13.07041 | 6.6830067 | 0.1728227 | 67.679054 |
| WHARTON                       | 48.903303 | 34.366356 | 44.943679 | -234.5764 | -297.0874 | -276.5895 | -373.2066 | 110.68893 | 62756.276 | 1.2535673 |
| MINIMOD                       |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.1872296 | 0.5667576 | -43.20989 | -2.862315 | 0.1064782 | -28.67809 | -12.23341 | 10.984023 | -1505.520 | -0.286829 |
| LIVPL                         | 147.65883 | 0.0022155 | -243.5166 | 39.099592 | 49.907259 | -7.508838 | 44.757315 | 539.74347 | -8970.062 | -3.153309 |
| VAR                           | 247.69419 | 10.101484 | 1.8677215 | 8.0417582 | 8.4811171 | 45.793683 | 38.128506 | 682.55326 | -2803.072 | 0.0333879 |
| OECD                          | 2.3092359 | -0.442401 | -27.25149 | 0.0178705 | 0.5537763 | -6.068782 | -1.778237 | 13.363466 | -664.6867 | -0.413693 |
| LINK                          | -0.476313 | -0.115796 | -19.21804 | -0.742231 | 0.0251736 | -8.374034 | -3.486589 | 3.2032340 | -534.6279 | -0.221547 |
| MSG                           | 20.108390 | -0.166328 | -33.66568 | 3.7060686 | 4.5009609 | 0.4446387 | 5.0487347 | 69.583215 | -1060.548 | -0.528907 |
| EEC                           | 8.9174790 | -0.377734 | -42.17157 | 2.7554512 | 4.3696796 | -8.936974 | 0.3285429 | 41.228893 | -1288.947 | -0.544447 |
| MINIMOD                       | -0.601190 | 0.1531110 | -17.44829 | -1.928643 | -1.002462 | -11.27129 | -5.614047 | 0.7689271 | -531.3107 | -0.150891 |
| EPA                           | 6.1369952 | 0.5639712 | 2.9866133 | -1.770527 | -1.775304 | -1.859874 | -1.960817 | 12.894463 | 0.4552609 | 0.0736620 |
| WHARTON                       | 209.23940 | 10.309685 | 1.2498691 | -15.31119 | -16.58737 | 10.837063 | 1.6956491 | 536.18492 | -1857.909 | 0.0005541 |
| EPA                           |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.0191146 | 0.9455203 | 127.73943 | -0.957285 | -1.593625 | 17.626275 | 7.2915052 | -5.199904 | 3904503.4 | 81.037562 |
| LIVPL                         | -17.77644 | 0.0010649 | 410.14600 | -71.46830 | -63.51214 | -2.483851 | -57.82650 | -87.36097 | 20830585. | 262.86638 |
| VAR                           | -3.005630 | 2.0927374 | 1.6309546 | -85.52843 | -74.60109 | -94.99300 | -108.8880 | -35.59122 | 5776441.6 | 11.614004 |
| OECD                          | -0.002837 | 0.0075101 | 30.601063 | 0.0556523 | -0.319497 | 7.4637392 | 3.5218486 | -0.945884 | 1135849.8 | 17.212776 |
| LINK                          | 0.1821618 | 0.1903784 | 35.970269 | 0.4002065 | 0.0266416 | 7.0320226 | 3.5701912 | -0.648578 | 1128377.0 | 21.685501 |
| MSG                           | -1.543997 | -0.096869 | 36.128798 | -7.647198 | -6.916327 | 0.3203732 | -5.817112 | -7.899802 | 2066043.7 | 21.771717 |
| EEC                           | -1.433010 | 0.0918850 | 69.519216 | -4.432522 | -4.281762 | 8.3718108 | 0.3020257 | -7.896767 | 2826409.3 | 42.841122 |
| MINIMOD                       | 0.5194750 | 0.3588491 | 43.076375 | 0.6759174 | 0.2212094 | 7.6680832 | 4.1003188 | 0.0599366 | 1219361.0 | 26.535875 |
| EPA                           | 0.6092906 | 0.2378648 | 2.2286660 | -1.236678 | -1.150922 | -1.676944 | -1.631782 | 1.1944264 | 28.087999 | 1.7383956 |
| WHARTON                       | 5.4445499 | 3.0446216 | -6.021835 | -57.34437 | -51.10933 | -64.85168 | -72.41120 | -2.525526 | 2466981.9 | 0.0251841 |

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True Gains to Coordination for the Non-U.S. OECD  
Case of Initial U.S. GNP Gap of -4.15% and Non-U.S. OECD Gap of -6.05%

| =====                         |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Model subscribed to by Europe |           |           |           |           |           |           |           |           |           |           |
| -----                         |           |           |           |           |           |           |           |           |           |           |
| Model subscribed to by U.S.   | MCM       | LIVPL     | VAR       | OECD      | LINK      | MSG       | EEC       | MINIMOD   | EPA       | WHARTON   |
| -----                         |           |           |           |           |           |           |           |           |           |           |
| WHARTON                       |           |           |           |           |           |           |           |           |           |           |
| Model Representing Reality    |           |           |           |           |           |           |           |           |           |           |
| MCM                           | 0.0922392 | 11.423977 | 829.38461 | -1.440635 | -2.698189 | 5.5901984 | 4.9764041 | -16.53639 | 6895.2270 | 880.22678 |
| LIVPL                         | -18.50283 | 0.0263467 | 2152.0382 | -229.6899 | -399.5453 | -76.79707 | -347.2078 | -135.4968 | 32256.308 | 1842.3454 |
| VAR                           | 53.624159 | 61.533369 | 68.823362 | -512.3667 | -869.9910 | -614.6108 | -1058.786 | 123.61577 | 5333.8329 | -340.0557 |
| OECD                          | -0.649484 | -2.940107 | 181.79884 | 0.8381994 | -0.849579 | 33.648122 | 26.763375 | -1.656065 | 3469.8356 | 326.72425 |
| LINK                          | 0.3235242 | 1.6083037 | 254.18929 | 0.7741450 | 0.6900857 | 15.545063 | 14.317149 | -12599424 | 2789.8947 | 345.72498 |
| MSG                           | -1.111729 | -3.289740 | 159.27453 | -29.12204 | -52.31177 | 5.5546519 | -32.30349 | -7.696209 | 4225.2912 | 217.63516 |
| EEC                           | -2.951114 | -1.329120 | 398.37937 | -9.038999 | -17.48709 | 25.768454 | 7.6469958 | -16.96148 | 5557.6658 | 471.71172 |
| MINIMOD                       | 1.4149322 | 4.3253880 | 309.61339 | -1.023291 | -2.011704 | 6.6515977 | 6.1735777 | 0.3410288 | 2805.8984 | 391.82060 |
| EPA                           | 3.2036389 | 4.1460489 | 26.92165  | -14.86120 | -25.17724 | -23.39405 | -33.96702 | 8.8902322 | 0.8577332 | 30.030808 |
| WHARTON                       | 60.314541 | 56.607207 | -93.61170 | -426.8112 | -733.2223 | -491.4959 | -862.8353 | 170.12924 | 5341.5334 | 1.4195719 |



May 24, 1991

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