Abstract: This paper explores the claim that small states are particularly sensitive to the detrimental effects of systemic corruption on international sports performance, which was previously made on the basis of medal counts at the Games of the Small States of Europe and the summer and winter editions of the Olympic Games. The present study aimed to further investigate the validity of such a claim and its generalisability in other sporting contexts. Due to its worldwide popularity and expansive global infrastructure, international football was selected as an ideal main discipline for probing such effects. The points system used by its highest international governing federation to rank countries across men’s and women’s categories was used as the main dependent variable of interest. A multiple regression analysis was then carried out to estimate the effects of small state status on performance, across all levels of corruption, while controlling for overall population size. The findings strongly support the central thesis that small states have a unique susceptibility to the effects of systemic corruption on sports performance in international football. Serious concerns are consequently raised about the capacity for real improvements in international sports performance by Malta or other small states, should policymakers and sports administrators fail to more meaningfully promote transparency, trustworthiness, accountability, and indeed any fundamental principles antithetical to systemic corruption both within and beyond the microcosm of sports communities.

Keywords: sports; football; corruption; corruption perceptions index; small states; international; performance; macro factors

Introduction

In Muscat-Inglott and Vella-White (2021), the argument was made that Maltese performance in international sports has so far been understood mostly in terms of individual factors like the personal physiological, behavioural and psychological attributes of competitors, instead of broader macro-factors applicable at a societal level. That paper made the central claim that while macro-factors like gross domestic product (GDP) and total population size affected Olympic medal counts at the pan-European level, corruption perception was the stronger predictor of success at the small state level, taking medal counts at the Games of the Small States of Europe (GSSE) as the main dependent variable. Corruption perception was measured using the international Corruption Perceptions Index (CPI) maintained by Transparency International (TI 2022a). The correlation was inverse, meaning the higher the corruption, the worse the performance. If this is really the case, then profound implications arise for stakeholders in Maltese sports, because no matter how many alternative strategies are employed, improvements in international sports remain unlikely without first meaningful engaging with systemic anti-corruption measures. This paper assumes a locally contextualised scope, dedicated towards substantive theory development and engagement with real-world research problems grounded in local sports settings, useful to
and applicable by Maltese stakeholders. Given that the focus of the study was on Malta as a small state, the findings are also presented in the spirit of sports development in all small states everywhere.

Corruption in sport is often conceptualised in specific, delineated terms. Otherwise stated, corruption in sport is typically understood as specific sport-related issues like match-fixing (Amenta and Di Betta 2020), doping, or anything that is in essence antithetical to the ideal values associated with healthy sports participation like honesty, fair play, respect and non-discrimination (Dimant and Deutscher 2015; Ordway and Opie 2016). Direct instances of corruption operating exclusively within the microcosm of sports communities have been attributed at least in part to the increasing professionalisation and commercialisation of sport which has been underway for some decades now. Indeed, criminalisation has been described as the latest phase on the historical sports corruption timeline, given the much-publicised involvement by law-enforcement agencies in various recent high-profile corruption cases worldwide (Masters 2015).

However, treating corruption in sport as an isolated or delimited phenomenon existing within the strict confines of specialised sporting contexts may lead to an impoverished and constrained view of the problem, as well as a generally diminished capacity to plan and act effectively in pursuit of improved international sporting performance. Taking a broader view, studies have shown that there is an association between society-wide estimates of systemic corruption and international sports performance. Studies have suggested that the more corrupt a country is generally perceived to be, the worse it is likely to perform in international sports. Andrade Rosas and Flegl (2019) explored macro factors affecting performance at the 2016 summer Olympic Games in Rio according to medal counts, and reported CPI as one of three significant factors comprising their best model for predicting success (alongside GDP and economically active proportions of populations). Luiz and Fadal (2011) similarly included CPI in their statistical models for explaining Olympic success, showing a degree of consistency across various geographical regions.

The kind of corruption measured by the CPI is distributed across “all levels of society” (TI 2022b). These levels are defined more specifically by TI as, “government, politics, business, civil society and the daily lives of people”. The explanatory and predictive power of CPI reported by existing studies suggests that this broader, more ubiquitous form of systemic corruption exerts real and measurable effects on international sports performance, without necessarily taking into account more direct, sport-specific instances of corruption like the prevalence of doping scandals, match-fixing, misappropriation of funds, and others. In other words, the reported effects of CPI imply that a deeper, preceding and perhaps more entrenched culture of corruption in society likely permeates sports organisations and subcultures before more overt manifestations of corruption suddenly materialise (and become amenable to study in and of themselves). By virtue of its ubiquity, however, and the permeability of boundaries between sports subcultures and the wider community, systemic corruption in the context of sport, particularly in countries with higher levels of such systemic corruption, risks remaining tacit, unacknowledged, and consequently unquestioned and unaddressed.

