

# How Do Nationalistic Antagonisms Affect Trade?

## Online Appendix

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# 1 Re-Randomization Process

Although we discuss our randomization inference procedures in the paper, we expand on them here for readers who are unfamiliar with randomization inference or who would like to replicate our results from scratch. We began by finding the average change in  $\ln(\text{Trade})$  for the pairs of countries that were randomly assigned to play in the World Cup group stage (from the first World Cup in 1930 until 2018). We found that these pairs of countries averaged an increase of 0.020 in  $\ln(\text{Trade})$  during the World Cup year.

To determine if a 0.020 increase was unusually low, we identified the exact randomization procedures for each World Cup from 1930 to 2018. Using these procedures, we built a computer algorithm that re-randomized the groups for every World Cup. Each time we ran this algorithm, we got a new set of World Cup groups for every tournament between 1930 and 2018. We could then identify the pairs of countries that would have played each other at the World Cup under this alternative randomization scheme.

The first time we ran this algorithm, we found that the pairs of countries that would have played in the hypothetical randomization scheme averaged a 0.023 increase in  $\ln(\text{Trade})$ . We then ran the algorithm again, got a new hypothetical randomization scheme, and found that the pairs of countries in that scheme averaged a 0.034 increase in  $\ln(\text{Trade})$ . We repeated this process 100,000 times in total, each time recording the average change in  $\ln(\text{Trade})$  for the pairs of countries that would have played in each alternative randomization scheme.

This process gave us a list with 100,000 values:  $\{Y_{A1} = 0.023, Y_{A2} = 0.034, Y_{A3} = 0.028, \dots, Y_{A100,000} = 0.021\}$ . The “A” here stands for alternative, as each of these values comes from one of the 100,000 alternative randomization schemes. The average from all 100,000 of the hypothetical randomization schemes was 0.027. Thus, we had the following:

$$Y_{REAL} = 0.020$$

$$Y_{A1} = 0.023, Y_{A2} = 0.034, Y_{A3} = 0.028, \dots, Y_{A100,000} = 0.021$$

$$\bar{Y}_A = 0.027$$

Our null hypothesis was that the World Cup did not decrease bilateral trade. Under this assumption, we should not expect  $Y_{REAL}$  to be much lower than the typical number from  $\{Y_{A1}, \dots, Y_{A100,000}\}$ . After all, under the null hypothesis, the real randomization scheme did not cause any countries to trade less with each other. The same is obviously true of the hypothetical randomization schemes, simply because they were hypothetical. Moreover, both the real and hypothetical randomization schemes followed the same procedures, so we should expect  $Y_{REAL}$  to not be much lower than the typical value from the hypothetical randomization schemes.

However, as we explained in the paper,  $Y_{REAL}$  was much lower than the typical value in  $\{Y_{A1}, \dots, Y_{A100,000}\}$ . This suggests that the World Cup did have a negative impact on international trade. To calculate the one-sided p-value, we estimated the probability that the value from a hypothetical randomization scheme was as small or smaller than the value from the real randomization,  $Y_{REAL} = 0.020$ . We calculated this estimate with the following formula:

$$\begin{aligned} p &\approx \frac{\sum_{i=1}^{100,000} [Y_{Ai} \leq Y_{REAL}]}{100,000} \\ &\approx \frac{\sum_{i=1}^{100,000} [Y_{Ai} \leq 0.020]}{100,000} \\ &\approx 0.072 \end{aligned}$$

To get the p-value for the soccer dyads, we repeated the same procedures, but this time only looking at the pairs of countries where soccer was the most popular sport for both sides. Our

results were as follows:

$$Y_{REAL} = 0.017$$

$$Y_{A1} = 0.019, Y_{A2} = 0.033, Y_{A3} = 0.025, \dots, Y_{A100,000} = 0.021$$

$$\bar{Y}_A = 0.026$$

$$\begin{aligned} p &\approx \frac{\sum_{i=1}^{100,000} [Y_{Ai} \leq Y_{REAL}]}{100,000} \\ &\approx \frac{\sum_{i=1}^{100,000} [Y_{Ai} \leq 0.017]}{100,000} \\ &\approx 0.033 \end{aligned}$$

We followed the same approach to calculate the p-values for percentage change in trade and our binary  $\{0,1\}$  drop-in-trade variable.

## 2 World Cup Groups

The following pages show the World Cup pots and groups. The 1930, 1950, 2002, 2006, 2014, and 2018 World Cups had slightly more complicated randomization procedures. We took these more complex formats into account when we conducted the 100,000 re-randomizations. Also, the 1934 and 1938 World Cups did not feature a group stage. Instead, the first round of the knockout stage pitted countries against each other that were randomly drawn from two pots. We counted this first knockout stage round as a miniature group stage where each group had two countries.

## Figure 2a. Pots and Groups for the 1930 World Cup

### Pots for the 1930 World Cup

| Pot 1         | Pot 2              |
|---------------|--------------------|
| Brazil        | Bolivia    Romania |
| Argentina     | Chile      Belgium |
| Uruguay       | Peru      Paraguay |
| United States | France    Mexico   |
|               | Yugoslavia         |

### Groups for the 1930 World Cup

| Group 1   | Group 2    | Group 3 | Group 4       |
|-----------|------------|---------|---------------|
| Argentina | Yugoslavia | Uruguay | United States |
| Chile     | Brazil     | Romania | Paraguay      |
| France    | Bolivia    | Peru    | Belgium       |
| Mexico    |            |         |               |

Note: For the first World Cup, Brazil, Argentina, Uruguay, and the United States were put in one pot, and the remaining participants were randomly selected to make groups with these four countries.

## Figure 2b. Pots and Groups for the 1934 World Cup

### Pots for the 1934 World Cup

| Pot 1          | Pot 2         |
|----------------|---------------|
| Argentina      | United States |
| Brazil         | Spain         |
| Germany        | France        |
| Italy          | Egypt         |
| Netherlands    | Romania       |
| Austria        | Switzerland   |
| Czechoslovakia | Belgium       |
| Hungary        | Sweden        |

### Groups for the 1934 World Cup

| Group 1        | Group 2     | Group 3 | Group 4   |
|----------------|-------------|---------|-----------|
| Italy          | Spain       | Austria | Hungary   |
| United States  | Brazil      | France  | Egypt     |
| Group 5        | Group 6     | Group 7 | Group 8   |
| Czechoslovakia | Switzerland | Germany | Sweden    |
| Romania        | Netherlands | Belgium | Argentina |

Note: For the second World Cup, there was no official group stage. The participants from Pot 1 were randomly assigned competitors from Pot 2, and the resulting pairs played in the first round of the knockout stage. However, given this random assignment, the first round of the knockout stage can essentially be thought of as a miniature group stage and analyzed in the same way as before.

**Figure 2c. Pots and Groups for the 1938 World Cup**

**Pots for the 1938 World Cup**

| <b>Pot 1</b>       | <b>Pot 2</b>      |
|--------------------|-------------------|
| Germany            | Belgium           |
| France             | Switzerland       |
| Italy              | Dutch East Indies |
| Czechoslovakia     | Netherlands       |
| Hungary            | Norway            |
| Cuba               | Poland            |
| Brazil             | Romania           |
| Austria (withdrew) | Sweden            |

**Groups for the 1938 World Cup**

| <b>Group 1</b>    | <b>Group 2</b> | <b>Group 3</b>     | <b>Group 4</b> |
|-------------------|----------------|--------------------|----------------|
| Italy             | France         | Brazil             | Czechoslovakia |
| Norway            | Belgium        | Poland             | Netherlands    |
| <b>Group 5</b>    | <b>Group 6</b> | <b>Group 7</b>     | <b>Group 8</b> |
| Hungary           | Switzerland    | Sweden             | Cuba           |
| Dutch East Indies | Germany        | Austria (withdrew) | Romania        |

Note: The format of the 1938 World Cup was the same as for the 1934 World Cup.

