This appendix presents details about the statistical analysis that informed the conclusions described in the Rest of the World section of chapter four. Specifically, it explains how I tested for the influence of market reform, market-enhancing institutions, and a legacy of significant state economic intervention on corruption; market reform’s effect on corruption conditional on the other two factors; and the effects of alternative explanations.

The first statistical analysis I conducted demonstrates strong support for the importance of the two conditions, a legacy of significant state economic intervention and market-enhancing institutions. Regression analysis suggests that countries with weaker legacies of state economic intervention and more effective market-enhancing institutions have less corruption. For the calculation, I regressed the Corruption Perceptions Index (CPI) variable on the legacy, market-enhancing institutions, and market reform variables. This model, in Table A.1, shows that legacy and market-enhancing institutions are significant at the .01 level, meaning that there is less than 1 percent chance of obtaining the result when no relationship exists. The magnitude of the effects is relatively small. A one-unit increase in the legacy and market-enhancing variables represent a 5 percent increase and approximately a .3 percent increase, respectively, in the range of actual CPI scores. The small size likely reflects the facts that the CPI score is only a rough proxy for petty corruption and that many factors influence corruption.

**TABLE A.1.** Corruption Perceptions Index regressed on legacy, market-enhancing institutions, and market reform variables for countries of the world

<table>
<thead>
<tr>
<th></th>
<th>Model 1 CPI</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legacy</td>
<td>.410**</td>
<td>.069</td>
</tr>
<tr>
<td>Market-enhancing institutions</td>
<td>.020**</td>
<td>.005</td>
</tr>
<tr>
<td>Market reform</td>
<td>.158**</td>
<td>.064</td>
</tr>
<tr>
<td>Constant</td>
<td>1.764</td>
<td>.490</td>
</tr>
<tr>
<td>Observations</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>.520</td>
<td></td>
</tr>
</tbody>
</table>

** = p < .01.
This regression also indicates that countries with more market reform have less corruption. The market reform variable is also significant at the .01 level. My argument, however, indicates that market reform’s effect depends on the degree of state economic intervention historically and the extent of market-enhancing institutions currently. So, I conducted further tests that enable me to examine market reform’s effect conditional on these two factors.

I conducted a series of four regressions. I first split the data set into two to explore how the degree of state economic intervention historically affects market reform’s influence on corruption when market-enhancing institutions are absent or weak and when they are effective. One data set had only countries with no or weak market-enhancing institutions, meaning that less than 20 percent of the adult population was included in public credit registries or private credit bureaus. The other data set included countries where the proportion was 20 percent or higher. Then in each data set I regressed CPI on the legacy and market reform variables and a variable I created to measure the interaction between the two. Likewise, to explore how the extent of market-enhancing institutions influences market reform’s effect on corruption when state economic intervention was historically strong and when it was weak, I split the data set in two. One data set contained only countries with significant state economic intervention, meaning they scored a zero on the index. The other data set included countries where the number was higher than zero. Then in each of these data sets I regressed CPI on the market-enhancing institutions and market reform variables and a variable I created to measure the interaction between the two.

The results of these four regressions are presented in Tables A.2 and A.3. These findings are also the basis for Table 4.13 in chapter four. The first table includes the analysis from the data sets that are split depending on the strength of market-enhancing institutions, and the second table includes the analysis from the data sets that are split depending on the presence or absence of a state intervention legacy. At the bottom of each table are predicted effects. Specifically, Table A.2 shows the effect of market reform conditional on whether market-enhancing institutions are effective or weak or absent, and Table A.3 shows the effect of market reform conditional on whether a legacy of significant state economic intervention is present or absent.