By drawing attention to systemic corruption and sports, greater sensitivity might be nurtured towards the previously unexamined attitudes, beliefs, assumptions, and unquestioned practices that are a direct reflection of wider surrounding cultures of systemic corruption. The claims made in Muscat-Inglott and Vella-White (2021) are disconcerting because they specifically imply that small states like Malta are particularly susceptible to the harmful effects of systemic corruption on international sports performance, engendering a careful and honest examination of the often tacitly held attitudes, beliefs, and assumptions influencing day-to-day sports administration on the islands. The present study, therefore,
looked to further explore the above claims, in broader sporting contexts beyond the constraints of the GSSE and distinctly European region.

International football was selected as an ideal setting, given its significant global stature and influence. Indeed, researchers frequently build assertions on the fundamental claim that football is the most popular sport in the world (Kassimeris 2012; Palacios-Huerta 2004; Şener and Karapolatgil 2015). Numerous and highly developed infrastructures in football exist in societies around the world, rendering objective measures of international football performance an ideal dependent variable for probing the effects of CPI and small state status. Ultimately, the study also aims to make a conceptual and theoretical contribution to existing work on more explicit manifestations of corruption in Maltese football (Aquilina and Chetcuti 2014; Armstrong and Mitchell 2008). More specifically, therefore, based on previous findings in the GSSE and distinctly European contexts, as well as other studies more broadly linking CPI with international sports performance, the present study was guided by the following main questions:

1. Is there a relationship between systemic corruption and performance in broader sporting contexts, namely international football?
2. Is the relationship between systemic corruption and performance in international football exacerbated in the unique context of small states?
3. Are there additional unique factors operating at the small state level, independently of mere population size?
4. Is the sensitivity of small states to impaired international sports performance due to corruption a uniquely European phenomenon?

**Methodology**

A quantitative study of publicly accessible data was carried out using multiple ordinary least squares regression analysis to address the above questions. The main variables of interest are operationalised and described below, followed by a more detailed presentation of the testable research and statistical hypotheses that were formulated.

**Data Collection**

The FIFA (Fédération Internationale de Football Association) international rankings are regularly updated using a dedicated algorithm that awards points for wins and losses played at home or away, importance of matches, as well as other factors, all in the context of previous positions in the rankings (FIFA 2022a). FIFA rankings are frequently used by sports researchers to test a wide range of hypotheses (Lasek et al. 2016; McHale and Davies 2007; Torgler 2004). In this study, most recent estimates for FIFA points were collated for both men (as of 6th October, 2022), and women (as of 9th December, 2022), from the official FIFA website (FIFA 2022b; FIFA 2022c). These were averaged to gain as broad a perspective as possible about the organisation of national and international football in each country. The FIFA points were taken as the primary dependent variable of interest (rather than the secondary ranking system they underpin), so the data could be treated as approximately normal (Figure 1) for the application of parametric statistical procedures like Pearson’s $r$ and ordinary least squares (OLS) regression.
Figure 1: Histogram for the main dependent variable