**Figure 2d. Pots and Groups for the 1950 World Cup**

**Pots for the 1950 World Cup**

| <b>Pot 1</b> | <b>Pot 2</b>  | <b>Pot 3</b>     | <b>Pot 4</b>      |
|--------------|---------------|------------------|-------------------|
| Brazil       | England       | Sweden           | Uruguay           |
| Mexico       | Spain         | Italy            | France (withdrew) |
| Yugoslavia   | Chile         | Paraguay         | Bolivia           |
| Switzerland  | United States | India (withdrew) |                   |

**Groups for the 1950 World Cup**

| <b>Group 1</b> | <b>Group 2</b> | <b>Group 3</b>   | <b>Group 4</b>    |
|----------------|----------------|------------------|-------------------|
| Brazil         | Spain          | Sweden           | Uruguay           |
| Yugoslavia     | England        | Italy            | Bolivia           |
| Switzerland    | Chile          | Paraguay         | France (withdrew) |
| Mexico         | United States  | India (withdrew) |                   |

**Figure 2e. Pots and Groups for the 1954 World Cup**

| <b>Pots for the 1954 World Cup</b>   |                |                |                |
|--------------------------------------|----------------|----------------|----------------|
| <b>Pot 1</b>                         | <b>Pot 2</b>   | <b>Pot 3</b>   | <b>Pot 4</b>   |
| Switzerland                          | Austria        | France         | Belgium        |
| Uruguay                              | England        | Italy          | Mexico         |
| Brazil                               | West Germany   | Czechoslovakia | South Korea    |
| Hungary                              | Yugoslavia     | Turkey         | Scotland       |
| <b>Groups for the 1954 World Cup</b> |                |                |                |
| <b>Group 1</b>                       | <b>Group 2</b> | <b>Group 3</b> | <b>Group 4</b> |
| Brazil                               | Hungary        | Uruguay        | England        |
| Yugoslavia                           | West Germany   | Austria        | Switzerland    |
| France                               | Turkey         | Czechoslovakia | Italy          |
| Mexico                               | South Korea    | Scotland       | Belgium        |

**Figure 2f. Pots and Groups for the 1958 World Cup**

| <b>Pots for the 1958 World Cup</b>   |                |                  |                |
|--------------------------------------|----------------|------------------|----------------|
| <b>Pot 1</b>                         | <b>Pot 2</b>   | <b>Pot 3</b>     | <b>Pot 4</b>   |
| Sweden                               | Czechoslovakia | England          | Argentina      |
| West Germany                         | Hungary        | Northern Ireland | Brazil         |
| Austria                              | Soviet Union   | Scotland         | Mexico         |
| France                               | Yugoslavia     | Wales            | Paraguay       |
| <b>Groups for the 1958 World Cup</b> |                |                  |                |
| <b>Group 1</b>                       | <b>Group 2</b> | <b>Group 3</b>   | <b>Group 4</b> |
| West Germany                         | France         | Sweden           | Brazil         |
| Northern Ireland                     | Yugoslavia     | Wales            | Soviet Union   |
| Czechoslovakia                       | Paraguay       | Hungary          | England        |
| Argentina                            | Scotland       | Mexico           | Austria        |

**Figure 2g. Pots and Groups for the 1962 World Cup**

| <b>Pots for the 1962 World Cup</b>   |                |                |                |
|--------------------------------------|----------------|----------------|----------------|
| <b>Pot 1</b>                         | <b>Pot 2</b>   | <b>Pot 3</b>   | <b>Pot 4</b>   |
| Chile                                | Czechoslovakia | Italy          | Bulgaria       |
| Brazil                               | England        | Hungary        | Colombia       |
| Argentina                            | Soviet Union   | Spain          | Mexico         |
| Uruguay                              | West Germany   | Yugoslavia     | Switzerland    |
| <b>Groups for the 1962 World Cup</b> |                |                |                |
| <b>Group 1</b>                       | <b>Group 2</b> | <b>Group 3</b> | <b>Group 4</b> |
| Soviet Union                         | West Germany   | Brazil         | Hungary        |
| Yugoslavia                           | Chile          | Czechoslovakia | England        |
| Uruguay                              | Italy          | Mexico         | Argentina      |
| Colombia                             | Switzerland    | Spain          | Bulgaria       |

**Figure 2h. Pots and Groups for the 1966 World Cup**

**Pots for the 1966 World Cup**

| Pot 1     | Pot 2        | Pot 3    | Pot 4       |
|-----------|--------------|----------|-------------|
| Brazil    | England      | France   | Bulgaria    |
| Argentina | Hungary      | Portugal | North Korea |
| Chile     | Soviet Union | Spain    | Mexico      |
| Uruguay   | West Germany | Italy    | Switzerland |

**Groups for the 1966 World Cup**

| Group 1 | Group 2      | Group 3  | Group 4      |
|---------|--------------|----------|--------------|
| England | West Germany | Portugal | Soviet Union |
| Uruguay | Argentina    | Hungary  | North Korea  |
| Mexico  | Spain        | Brazil   | Italy        |
| France  | Switzerland  | Bulgaria | Chile        |

**Figure 2i. Pots and Groups for the 1970 World Cup**

**Pots for the 1970 World Cup**

| Pot 1        | Pot 2   | Pot 3          | Pot 4       |
|--------------|---------|----------------|-------------|
| England      | Brazil  | Belgium        | El Salvador |
| Italy        | Mexico  | Bulgaria       | Israel      |
| Soviet Union | Peru    | Czechoslovakia | Morocco     |
| West Germany | Uruguay | Sweden         | Romania     |

**Groups for the 1970 World Cup**

| Group 1      | Group 2 | Group 3        | Group 4      |
|--------------|---------|----------------|--------------|
| Soviet Union | Italy   | Brazil         | West Germany |
| Mexico       | Uruguay | England        | Peru         |
| Belgium      | Sweden  | Romania        | Bulgaria     |
| El Salvador  | Israel  | Czechoslovakia | Morocco      |

**Figure 2j. Pots and Groups for the 1974 World Cup**

**Pots for the 1974 World Cup**

| Pot 1        | Pot 2        | Pot 3     | Pot 4     |
|--------------|--------------|-----------|-----------|
| West Germany | Bulgaria     | Brazil    | Australia |
| Italy        | East Germany | Argentina | Haiti     |
| Netherlands  | Poland       | Chile     | Sweden    |
| Scotland     | Yugoslavia   | Uruguay   | Zaire     |

**Groups for the 1974 World Cup**

| Group 1      | Group 2    | Group 3     | Group 4   |
|--------------|------------|-------------|-----------|
| East Germany | Yugoslavia | Netherlands | Poland    |
| West Germany | Brazil     | Sweden      | Argentina |
| Chile        | Scotland   | Bulgaria    | Italy     |
| Australia    | Zaire      | Uruguay     | Haiti     |



**Figure 2k. Pots and Groups for the 1978 World Cup**

**Pots for the 1978 World Cup**

| Pot 1        | Pot 2  | Pot 3    | Pot 4   |
|--------------|--------|----------|---------|
| Argentina    | Italy  | Hungary  | Austria |
| West Germany | Sweden | Poland   | France  |
| Netherlands  | Mexico | Scotland | Iran    |
| Brazil       | Peru   | Spain    | Tunisia |

**Groups for the 1978 World Cup**

| Group 1   | Group 2      | Group 3 | Group 4     |
|-----------|--------------|---------|-------------|
| Italy     | Poland       | Austria | Peru        |
| Argentina | West Germany | Brazil  | Netherlands |
| France    | Tunisia      | Spain   | Scotland    |
| Hungary   | Mexico       | Sweden  | Iran        |