With the limited data, model 2 tests my argument that market reform increases corruption when market-enhancing institutions are weak or absent and a state economic intervention legacy is present. The results, however, are not as expected, most likely because the CPI measures both grand and petty corruption. The model shows that when market-enhancing institutions are weak, the result is an interaction effect between a legacy of state intervention and market reform, such that market reform reduces corruption when a state economic in-
TABLE A.2. Corruption Perceptions Index regressed on legacy and market reform variables for countries of the world

<table>
<thead>
<tr>
<th>MARKET-ENHANCING INSTITUTIONS</th>
<th>MODEL 2</th>
<th>SE</th>
<th>MODEL 3</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legacy</td>
<td>.597**</td>
<td>.083</td>
<td>.337**</td>
<td>.138</td>
</tr>
<tr>
<td>Market reform</td>
<td>.123*</td>
<td>.071</td>
<td>.114</td>
<td>.143</td>
</tr>
<tr>
<td>Legacy × market reform</td>
<td>-.038†</td>
<td>.024</td>
<td>.016</td>
<td>.025</td>
</tr>
<tr>
<td>Constant</td>
<td>1.774</td>
<td>.444</td>
<td>3.581</td>
<td>1.123</td>
</tr>
<tr>
<td>Observations</td>
<td>40</td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>.632</td>
<td>.214</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** *= p < .01; * = p < .05; † = p < .10.

The effect of market reform on corruption

When legacy = 0 (high intervention) .123 (decrease) NA
When legacy = 10 (low intervention) −.257 (increase) NA

(“Increase” and “decrease” are expressed in terms of level of corruption not the CPI scale, where an increase in CPI means a decrease in corruption.)

TABLE A.3. Corruption Perceptions Index regressed on market-enhancing (M-E) institutions and market reform variables for countries of the world

<table>
<thead>
<tr>
<th>LEGACY</th>
<th>MODEL 4</th>
<th>SE</th>
<th>MODEL 5</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market-enhancing institutions</td>
<td>.034**</td>
<td>.014</td>
<td>.014†</td>
<td>.009</td>
</tr>
<tr>
<td>Market reform</td>
<td>.095†</td>
<td>.060</td>
<td>−.308*</td>
<td>.146</td>
</tr>
<tr>
<td>M-E institutions × market reform</td>
<td>.000</td>
<td>.002</td>
<td>.004*</td>
<td>.002</td>
</tr>
<tr>
<td>Constant</td>
<td>2.089</td>
<td>.382</td>
<td>5.194</td>
<td>.629</td>
</tr>
<tr>
<td>Observations</td>
<td>33</td>
<td>59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>.560</td>
<td>.250</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** *= p < .01; * = p < .05; † = p < .10.

The effect of market reform on corruption

When m-e institutions = 0 (absent or weak) .095 (decrease) −.308 (increase)
When m-e institutions = 134.4 (effective) .095 (decrease) .230 (decrease)

(“Increase” and “decrease” are expressed in terms of level of corruption not the CPI scale, where an increase in CPI means a decrease in corruption.)

tervention legacy is present and increases it when a state economic intervention legacy is absent. Market reform most likely decreases corruption, as measured by the CPI, even when a legacy is present, because it reduces government officials’ opportunities to engage in grand corruption, as the overbearing state theory would predict. As significant state economic intervention is reduced even without effective market-enhancing institutions, the net effect is to reduce the
CPI value because it includes grand corruption. The negative effect on petty corruption that my argument predicts is perhaps masked by the positive effect on grand corruption.

The additional finding from model 2 that market reform increases corruption when both a legacy and market-enhancing institutions are absent or weak is consistent with my argument and with grand corruption theories. My argument emphasizes the importance of market-enhancing institutions, and grand corruption theories highlight that market reform offers government officials new opportunities to engage in illicit exchanges, regardless of the history of state intervention.

More technically, model 2 shows that the legacy, market reform, and interaction effect variables are significant at the .01, .05, and .10 levels, respectively. When seven additional countries, which lack data on the natural resources variable, are included in this analysis these variables are significant at the .01 level. The results here indicate that with a maximum level of state economic intervention (legacy = 0) market reform has a positive effect, and a one-unit increase in market reform increases the CPI score by .123 (meaning slightly less corruption). With no legacy of state economic intervention (legacy = 10), market reform has a negative effect, and a one-unit increase in market reform reduces the CPI score by .257 (meaning somewhat more corruption). Remember, a higher number for CPI represents less corruption. In model 3, market reform is not statistically significant, meaning it has no influence on corruption when market-enhancing institutions are effective. So, I did not calculate predicted effects.