The second main variable of interest, CPI (TI 2022c), is a measure across 180 countries of perceived public sector corruption, drawn from various data sources including surveys and public data from agencies like the World Bank and World Economic Forum. TI take averages of standardised scores from at least three different data sources on each country (TI 2022d). Despite substantial concerns among citizens around the world about various forms of systemic corruption, surprisingly few valid means of measuring it have been developed, with TI's CPI emerging as a relatively popular summative data source by researchers and academics (Clark 2017; Gilman 2018). The World Bank's Control of Corruption (CC) indicator has also been nominated alongside the CPI as a viable measure of systemic corruption for social science research (Hamilton and Hammer 2018), however the CC and CPI have been found to be highly correlated ($r > .90$) by Chabova (2017). The older CPI was therefore selected as the main independent variable of interest for the present study. Once again, the original CPI scores were selected instead of rankings so as to meet the assumptions for application of parametric statistical procedures (Figure 2). It should be noted that a higher CPI score denotes a cleaner country in terms of corruption, or in other words, the higher the CPI score, the less corrupt a country is perceived to be. The term cleaner is retained wherever possible throughout this text for sake of clarity.
CPI and FIFA points were the main variables of interest for testing the association between corruption and international sports performance in small states. Aside from CPI, a vital independent variable was small state status. There is some variation in popular definitions of small nations, small states, and micro-states, so the World Bank (2022a) definition was adopted. According to the World Bank, “small states” are those with a population of less than 1.5 million people, and “micro states” are those with less than 200,000. Malta is frequently categorised as a micro state despite having a population of just over half a million people, so for the purpose of this study, the term small state is used instead. World Bank (2022b) data was also used to record the total population size of each country, such that each country could be appropriately classified simply as either a small state (= 1), or not a small state (= 0). European classification was coded according to membership (= 1) or non-membership (= 0) of the European branch of FIFA’s six regional federations (Africa, Asia, South America, Other Americas [including the Caribbean], Oceania, and Europe). Table 1 shows the complete set of variables operationalised for the study.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measurement</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td>FIFA points</td>
<td>Scale (points)</td>
<td>Average men’s and women’s FIFA points</td>
</tr>
<tr>
<td>$x_1$</td>
<td>CPI</td>
<td>Scale (points)</td>
<td>Corruption Perceptions Index points</td>
</tr>
<tr>
<td>$x_2$</td>
<td>Population</td>
<td>Scale (people)</td>
<td>Total population</td>
</tr>
<tr>
<td>$x_3$</td>
<td>SmallState</td>
<td>Nominal (1/0)</td>
<td>Is, or is not a small state</td>
</tr>
<tr>
<td>$x_4$</td>
<td>European</td>
<td>Nominal (1/0)</td>
<td>Is, or is not a state affiliated to UEFA</td>
</tr>
</tbody>
</table>

Table 1: All variables
Countries with missing data points were removed from the dataset. Of the initial 180 countries included in the CPI rankings, 20 were eventually excluded, resulting in a final total sample size of $N = 160$. The countries eliminated were Eswatini and Eritrea, which were missing from the FIFA rankings. Countries that were not included due to their absence from the women’s rankings were Bahamas, Qatar, Cabo Verde, Saudi Arabia, Oman, Sao Tome and Principe, Kuwait, Djibouti, Mauritana, Central African Republic, Iraq, Sudan, Chad, Libya, Afghanistan, Yemen, and Somalia. The data were collated, organised, and finally imported into the *Rstudio* (v2022.07.2) open-source statistical analysis software, running on a *Linux*-based open source operating system.

**Data analysis**

To address the four main research questions, OLS multiple regression analysis was used to explore a number of regression models and associated hypotheses. Various fundamental assumptions for multiple regression were therefore tested first. The main effect between the scale variables of interest (FIFA points and CPI) was treated as linear (Figure 3) to satisfy the basic assumption of a linear relationship.

![Figure 3](image.png)

**Figure 3: Linear relationship of main effect with fitted regression model**

To satisfy the assumption of multivariate normality, the residuals (from a model comprising terms for all five main variables) were treated as normally distributed according to both the Shapiro Wilk test ($W = 0.99, p = .47$) and a visual inspection of the normal Q-Q plot (Figure 4).
Figure 4: Q-Q plot for check of residual normal distribution

Finally, a scatter plot of the standardised residuals on predicted values from the model was checked for evidence of homoscedasticity. Figure 5 shows the residuals have a generally constant variance at every point in the linear model, with no apparent alternative structure or pattern emerging.

Figure 5: Scatter plot for homoscedasticity check

The assumption of no multicollinearity was tested by inspecting the correlation coefficients among the variables (see Table 6 below in the Results section). With the main assumptions met, a number of regression models were built to test a more specifically formulated set of four hypotheses, shown in Table 2.
**Research hypothesis** | **Model description** | **Regression model** | **Statistical hypothesis**
--- | --- | --- | ---
$H_1$: There is a relationship between CPI and FIFA points | FIFA pts $\leftarrow$ CPI | $y = b_0 + b_1x_1 + e$ | $H_0: b_1 = 0$
 |  |  | $H_1: b_1 \neq 0$

$H_2$: Controlling for CPI, population size has an effect on FIFA points | FIFA pts $\leftarrow$ CPI + Population | $y = b_0 + b_1x_1 + b_2x_2 + e$ | $H_0: b_2 = 0$
 |  |  | $H_1: b_2 \neq 0$