**Figure 2l. Pots and Groups for the 1982 World Cup**

**Pots for the 1982 World Cup**

| Pot 1        | Pot 2          | Pot 3            | Pot 4       |
|--------------|----------------|------------------|-------------|
| Spain        | Austria        | Belgium          | Algeria     |
| Argentina    | Czechoslovakia | France           | Cameroon    |
| Brazil       | Hungary        | Northern Ireland | Kuwait      |
| England      | Poland         | Scotland         | El Salvador |
| Italy        | Soviet Union   | Chile            | Honduras    |
| West Germany | Yugoslavia     | Peru             | New Zealand |

**Groups for the 1982 World Cup**

| Group 1  | Group 2      | Group 3     | Group 4        | Group 5          | Group 6      |
|----------|--------------|-------------|----------------|------------------|--------------|
| Poland   | West Germany | Belgium     | England        | Northern Ireland | Brazil       |
| Italy    | Austria      | Argentina   | France         | Spain            | Soviet Union |
| Cameroon | Algeria      | Hungary     | Czechoslovakia | Yugoslavia       | Scotland     |
| Peru     | Chile        | El Salvador | Kuwait         | Honduras         | New Zealand  |

**Figure 2m. Pots and Groups for the 1986 World Cup**

**Pots for the 1986 World Cup**

| Pot 1        | Pot 2        | Pot 3       | Pot 4            |
|--------------|--------------|-------------|------------------|
| Mexico       | England      | Algeria     | Belgium          |
| Italy        | Soviet Union | Canada      | Bulgaria         |
| West Germany | Argentina    | Denmark     | Hungary          |
| Poland       | Spain        | Iraq        | Northern Ireland |
| France       | Paraguay     | Morocco     | Portugal         |
| Brazil       | Uruguay      | South Korea | Scotland         |

**Groups for the 1986 World Cup**

| Group 1     | Group 2  | Group 3      | Group 4          | Group 5      | Group 6  |
|-------------|----------|--------------|------------------|--------------|----------|
| Argentina   | Mexico   | Soviet Union | Brazil           | Denmark      | Morocco  |
| Italy       | Paraguay | France       | Spain            | West Germany | England  |
| Bulgaria    | Belgium  | Hungary      | Northern Ireland | Uruguay      | Poland   |
| South Korea | Iraq     | Canada       | Algeria          | Scotland     | Portugal |

**Figure 2n. Pots and Groups for the 1990 World Cup**

**Pots for the 1990 World Cup**

| Pot 1        | Pot 2                | Pot 3          | Pot 4        |
|--------------|----------------------|----------------|--------------|
| Italy        | Cameroon             | Colombia       | Austria      |
| Argentina    | Costa Rica           | Czechoslovakia | Netherlands  |
| Brazil       | Egypt                | Ireland        | Scotland     |
| West Germany | South Korea          | Romania        | Spain        |
| Belgium      | United Arab Emirates | Sweden         | Soviet Union |
| England      | United States        | Uruguay        | Yugoslavia   |

**Groups for the 1990 World Cup**

| Group 1        | Group 2      | Group 3    | Group 4              | Group 5     | Group 6     |
|----------------|--------------|------------|----------------------|-------------|-------------|
| Italy          | Cameroon     | Brazil     | West Germany         | Spain       | England     |
| Czechoslovakia | Romania      | Costa Rica | Yugoslavia           | Belgium     | Ireland     |
| Austria        | Argentina    | Scotland   | Colombia             | Uruguay     | Netherlands |
| United States  | Soviet Union | Sweden     | United Arab Emirates | South Korea | Egypt       |

**Figure 2o. Pots and Groups for the 1998 World Cup**

**Pots for the 1998 World Cup**

| Pot 1       | Pot 2      | Pot 3        | Pot 4         |
|-------------|------------|--------------|---------------|
| France      | Austria    | Chile        | Cameroon      |
| Brazil      | Belgium    | Colombia     | Jamaica       |
| Argentina   | Bulgaria   | Iran         | Mexico        |
| Germany     | Croatia    | Japan        | Morocco       |
| Italy       | Denmark    | Paraguay     | Nigeria       |
| Netherlands | England    | Saudi Arabia | South Africa  |
| Romania     | Scotland   | South Korea  | Tunisia       |
| Spain       | Yugoslavia |              | United States |
|             | Norway     |              |               |

**Groups for the 1998 World Cup**

| Group 1     | Group 2       | Group 3      | Group 4   |
|-------------|---------------|--------------|-----------|
| Brazil      | Italy         | France       | Nigeria   |
| Norway      | Chile         | Denmark      | Paraguay  |
| Morocco     | Austria       | South Africa | Spain     |
| Scotland    | Cameroon      | Saudi Arabia | Bulgaria  |
| Group 5     | Group 6       | Group 7      | Group 8   |
| Netherlands | Germany       | Romania      | Argentina |
| Mexico      | Yugoslavia    | England      | Croatia   |
| Belgium     | Iran          | Colombia     | Jamaica   |
| South Korea | United States | Tunisia      | Japan     |

Note: The final team from Pot 2 was drawn into one of the two groups that did not already have two European teams (either Brazil or Argentina's group).

**Figure 2p. Pots and Groups for the 2002 World Cup**

**Pots for the 2002 World Cup**

| <b>Pot 1</b> | <b>Pot 2</b> | <b>Pot 3</b> | <b>Pot 4</b>  |
|--------------|--------------|--------------|---------------|
| Argentina    | Belgium      | China        | Cameroon      |
| Brazil       | Croatia      | Ecuador      | Costa Rica    |
| France       | Denmark      | Paraguay     | Mexico        |
| Germany      | England      | Saudi Arabia | Nigeria       |
| Italy        | Poland       | Uruguay      | Senegal       |
| Japan        | Portugal     |              | South Africa  |
| South Korea  | Ireland      |              | Tunisia       |
| Spain        | Russia       |              | United States |
|              | Slovenia     |              |               |
|              | Sweden       |              |               |
|              | Turkey       |              |               |

**Groups for the 2002 World Cup**

| <b>Group 1</b> | <b>Group 2</b> | <b>Group 3</b> | <b>Group 4</b> |
|----------------|----------------|----------------|----------------|
| Denmark        | Spain          | Brazil         | South Korea    |
| Senegal        | Paraguay       | Turkey         | United States  |
| Uruguay        | South Africa   | Costa Rica     | Portugal       |
| France         | Slovenia       | China          | Poland         |
| <b>Group 5</b> | <b>Group 6</b> | <b>Group 7</b> | <b>Group 8</b> |
| Germany        | Sweden         | Mexico         | Japan          |
| Ireland        | England        | Italy          | Belgium        |
| Cameroon       | Argentina      | Croatia        | Russia         |
| Saudi Arabia   | Nigeria        | Ecuador        | Tunisia        |

Note: The last three teams in Pot 2 were drawn into three of the four groups which did not already have two European teams. Also, no South American team from Pot 2, 3, or 4 could be in the same group as Brazil or Argentina, and no Asian team from Pot 2, 3, or 4 could be in the same group as South Korea or Japan.

**Figure 2q. Pots and Groups for the 2006 World Cup**

| Pots for the 2006 World Cup   |                     |                       |               |                       |
|-------------------------------|---------------------|-----------------------|---------------|-----------------------|
| Pot 1                         | Pot 2               | Pot 3                 | Pot 4         | Pot 5                 |
| Argentina                     | Angola              | Croatia               | Costa Rica    | Serbia and Montenegro |
| Brazil                        | Australia           | Czech Republic        | Iran          |                       |
| England                       | Ecuador             | Netherlands           | Japan         |                       |
| France                        | Ghana               | Poland                | Saudi Arabia  |                       |
| Germany                       | Ivory Coast         | Portugal              | South Korea   |                       |
| Italy                         | Paraguay            | Sweden                | Trinidad      |                       |
| Mexico                        | Togo                | Switzerland           | United States |                       |
| Spain                         | Tunisia             | Ukraine               |               |                       |
| Groups for the 2006 World Cup |                     |                       |               |                       |
| Group 1                       |                     | Group 2               | Group 3       | Group 4               |
| Germany                       |                     | England               | Argentina     | Portugal              |
| Ecuador                       |                     | Sweden                | Netherlands   | Mexico                |
| Poland                        |                     | Paraguay              | Ivory Coast   | Angola                |
| Costa Rica                    | Trinidad and Tobago | Serbia and Montenegro | Iran          |                       |
| Group 5                       |                     | Group 6               | Group 7       | Group 8               |
| Italy                         |                     | Brazil                | Switzerland   | Spain                 |
| Ghana                         |                     | Australia             | France        | Ukraine               |
| Czech Republic                |                     | Croatia               | South Korea   | Tunisia               |
| United States                 |                     | Japan                 | Togo          | Saudi Arabia          |

Note: Serbia and Montenegro was put in a special pot and drawn first with one country from Pot 2, one country from Pot 3, and one of the three non-European teams from Pot 1 (Argentina, Brazil, or Mexico).