Now let us consider the analysis where the data set is split depending on whether a legacy of significant state economic intervention is present or absent. These results appear in Table A.3. They are consistent with the findings described above. Specifically, in model 4, where the legacy is present, the interactive term is not significant, so market-enhancing institutions do not influence market reform’s effect on corruption when a legacy is present. Instead, market reform consistently decreases corruption when a legacy is present. Model 5 again shows the importance of market-enhancing institutions to reducing corruption. With no market-enhancing institutions, a one-unit increase in market reform increases corruption, reducing the CPI score by .308. However, with the maximum number of market-enhancing institutions in the data set (a score of 134.4), each one-unit increase in market reform increases the CPI score by .230, indicating a reduction in corruption. When the additional seven countries are included, all three variables reach the .01 level of statistical significance.

1. With the inclusion of the additional seven countries, the market reform variable is significant at the .05 level.
Including the alternative explanations in the statistical analysis indicates that the argument is not spurious. For the calculation, I regressed CPI on the legacy, market-enhancing institutions, market reform, state regulation, poverty, and natural resource endowment variables. Model 6 in Table A.4 shows that the market-enhancing variable remains significant at the .01 level. So, none of the three alternative explanations, even though they were the leading contenders, can account for all of my explanatory factors and corruption. This result offers strong evidence that my argument is not spurious. Moreover, the result shows that a weakness or absence of market-enhancing institutions does, in fact, contribute to a higher level of corruption. With a significance level of .10, the chance of obtaining the result when no relationship actually exists is less than 10 percent. The magnitude of the effects remains small, likely because the CPI score is only a rough proxy for petty corruption. A one-unit increase in the market-enhancing institutions variable represents a .2 percent increase in the range of actual CPI scores, so its effect did grow smaller.

The coefficient for the legacy variable drops substantially from .410 to .079, and the market reform variable loses significance, as a comparison of models 6 and 1 in Table A.4 indicates. A possible explanation for these changes is the introduction of the state regulation variable, which is significant at the .01 level. Logically, the legacy and state regulation variables could be related as they both measure state economic intervention. High state economic intervention, measured as deposits in state banks relative to private banks in 1975, could contribute to high state regulation, measured as the number of procedures to register a business in 2009. Including the intervening variable of state regulation in the analysis reduces the effect of the antecedent legacy variable. As models 2 through

<table>
<thead>
<tr>
<th></th>
<th>Model 6 CPI</th>
<th>SE</th>
<th>Model 1 CPI</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legacy</td>
<td>.079†</td>
<td>.052</td>
<td>.410**</td>
<td>.069</td>
</tr>
<tr>
<td>Market-enhancing institutions</td>
<td>.015**</td>
<td>.003</td>
<td>.020**</td>
<td>.005</td>
</tr>
<tr>
<td>Market reform</td>
<td>.015</td>
<td>.044</td>
<td>.158**</td>
<td>.064</td>
</tr>
<tr>
<td>State regulation</td>
<td>−.160**</td>
<td>.036</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Poverty</td>
<td>.00006754**</td>
<td>.000</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Natural resource endowment</td>
<td>−.00000001705</td>
<td>.000</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Constant</td>
<td>3.850</td>
<td>.505</td>
<td>1.764</td>
<td>.490</td>
</tr>
<tr>
<td>R-squared</td>
<td>.816</td>
<td></td>
<td>.520</td>
<td></td>
</tr>
</tbody>
</table>

** = p < .01; * = p < .05; † = p < .10.
4 demonstrated, the market reform and legacy variables interact, so market reform lost its significance once the legacy variable was included. Unfortunately, the data set has too few cases to test for additional interactions, such as between the state regulation and legacy variables.

More broadly, this model indicates that my explanatory factors are only sufficient, not necessary, for corruption. Besides state regulation, poverty is another factor that contributes to corruption. The results indicate that the more procedures required to start a business and the lower GDP per capita the higher the level of corruption. Remember that the higher the CPI score, the lower the level of corruption. Like state regulation, poverty is significant at the .01 level. The magnitude of the effects is small for state regulation and minuscule for poverty. A one-unit increase in the state regulation variable represents a 2 percent decrease in the range of actual CPI scores. A one-unit increase in the poverty variable, meaning an increase in GDP, represents a .0009 increase in the range of actual CPI scores. The natural resource endowment variable is not statistically significant, meaning that there is no evidence that this variable has an effect on the corruption variable.