$H_3$: Controlling for CPI and population size, small state status has an effect on FIFA points | FIFA pts $\leftarrow$ CPI + Population + SmallState | $y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + e$ | $H_0: b_3 = 0$
 |  |  | $H_1: b_3 \neq 0$

$H_4$: Controlling for CPI and population size, the effect of small state status on FIFA points depends on location in the Europe region | FIFA pts $\leftarrow$ CPI + Population + SmallState + Europe + (SmallState * Europe) | $y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_3x_4 + e$ | $H_0: b_5 = 0$
 |  |  | $H_1: b_5 \neq 0$

**Table 2: All four research hypotheses and associated regression models**

$H_1$ was intended to address the first research question concerned with the relationship between systemic corruption and performance in broader sporting contexts, namely international football. A rejection of the null would mean the evidence supports the existence of such an association beyond the constraints of the GSSE. $H_2$ was designed to establish if population, while holding CPI constant, exerted an observable effect on performance according to FIFA points. This was needed in order to later partition the effects of small state status from those of population size alone. Rejecting the null, in this case, would serve to address both questions two and three. It would indicate if population itself does significantly influence performance, holding CPI constant, thereby allowing the unique effects of small state status to be identified in $H_3$. $H_3$ deals directly with the claim that small state status exerts a significant and unique effect on performance, while holding CPI constant. Population was retained as a covariate to test this hypothesis, to ensure that the effects of small state status were not due to population size alone. In other words, a significant effect of small state status on performance, while controlling for population, would suggest that there are unique aspects to small state status beyond mere size. And finally, $H_4$ was intended to test if the prospective effects of small state status on performance while holding CPI (and population) constant depend on location within the European region, as posited by the fourth research question.

**Results**

**Descriptives and Correlations**

Among the total sample of 160 countries, 24 were classified as small states. Table 3 shows these ranked according to their average FIFA points (representing both women’s and men’s football), along with associated CPI points and population size.
Table 3: All small states ranked overall by average male and female FIFA points

It is interesting to note Malta’s position in the middle of the table and how this compares with results in other sporting disciplines. Nevertheless, the FIFA points and CPI scores were the main factors of interest for the multiple regression analysis to follow. The basic descriptive statistics for the four main variables comprising the regression models are shown in Tables 4 and 5.
### Table 4: Descriptives for FIFA points and CPI

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>SE</th>
<th>SD</th>
<th>95% CI</th>
<th>Skewness (SE)</th>
<th>Kurtosis (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIFA pts</td>
<td>1300.19</td>
<td>1255.70</td>
<td>21.46</td>
<td>271.39</td>
<td>1257.82, 1342.57</td>
<td>0.36 (0.19)</td>
<td>-0.59 (0.38)</td>
</tr>
<tr>
<td>CPI</td>
<td>44.26</td>
<td>39.00</td>
<td>1.47</td>
<td>18.63</td>
<td>41.35, 47.17</td>
<td>0.66 (0.19)</td>
<td>-0.38 (0.38)</td>
</tr>
<tr>
<td>Population</td>
<td>47,121,596</td>
<td>10,357,617</td>
<td>12,755,819</td>
<td>1.6E+008</td>
<td>21,928,902, 72,314,291</td>
<td>7.63 (0.19)</td>
<td>62.20 (0.38)</td>
</tr>
</tbody>
</table>

### Table 5: Descriptives for small state status and membership of UEFA

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level</th>
<th>Frequency</th>
<th>Proportion</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>SmallState</td>
<td>1</td>
<td>24</td>
<td>.15</td>
<td>0.176</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>136</td>
<td>.85</td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td>1</td>
<td>44</td>
<td>.275</td>
<td>0.379</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>116</td>
<td>.725</td>
<td></td>
</tr>
</tbody>
</table>

### Table 6: Correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>FIFA pts</th>
<th>CPI</th>
<th>Population</th>
<th>SmallState</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SmallState</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * denotes significance at the 95% confidence level, and *** at 99.9%