**Figure 2r. Pots and Groups for the 2010 World Cup**

| <b>Pots for the 2010 World Cup</b>   |                |                |                |
|--------------------------------------|----------------|----------------|----------------|
| <b>Pot 1</b>                         | <b>Pot 2</b>   | <b>Pot 3</b>   | <b>Pot 4</b>   |
| South Africa                         | Australia      | Algeria        | Denmark        |
| Brazil                               | Japan          | Cameroon       | France         |
| Spain                                | North Korea    | Ghana          | Greece         |
| Netherlands                          | South Korea    | Ivory Coast    | Portugal       |
| Italy                                | Spain          | Nigeria        | Serbia         |
| Germany                              | Mexico         | Chile          | Slovakia       |
| Argentina                            | United States  | Paraguay       | Slovenia       |
| England                              | New Zealand    | Uruguay        | Switzerland    |
| <b>Groups for the 2010 World Cup</b> |                |                |                |
| <b>Group 1</b>                       | <b>Group 2</b> | <b>Group 3</b> | <b>Group 4</b> |
| Uruguay                              | Argentina      | United States  | Germany        |
| Mexico                               | South Korea    | England        | Ghana          |
| South Africa                         | Greece         | Slovenia       | Australia      |
| France                               | Nigeria        | Algeria        | Serbia         |
| <b>Group 5</b>                       | <b>Group 6</b> | <b>Group 7</b> | <b>Group 8</b> |
| Netherlands                          | Paraguay       | Brazil         | Spain          |
| Japan                                | Slovakia       | Portugal       | Chile          |
| Denmark                              | New Zealand    | Ivory Coast    | Switzerland    |
| Cameroon                             | Italy          | North Korea    | Honduras       |

**Figure 2s. Pots and Groups for the 2014 World Cup**

| <b>Pots for the 2014 World Cup</b> |              |               |                        |
|------------------------------------|--------------|---------------|------------------------|
| <b>Pot 1</b>                       | <b>Pot 2</b> | <b>Pot 3</b>  | <b>Pot 4</b>           |
| Brazil                             | Algeria      | Australia     | Portugal               |
| Argentina                          | Cameroon     | Iran          | Bosnia and Herzegovina |
| Colombia                           | Ghana        | Japan         | Croatia                |
| Uruguay                            | Ivory Coast  | South Korea   | England                |
| Belgium                            | Nigeria      | Costa Rica    | France                 |
| Germany                            | Chile        | Honduras      | Greece                 |
| Spain                              | Ecuador      | Mexico        | Netherlands            |
| Switzerland                        | Italy        | United States | Russia                 |

| <b>Groups for the 2014 World Cup</b> |                |                |                |
|--------------------------------------|----------------|----------------|----------------|
| <b>Group 1</b>                       | <b>Group 2</b> | <b>Group 3</b> | <b>Group 4</b> |
| Brazil                               | Netherlands    | Colombia       | Costa Rica     |
| Mexico                               | Chile          | Greece         | Uruguay        |
| Croatia                              | Spain          | Ivory Coast    | Italy          |
| Cameroon                             | Australia      | Japan          | England        |

| <b>Group 5</b> | <b>Group 6</b>         | <b>Group 7</b> | <b>Group 8</b> |
|----------------|------------------------|----------------|----------------|
| France         | Argentina              | Germany        | Belgium        |
| Switzerland    | Nigeria                | United States  | Algeria        |
| Ecuador        | Bosnia and Herzegovina | Portugal       | Russia         |
| Honduras       | Iran                   | Ghana          | South Korea    |

Note: Italy was initially in Pot 4, which started with nine European teams. Italy was randomly selected from that pot to be in Pot 2. After Italy was moved to Pot 2, it was arranged that they would be selected into the same group as one of the four South American teams in Pot 1. Doing this ensured that no group would have three European teams. Similarly, the two South American teams in Pot 2 could not be selected into a group that had a South American team from Pot 1.

**Figure 2t. Pots and Groups for the 2018 World Cup**

**Pots for the 2018 World Cup**

| <b>Pot 1</b> | <b>Pot 2</b> | <b>Pot 3</b> | <b>Pot 4</b> |
|--------------|--------------|--------------|--------------|
| Germany      | Spain        | Denmark      | Serbia       |
| Brazil       | Peru         | Iceland      | Nigeria      |
| Portugal     | Switzerland  | Costa Rica   | Australia    |
| Argentina    | England      | Sweden       | Japan        |
| Belgium      | Colombia     | Tunisia      | Morocco      |
| Poland       | Mexico       | Egypt        | Panama       |
| France       | Uruguay      | Senegal      | South Korea  |
| Russia       | Croatia      | Iran         | Saudi Arabia |

**Groups for the 2018 World Cup**

| <b>Group 1</b> | <b>Group 2</b> | <b>Group 3</b> | <b>Group 4</b> |
|----------------|----------------|----------------|----------------|
| Russia         | Portugal       | France         | Argentina      |
| Uruguay        | Spain          | Peru           | Croatia        |
| Egypt          | Iran           | Morocco        | Iceland        |
| Saudi Arabia   | Australia      | Denmark        | Nigeria        |
| <b>Group 5</b> | <b>Group 6</b> | <b>Group 7</b> | <b>Group 8</b> |
| Brazil         | Germany        | Belgium        | Poland         |
| Switzerland    | Mexico         | England        | Colombia       |
| Costa Rica     | Sweden         | Tunisia        | Algeria        |
| Serbia         | South Korea    | Panama         | Japan          |

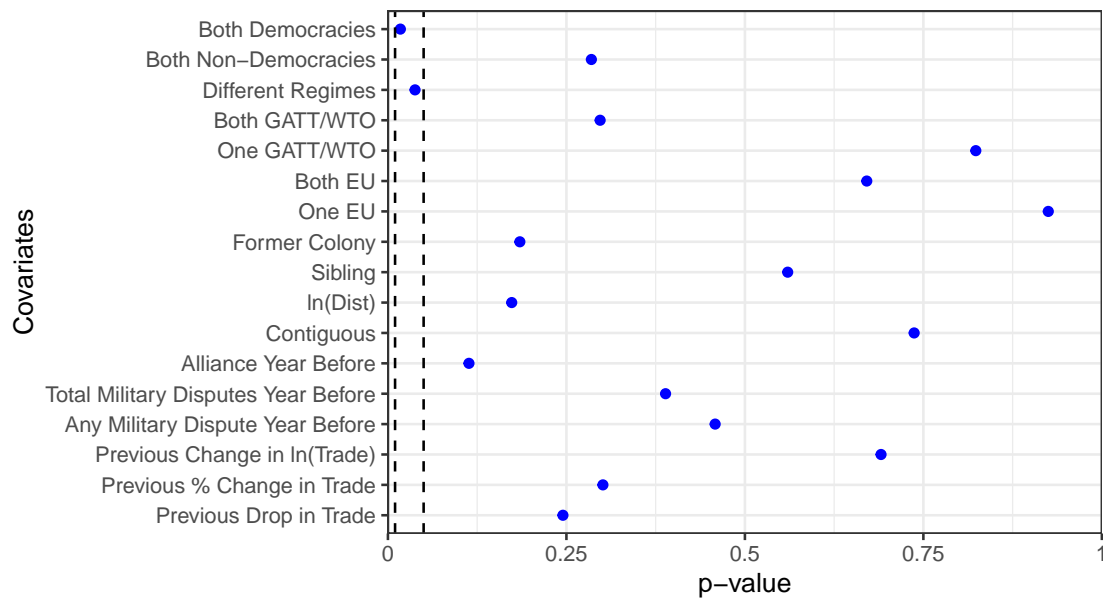
Note: It was prearranged that no teams from the same continent would be assigned to the same group, except for European teams. Every group was required to have either one or two European teams.

### 3 Verifying Balance in the Data

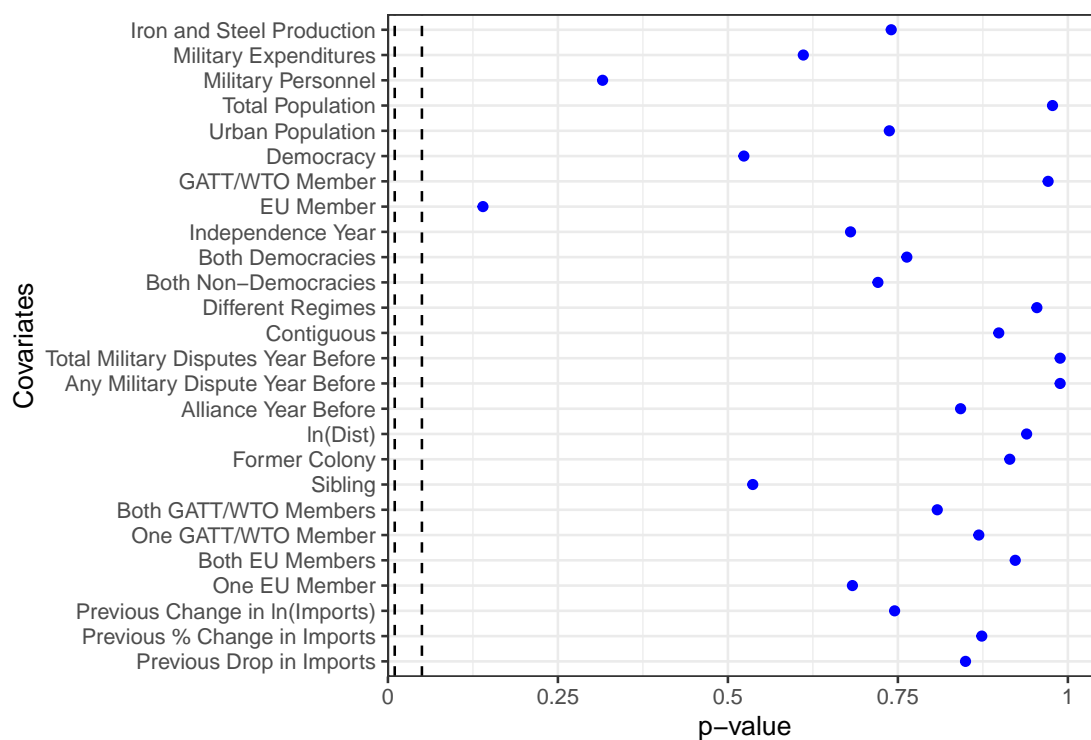
Figure 3a shows how similar the alternative randomization schemes were to the actual randomization scheme. Basically, we just want to make sure that the actual randomization scheme looked similar to most of the hypothetical randomization schemes. If not, then it would suggest that the real randomization scheme was not actually random (because FIFA rigged the draws in some way) or that it was random but turned out very atypical because of some fluke. However, Figure 3a indicates that the real randomization scheme looked pretty normal. For balance tests like this, we should expect the p-values for the covariates to be distributed about uniformly between 0 and 1, and that seems to bear out in the data.

Figure 3b shows the balance for our regression discontinuity analysis. This balance looks even better than what we would expect in an actual experiment. Therefore, there is little reason to think that our findings might be explained by confounding.

**Figure 3a. Balance for the Soccer Dyads in Table 1  
(Played vs. Did Not Play)**



**Figure 3b. Balance for the Soccer Countries in Table 2  
(Losers vs. Winners)**

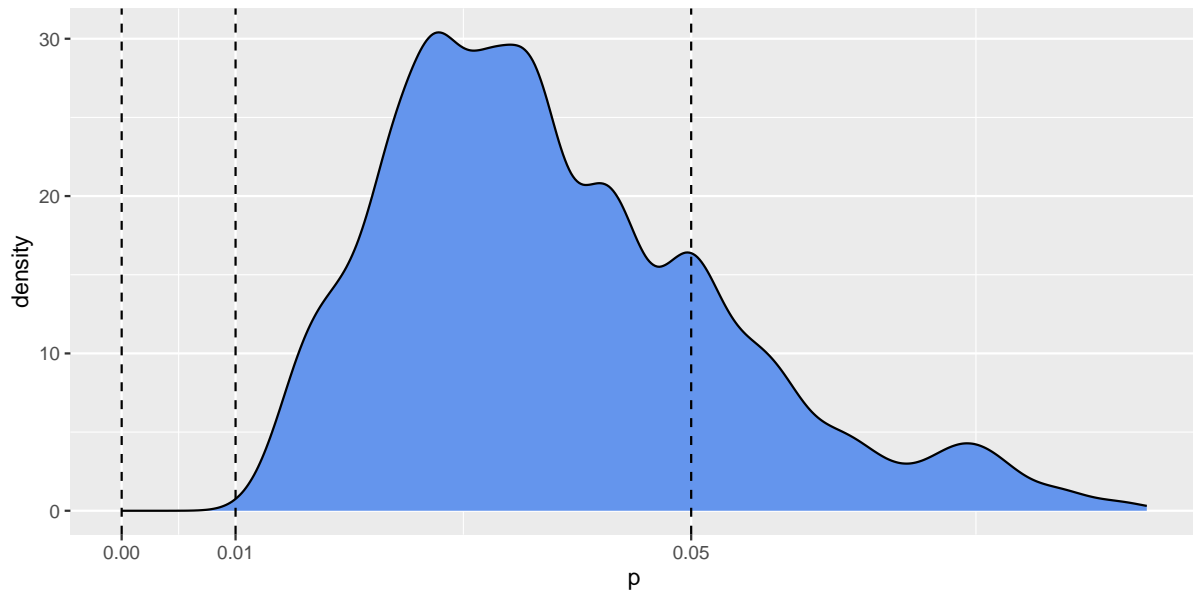




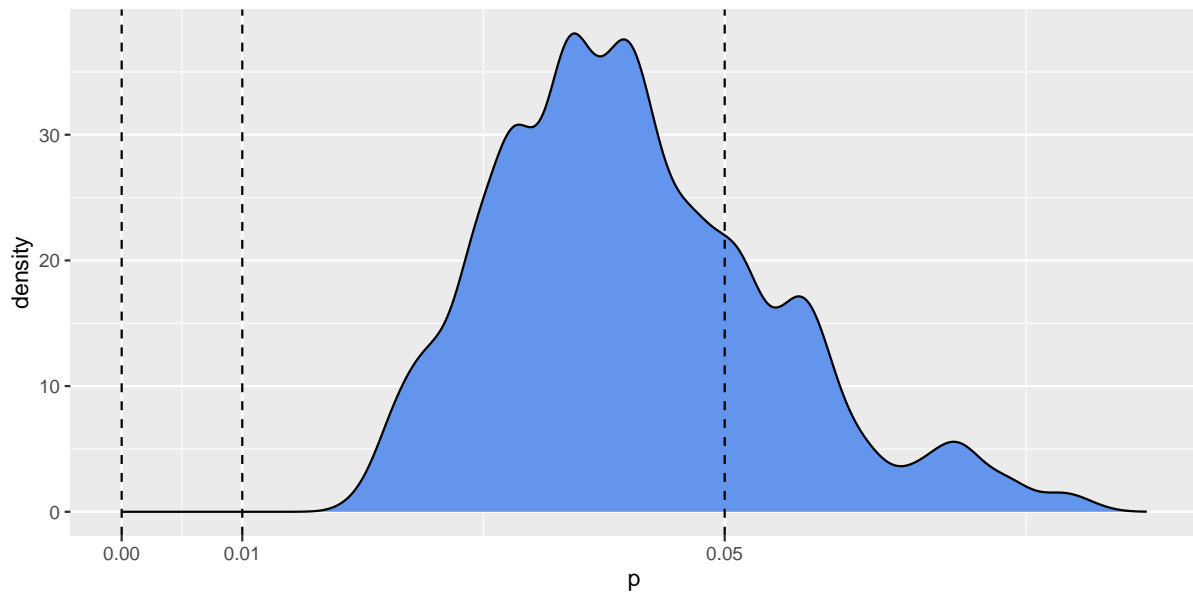
## 4 Controlling for Baseline Covariates