While significant relationships emerged in two of the six relationships between the explanatory variables, they were well below the recommended threshold of $r = .80$, according to Thompson, Kim, Aloe and Becker (2017), suitably addressing any concerns about multicollinearity. Significant main effects emerging from the entire matrix included an association between FIFA points and CPI ($r = .41, p < .001$), indicating that those countries with higher CPI scores tended to exhibit better performance in international football, according to the FIFA points system. This provided some initial evidence in favour of $H_1$. It should be reiterated that higher CPI scores equate to less corruption or a cleaner country in terms of perceived corruption. In other words, the cleaner the country was in terms of corruption, the more likely it was to achieve better performance in international football.
Other significant associations in the matrix indicate that small states, on average, had higher CPI scores. The effect size was small, but statistically significant ($r = .17$, $p = .03$). Small states were also more likely, as expected, to have lower FIFA points overall ($r = -.37$, $p < .001$). The matrix further shows that European countries were more likely to have both higher FIFA points ($r = .45$, $p < .001$) and CPI scores ($r = .46$, $p < .001$) than countries in other regions.

**Hypothesis Test Results**

Tables 7 to 10 show the outputs for the regression models designed to test the four main hypotheses of the study ($H_1$ to $H_4$).

<table>
<thead>
<tr>
<th>Term</th>
<th>$b$</th>
<th>SE</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1033.91</td>
<td>50.64</td>
<td>20.42</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>CPI</td>
<td>6.02</td>
<td>1.06</td>
<td>5.70</td>
<td>&lt; .001***</td>
</tr>
</tbody>
</table>

Note: $R^2 = .17$, $F = 32.52$, $p < .001$

*** denotes significance at the 99.9% confidence level

**Table 7: Regression output for $H_1$**

$H_1$ posited that CPI has an effect on FIFA points. The evidence was sufficient ($b_1 = 6.02$, $p < .001$) to reject the null hypotheses of no effect ($H_0$: $b_1 = 0$). According to the $R^2$ value, CPI scores explained 17% of the total variation in FIFA points. The $b_1$ coefficient shows that for every unit change in CPI score, FIFA points increased, on average, by 6.02 points, supporting the correlation coefficient reported earlier in Table 6 ($r = .41$). Overall, therefore, corruption appeared to have a significant effect on performance in international football, whereby the “cleaner” the country, the better the performance. The model can be more appropriately specified as:

$$\text{FIFA points} = 1033.91 + 6.02(\text{CPI})$$

In the case of Malta, which had a CPI score of 54, we would estimate a FIFA points tally, according to the above model, of 1358.99 ($1033.91 + [6.02 \times 54]$). Given that Malta’s FIFA points were actually, 1107.06, the model overestimates the actual score somewhat (+251.93), suggesting that additional factors might help increase its explanatory power. In response to the first research question, the findings show that systemic corruption does affect international sports performance beyond the GSSE and distinctly European contexts originally shown in Muscat-Inglott and Vella-White (2021). $H_2$ next looked to test, holding the effect of CPI constant, what additional variation in FIFA scores was attributable to changes in population size.

<table>
<thead>
<tr>
<th>Term</th>
<th>$b$</th>
<th>SE</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1017.29</td>
<td>50.62</td>
<td>20.10</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>CPI</td>
<td>6.11</td>
<td>1.04</td>
<td>5.86</td>
<td>&lt; .001***</td>
</tr>
<tr>
<td>Population</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>2.19</td>
<td>.03*</td>
</tr>
</tbody>
</table>

Note: Adjusted $R^2 = .18$, $F = 19.04$, $p < .001$

*** denotes significance at the 99.9% confidence level, and * at 95%

**Table 8: Regression output for $H_2$**
The evidence was sufficient ($b_2 < .01, p = .03$) to reject the null hypothesis ($H_0: b_2 = 0$) of no effect. While holding the effects of corruption constant, therefore, FIFA points increased where population sizes rose. The model can be more precisely specified as:

$$FIFA \ points = 1017.29 + 6.11(CPI) + 0.00000026(Population)$$

In the case of Malta, plugging in the correct CPI value of 54 and population size of 516,869, the above model predicts a FIFA points tally of 1347.36. The FIFA points were still overestimated somewhat (+240.3), but the model represents a 1% improvement in explanatory power according to the change in $R^2$, equating to an improvement of 11.63 points of accuracy on the previous model. The population term and its significant $p$ value shows that while holding the effects of corruption constant, for every added person in the overall population, we see a slight corresponding increase in FIFA points. In other words, larger countries still perform better as their populations increase, in spite of the adverse effects of corruption on performance. Conversely, we can say that the smaller the country is in terms of population, the more corruption tends to have a negative effect on their performance. This lends additional support to the central thesis that corruption has a more destructive effect on performance specifically in smaller countries.