To test the robustness of our results for the countries where soccer is the most popular sport, we created an algorithm that randomly selected different combinations of the covariates and checked to see if the results remained significant for each combination (Hainmueller and Hangartner 2013). In total, we randomly selected 10,000 different sets of covariates and ran regression models for each of them. The results proved very robust. The distributions of the p-values are presented in Figures 4a-4f. This high level of robustness is not surprising, because controlling for baseline factors should matter little for natural experiments and regression discontinuities with large sample sizes.

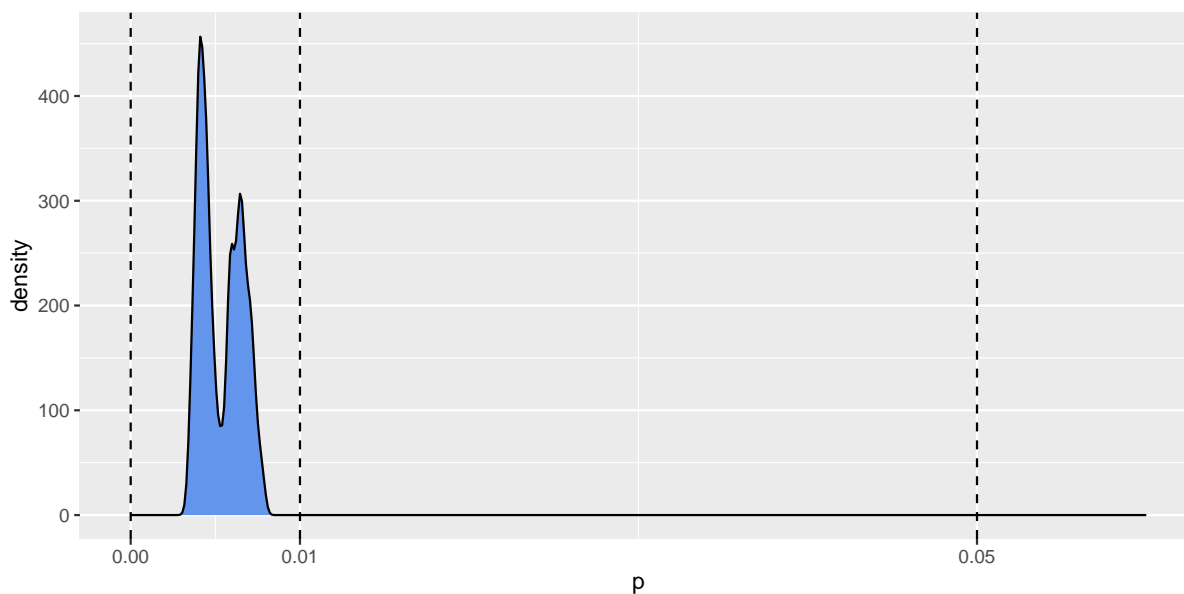
**Figure 4a. Controlling for Random Combinations of the Covariates  
(Soccer Dyads–Played vs. Did Not Play–Change in  $\ln(\text{Trade})$ )**



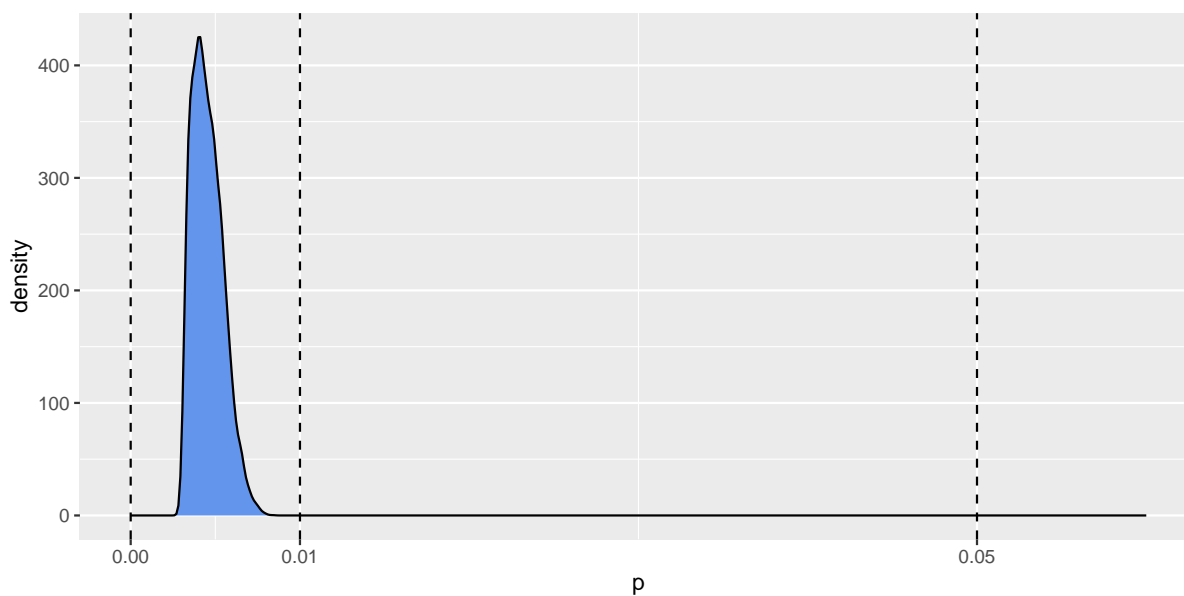
**Figure 4b. Controlling for Random Combinations of the Covariates  
(Soccer Dyads–Played vs. Did Not Play–Percentage Change in Trade)**