The aim of $H_3$ was to answer the third research question more directly. The hypothesis looked to determine if, while controlling for the influence of population size, small states still have a unique susceptibility to the negative effects of corruption.

<table>
<thead>
<tr>
<th>Term</th>
<th>$b$</th>
<th>SE</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1024.51</td>
<td>44.67</td>
<td>22.93</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>CPI</td>
<td>7.16</td>
<td>0.93</td>
<td>7.67</td>
<td>&lt; .001***</td>
</tr>
<tr>
<td>Population</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>1.68</td>
<td>.10</td>
</tr>
<tr>
<td>SmallState</td>
<td>-330.57</td>
<td>48.89</td>
<td>-6.76</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

Note: Adjusted $R^2 = .37$, $F = 31.55$, $p < .001$, * denotes significance at the 99% confidence level, *** at 99.9%

Table 9: Regression output for $H_3$

The evidence was sufficient ($b_3 = -330.57, p < .001$) to reject the null hypothesis ($H_0: b_3 = 0$) of no effect. While controlling for the effects of both corruption and population size, being a small state accounted for a significant amount of additional variation in FIFA points. The standardised beta coefficient for the small state term ($\beta = -0.44$) indicated a moderately strong effect size, which is equivalent to an adjusted $r$ value of .44. This represents the effect size of the association between being a small state and FIFA points, adjusted for CPI and population size. The result constitutes strong evidence that corruption is particularly problematic for small states, as the refined model shows:

$$FIFA \ points = 990.32 + 0.00000018(Population) + 7.16(CPI) - 330.57(SmallState)$$

Once again, the effects of the various terms can be more easily interpreted by using the model to make a prediction. Malta’s CPI and population values can be plugged in as before, but the new term for small state status ($SmallState = 1$) now leads to a subtraction of 330.57 FIFA points. In other words, holding corruption and population constant, small states obtain, on average, 330.57 FIFA points less than bigger states. For Malta, this leads to a predicted value of 1046.48. This is the closest modelled estimate so far, given Malta’s
actual points were 1107.06, a difference of only -60.58 points. The change in adjusted $R^2$ also confirms that this model explains 19% more variation in FIFA points than the last, as a direct result of accounting for the unique and statistically significant effect of being a small state.

In response to the third research question, the above model shows that being a small state appears to exert an independent effect on performance, over and above that of total population alone. In other words, there is something unique about small nations beyond their sheer size difference to larger countries in terms of population that makes them particularly susceptible to the negative effects of corruption on international sports performance. These findings strongly support the claim that corruption plays a greater role in determining international sporting success in the case of small, as opposed to bigger countries not classified as small states. They also provide impetus for further research aimed at understanding what such unique factors might be. The analysis was so far limited to the European context, so $H_4$ was designed to test if the small state effect was indeed unique to the European region or not.

<table>
<thead>
<tr>
<th>Term</th>
<th>$b$</th>
<th>SE</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1058.90</td>
<td>43.46</td>
<td>24.37</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>CPI</td>
<td>5.16</td>
<td>1.01</td>
<td>5.11</td>
<td>&lt; .001***</td>
</tr>
<tr>
<td>Population</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>2.23</td>
<td>.03*</td>
</tr>
<tr>
<td>SmallState</td>
<td>-305.77</td>
<td>54.37</td>
<td>-5.62</td>
<td>&lt; .001***</td>
</tr>
<tr>
<td>Europe</td>
<td>174.72</td>
<td>44.37</td>
<td>3.92</td>
<td>&lt; .001***</td>
</tr>
<tr>
<td>SmallState * Europe</td>
<td>2.72</td>
<td>105.00</td>
<td>0.03</td>
<td>.98</td>
</tr>
</tbody>
</table>

Note: Adjusted $R^2 = .42$, $F = 24.37$, $p < .001$

* denotes significance at the 95% level, ** at 99%, and *** at 99.9%

**Table 10: Regression output for $H_4$**

The evidence was not sufficient ($b_5 = 2.72$, $p = .98$) to reject the null hypothesis ($H_0$: $b_5 = 0$) of no dependence on European location. In other words, it cannot be claimed that the effects of being a small state on FIFA points while holding CPI and population constant were dependent on the European context. Based on this result, there is no reason to believe that the small-state-corruptive effect is limited to Europe, and we remain just as likely to see it operating anywhere else in the world.