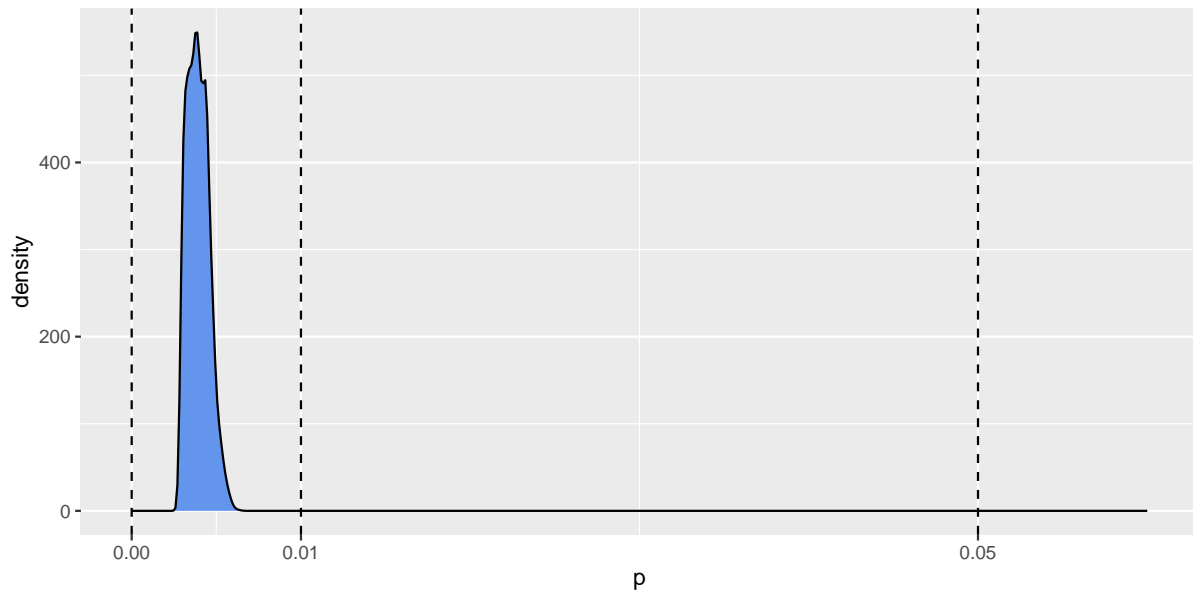
**Figure 4c. Controlling for Random Combinations of the Covariates  
(Soccer Dyads–Played vs. Did Not Play–Drop in Trade)**



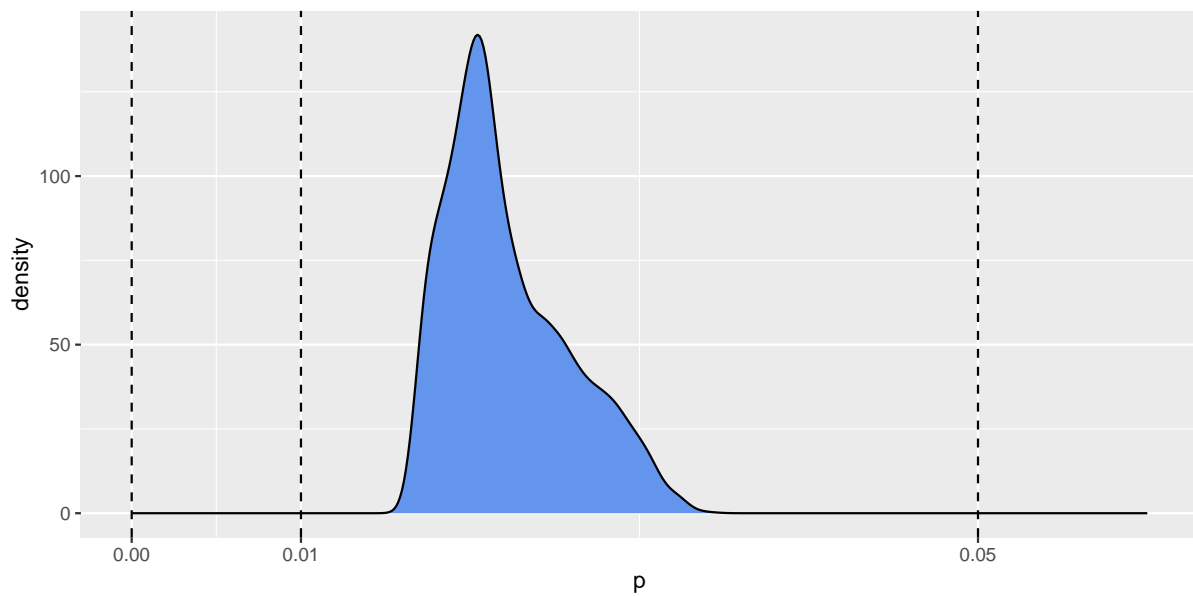
**Figure 4d. Controlling for Random Combinations of the Covariates  
(Soccer Countries–Losers vs. Winners–Change in  $\ln(\text{Imports})$ )**



**Figure 4e. Controlling for Random Combinations of the Covariates  
(Soccer Countries–Losers vs. Winners–Percentage Change in Imports)**



**Figure 4f. Controlling for Random Combinations of the Covariates  
(Soccer Countries–Losers vs. Winners–Drop in Imports)**



## **5 Results with Country Fixed Effects**

Table 5a shows the results from Table 1 of the paper with country fixed effects included. The results remain very similar to those reported in the paper. The same is true when we include country fixed effects in our “sore-loser” analysis (which are reported in Table 2 of the paper). These results are presented in Table 5b.

**Table 5a. Results from Table 1 with  
Country Fixed Effects Included**

|  | <b>Regression<br/>Estimate</b> | <b>Regression<br/>p-value</b> | <b>Randomization<br/>Inference<br/>p-value</b> | <b>n</b> |
|--|--------------------------------|-------------------------------|--|----------|
| <hr/> Gravity Model–<br>Change in ln(Trade) <hr/>                            |                                |                               |  |          |
| All Dyads  | -0.009<br>(0.005)              | 0.070                         | 0.072  | 3623     |
| Soccer Dyads   | -0.012*<br>(0.005)             | 0.038                         | 0.033  | 3103     |
| <hr/> Percentage Change in Trade <hr/>                                       |                                |                               |  |          |
| All Dyads  | -1.0<br>(0.6)                  | 0.057                         | 0.070  | 3623     |
| Soccer Dyads   | -1.2*<br>(0.6)                 | 0.042                         | 0.044  | 3103     |
| <hr/> Change in Probability of Drop<br>in Trade (in percentage points) <hr/> |                                |                               |  |          |
| All Dyads  | 4.8*<br>(1.9)                  | 0.015                         | 0.023  | 3623     |
| Soccer Dyads   | 6.1**<br>(2.0)                 | 0.005                         | 0.009  | 3103     |

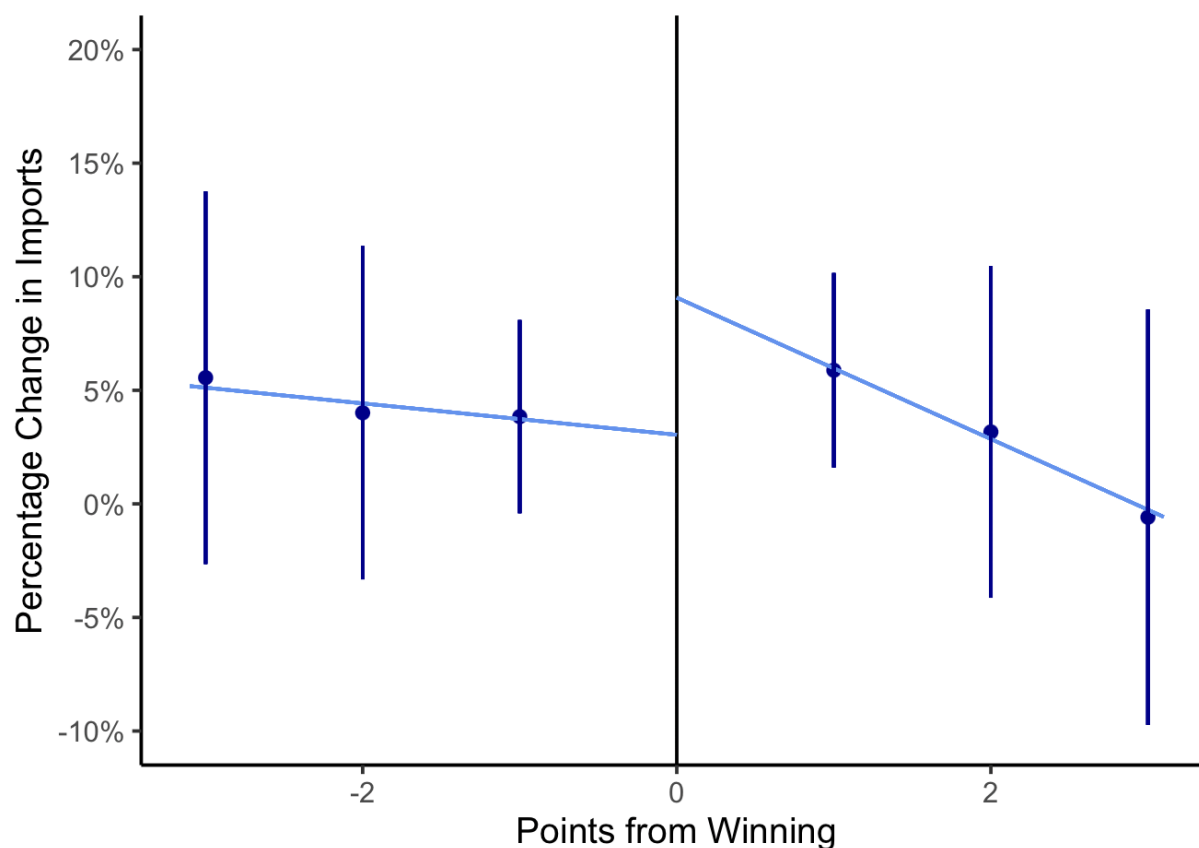
Notes: This table shows the results for our dyad-level analysis with country fixed effects. Given our theoretical expectations, we report one-tailed p-values. \*  $p < 0.05$ , \*\*  $p < 0.01$