**Conclusion**

The study is based on the assumption that CPI is a valid measure of systemic corruption, but it should be noted that the index is not without its critics. Since the CPI score is a composite measure of several surveys and data sources, some researchers have questioned the validity in turn of such secondary data sources (Gilman 2018). A particularly strong objection to the index is its bias towards developed as opposed to developing countries (Budsaratragoon and Jitmaneeroj 2020). The correlation found between CPI scores and location in Europe ($r = .41$, $p < .001$) indeed supports the notion that an occidental, Eurocentric mentality may be at play in the development of CPI scores. However, given that the major categorisation in this study was related to small state status, and a majority of the 24 small states (75%, $n = 18$) were actually located outside Europe, the influence of Eurocentric biases was considered to have been suitably mitigated.
The findings reported in this paper are specific to international football, but add to previous research done in the GSSE context. More research is needed in other sports to explore the more generalised claim that systemic corruption has a more harmful effect on international sports performance in small states. More research is also needed to determine what factors are likely to operate in exacerbating such performance impairments across such sports. Understanding these effects are crucial for policymakers and administrators intent on taking action.

It should also be noted that the findings reported here should be interpreted in the context of TI’s specific definition of corruption, as is reportedly captured in the CPI statistic. TI broadly define corruption as “abuse of entrusted power for private gain” (TI 2021b). The data sources used to compile the index more specifically cover public sector manifestations of bribery, diversion of public funds, officials using their public status for private gain (without facing consequences), ability of governments to contain corruption in the public sector, excessive red tape, nepotism, transparency among public officials concerning finances and conflicts of interest, legal protection for whistle-blowers, and state capture by narrow vested interests (TI 2022b). Such categories constitute ideal conceptual underpinnings for future research aimed at more specifically analysing manifestations of systemic corruption in small states.

Trust is considered to be a key ingredient in authentic leadership in sports organisations (Takos, Murray and O’Boyle 2018), and it is a fair assumption that where trust and transparency are lacking, athletes may underperform. Henry and Lee (2004) specifically cite transparency in decision-making and resource-allocation, accountability (including to the athletes themselves), democratic access to decision-making, responsibility for resources and the broader community, equity and fair treatment of all, effective and realistic goal-setting, and efficiency in the use of resources. Comparable principles have been discussed extensively in the literature on sports administration, and include democracy, transparency, gender equality and self-regulation, which are already enshrined in broader European regulations (Chaker 2004). Openness, transparency, communication, and accountability are similarly celebrated in the Olympic movement and associated policies (IOC 2008), and provide a sound basis for initiatives designed to address systemic corruption, at least within sporting communities in lieu of wider societal reform. There is a degree of permeability between sports organisations and the broader community, and some debate about the direction causality likely flows in terms of the spread of systemic corruption and the effects of prospective counter-measures (Manolei et al. 2022). In this sense, anti-corruption initiatives appear desirable at all levels.

In conclusion, the present study ultimately provides impetus for local administrators to engage in meaningful anti-corruption measures. It shows that systemic corruption, as depicted by CPI, has a statistically significant effect on performance in international football ($r = .41, p < .001$). This lends support to previous research positing significant effects of CPI on international sports performance Andrade (Luiz and Fadal 2011; Rosas and Flegl 2019). Furthermore, this effect has been shown to be particularly pronounced at the small state level, with small state status accounting for significant and unique additional variation in FIFA scores unaccounted for by population size alone ($\beta = -0.44, p < .001$). Of interest to sports researchers in small states further afield, the findings also suggest that intensified small state performance impairment due to corruption is likely universal. The hypothesis that it was limited exclusively to the European context was not supported by the evidence ($\beta < .01, p = .98$). Cumulatively, the findings constitute strong support for the thesis that systemic corruption has unique and accentuated effects at the small state level, ultimately raising questions about how policymakers and sports administrators in small states hope to bolster international sports performance without genuine simultaneous efforts to reduce systemic corruption.
References


Gilman, S.C. 2018. ‘To understand and to misunderstand how corruption is measured: academic research and the corruption perception index’, Public Integrity, 20(sup1), S74-S88.


Kassimeris, C. 2012. ‘Franco, the popular game and ethnocentric conduct in modern Spanish football’, *Soccer & Society*, 13(4), 555-569.


Palacios-Huerta, I. 2004. ‘Structural changes during a century of the world’s most popular sport’, *Statistical Methods and Applications*, 13(2), 241-258.