**Table 5b. Results from Table 2 with  
Country Fixed Effects Included**

|  | RDD Estimate<br>with controls | p-value | RDD Estimate<br>without controls | p-value | n    |
|--|-------------------------------|---------|----------------------------------|---------|------|
| Change in ln(Imports)  |                               |         |                                  |         |      |
| All Countries  | -0.050**<br>(0.016)           | 0.005   | -0.047**<br>(0.017)              | 0.010   | 1130 |
| Soccer Countries   | -0.052**<br>(0.017)           | 0.004   | -0.050**<br>(0.018)              | 0.008   | 1073 |
| Percentage Change in Imports                                       |                               |         |                                  |         |      |
| All Countries  | -5.5**<br>(1.8)               | 0.005   | -5.3**<br>(1.9)                  | 0.010   | 1130 |
| Soccer Countries   | -5.7**<br>(1.9)               | 0.006   | -5.4**<br>(2.0)                  | 0.010   | 1073 |
| Change in Probability of Drop<br>in Imports (in percentage points) |                               |         |                                  |         |      |
| All Countries  | 12.8*<br>(5.9)                | 0.033   | 13.3*<br>(6.1)                   | 0.033   | 1130 |
| Soccer Countries   | 14.1*<br>(6.0)                | 0.024   | 14.7*<br>(6.2)                   | 0.024   | 1073 |

Notes: This table shows the regression discontinuity estimates for how losing impacts imports (compared to winning) with country fixed effects. Given our theoretical expectations, we report one-tailed p-values. \*  $p < 0.05$ , \*\*  $p < 0.01$

**Figure 6. Illustrating the Discontinuity at the Cut-point**



## 6 Regression Discontinuity Graph

Figure 6 plots the data around the cut-point using the `rdrobust` optimal bandwidth of  $h \approx 3.6$ . On both sides of the cut-point, there is a linear downward trend. However, the graph shows a notable discontinuity at the cut-point as countries move from barely losing to barely winning. The data therefore appears to be very linear except where countries shift from losing to winning, where we see a clear difference. The local linear regression approach adjusts for these trends. The results for change in  $\ln(\text{Imports})$  are also statistically significant at the 5% level for the comparison of the soccer countries that won or lost by one point (with controls— $p \approx 0.047$ ). The results for this more narrow comparison are statistically significant at the 10% level for the percentage change in imports ( $p \approx 0.066$ ) and our binary variable for whether countries expe-



rienced a drop in imports ( $p \approx 0.065$ ). The estimated effects from these comparisons are about half the size as the local linear regression estimates because simply comparing countries that won or lost by one point does not adjust for the downward trends on each side of the cut-point.

## 7 Data Sources

The data for trade was taken from the Trade dataset (v4.0) from the Correlates of War database (Barbieri, Keshk, and Pollins 2009; Barbieri and Keshk 2016—available [here](#)) and the CEPII International Trade database (Gaulier and Zignago 2010—available [here](#)). The data on iron and steel production, military expenditures, military personnel, total population, and urban population are also available in the Correlates of War database, in the National Material Capabilities dataset (v5.0), available [here](#) (Singer, Bremer, and Stuckey 1972). The data on alliances came from the Formal Alliance dataset (v4.1) in the Correlates of War database, available [here](#) (Gibler 2009). The data on military disputes was taken from the Militarized Interstate Dispute dataset (v5.0), available [here](#) (Palmer et al. 2021). The data on which countries are democracies came from the Polity IV dataset, available [here](#) (Marshall, Gurr, and Jaggers 2013). The data on state independence years was obtained from the State Membership dataset (v2016) in the Correlates of War database, available [here](#) (Correlates of War Project 2017). The data on which countries are contiguous is provided in the Correlates of War Direct Contiguity dataset (v3.2), available [here](#) (Stinnett et al. 2002; Correlates of War Project 2016). The data on GATT and EU Membership, colonial history, distance between countries, and religious similarity came from the CEPII Gravity dataset, available [here](#) (Head, Mayer, and Ries 2010).

## References

- Barbieri, Katherine and Omar M. G. Keshk. 2016. "Correlates of War Project Trade Data Set Codebook, Version 4.0." Online: <https://correlatesofwar.org>
- Barbieri, Katherine, Omar M. G. Keshk, and Brian Pollins. 2009. "Trading Data: Evaluating Our Assumptions and Coding Rules." *Conflict Management and Peace Science* 26(5): 471-491.
- Calonico, Sebastian, Matias D. Cattaneo, and Rocio Titiunik. 2014. "Robust Nonparametric Confidence Intervals for Regression-Discontinuity Designs." *Econometrica* 82(6): 2295-2326.
- Correlates of War Project. 2016. "Direct Contiguity Data, 1816-2016. Version 3.2." Online: <https://correlatesofwar.org>
- Correlates of War Project. 2017. "State System Membership List, v2016." Online: <https://correlatesofwar.org>
- Gibler, Douglas M. 2009. *International Military Alliances, 1648-2008*. (CQ Press).
- Gaulier, Guillaume, and Soledad Zignago. 2010. *BACI: International Trade Database at the Product-Level. The 1994-2007 Version*. Working Paper 2010-23. CEP.
- Hainmueller, Jens, and D. Hangartner. 2013. "Who Gets a Swiss Passport: A Natural Experiment on Immigrant Discrimination." *American Political Science Review* 107(1): 159-187.
- Head, Keith, Thierry Mayer, and John Ries. 2010. "The Erosion of Colonial Trade Linkages After Independence." *Journal of International Economics* 81(1): 1-14.
- Marshall, Montey G., Ted R. Gurr, and Keith Jaggers. 2013. "Polity IV Project: Political Regime Characteristics and Transitions, 1800-2012." Arlington: Polity IV Project.
- Palmer, Glenn, Roseanne W. McManus, Vito D'Orazio, Michael R. Kenwick, Mikaela Karstens, Chase Bloch, Nick Dietrich, Kayla Kahn, Kellan Ritter, Michael J. Soules. 2021. "The MID5 Dataset, 2011-2014: Procedures, Coding Rules, and Description." *Conflict Management and Peace Science* 39(4): 470-482.

- Singer, J. David, Stuart Bremer, and John Stuckey. 1972. "Capability Distribution, Uncertainty, and Major Power War, 1820-1965." in *Peace, War, and Numbers*, Bruce Russett, Ed. (Beverly Hills, CA: Sage), pp. 19-48.
- Stinnett, Douglas M., Jaroslav Tir, Philip Schafer, Paul F. Diehl, and Charles Gochman. 2002. "The Correlates of War Project Direct Contiguity Data, Version 3." *Conflict Management and Peace Science* 19(2): 58-66.