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A Kick for the GDP: The Effect of Winning the FIFA World Cup

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Abstract

This paper uses OECD data to examine whether winning the men's FIFA World Cup boosts GDP growth, as claimed by analysts and media outlets concomitantly with every edition of this football competition. By implementing both an event-study design and a synthetic difference-in-difference strategy, the analysis shows that winning the World Cup increases year-over-year GDP growth by at least 0.48 percentage points in the two subsequent quarters. This result seems primarily driven by enhanced export growth, which is consistent with a greater appeal enjoyed by national products and services on the global market after victory in a major sporting event.

I. Introduction

It is commonly believed that winning the men's FIFA World Cup leads to a boost in GDP growth. This popular conviction relies on the idea that success in one of the globally most viewed and prestigious sport competitions increases consumers' and investors' confidence who, if spurred by the victory and moved by enhanced Keynesian animal spirits, have the potential to affect the business cycle (Blanchard, 1993, Farmer and Guo, 1994). A 2018 Washington Times article argued that the winner of the 2018 World Cup final between France and Croatia was bound 'to get a nice boost in the pocketbook back home'.[1] This economic stimulus is at best believed to be very short-lived, since GDP growth generally contracts in the year following the victory of the World Cup, a phenomenon that in 2014 Forbes called the 'World Cup GDP Curse'.[2]

These insights are however based on simple and superficial glances at the national GDP time series of the most recent World Cup winners. Hence, they do not bear any causal interpretation, as they do not rely on a counterfactual scenario for how the GDP

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[1]https://www.washingtontimes.com/news/2018/jul/12/world-cup-winners-can-expect-gdp-boost-economy.
[2]https://www.forbes.com/sites/allenstjohn/2014/07/13/world-cup-gdp-curse/?sh=2771f9447db0.

growth rate of the same countries would have behaved had they not won the World Cup. This lack of evidence is somehow surprising, considering that winning the World Cup is by and large an unpredictable event influenced by factors that are unrelated to recent GDP growth. As a result, the identification of the economic consequences of winning the World Cup should be less prone to the endogeneity issues that usually characterize attempts to estimate a treatment effect, whatever the latter may be.

Nevertheless, analyses on the World Cup have primarily investigated only whether hosting the World Cup is beneficial to the national economy (Burgan and Mules, 1992, Szymanski, 2010). Most studies in the literature are relatively pessimistic regarding the effective economic returns of hosting mega sport events like the World Cup. For instance, Baade and Matheson (2004) conclude that US host cities of the 1994 World Cup experienced up to $9.3 billion in cumulative losses, contrarily to the expected $4-billion gain. Similarly, Hagn and Maennig (2008) argue that the 1974 World Cup held in Germany did not have long-term effects on employment. More optimistic figures are provided by Lee and Taylor (2005), who examine the 2002 tournament held in Japan and South Korea. Using survey data, the paper distinguishes between World Cup and non-World Cup tourists to identify the economic stimulus brought by the former, which the authors estimate to be of about $713 million of added value for South Korea. However, such boost to the tourism sector is unlikely to cover the costs that come together with hosting the World Cup; according to Peeters, Matheson, and Szymanski (2014), each tourist attracted by the 2010 World Cup cost South Africa up to $13,000 in stadia construction.

The Olympic Games are another major sport event widely studied in the literature. Again, most efforts have been devoted to measure the economy of the Summer Olympics, which also are likely to bring little economic benefits to the host country, especially in the long run (see Billings and Holladay, 2012, Li, Blake, and Thomas, 2013, Baade and Matheson, 2016).[3] However, Rose and Spiegel (2011) show that already submitting a bid to host the Olympic Games generates a permanent 20% rise in trade, regardless of whether eventually the bid was successful or not. Furthermore, Hotchkiss, Moore, and Zobay (2003) show that hosting the Games in 1996 increased at least employment rates in the counties of Georgia which were close to Olympic activity. Finally, Dolan *et al.* (2019) conclude that being the host city of the Olympic Games has intangible positive consequences, such as an increase in residents' life satisfaction.

This paper contributes to this body of research by providing among the first evidence on the economic effects of winning the World Cup. It implements an event-study design that studies whether GDP growth increases in the quarters following the victory of the World Cup, by comparing countries which won the tournament between 1961 and 2018 with a set of countries that, by contrast, did not win the Cup.[4] It also provides a synthetic

[3] A notable exception is Bernard and Busse (2004), who examined the determinants of Olympic success between 1960 and 1996. The authors find that population size and income per capita are relevant predictors of the number of medals won at the Olympic Games. See also Donald (1972) and Grimes, Kelly, and Rubin (1974).

[4] The main exceptions are Argentina (World Cup winner in 1978, 1986 and 2022) and Brazil (World Cup winner in 1958, 1962, 1970, 1994 and 2002), for which quarterly data on GDP are available only since 1993 and 1996, respectively. Since this study does not analyze the 2022 World Cup held in Qatar, Argentina will be classified

difference-in-difference (DiD) analysis by following the novel approach proposed by Arkhangelsky *et al.* (2021), which allows an examination of the GDP growth rate of winning countries and compares it with a counterfactual GDP time series created from the set of control countries for the explicit purpose of satisfying the parallel trend assumption.

Consistently with the conventional view, both approaches show that winning the World Cup increases significantly GDP growth only in the two quarters following the football competition. Possibly more surprisingly, this effect seems export-led rather than driven by consumption growth or capital accumulation.

The rest of the paper is organized as follows. Section II presents the econometric strategy and the data. Section III reports the results. Section IV tests their robustness. Section V draws conclusions.

II. Econometric strategy

Event study

The baseline model estimated in this study consists of the following event-study specification:

$$\Delta_4 \text{GDP}_{c,t} = \sum_{l,l\neq 0} \beta_l \text{WIN}^l_{c,t} + \theta_1 \text{HOST}_{c,t} + \zeta_1 \text{GDP}_{c,t-4} + \alpha_c + \mu_t + \epsilon_{c,t}, \qquad (1)$$

where Δ_4 denotes the fourth-difference operator, while $\text{GDP}_{c,t}$ is the logged GDP of country c in quarter t. Thus, this paper investigates the effects of winning the World Cup on the GDP growth rate, which is computed by comparing logged GDP levels of a given country in the same quarter of two consecutive years, that is, year-over-year (YoY) GDP growth.[5]

The variables of interest are the relative-time indicators $\text{WIN}^l_{c,t}$. They take value one for country c being l quarters from winning the World Cup and 0 otherwise. For countries that never won the World Cup in the period under study (i.e. the control countries), $\text{WIN}^l_{c,t}$ are therefore always zero-valued. The only winning indicator excluded from (1) has $l = 0$, which corresponds to the second quarter of the year when the Word Cup won by country c took place.[6] Importantly, the vector $\text{WIN}^l_{c,t}$ comprises two residual indicators, $\text{WIN}^{-16}_{c,t}$ and $\text{WIN}^{+16}_{c,t}$, which bin together all quarters that are more than four years before and after the victory of the World Cup, respectively. In addition, the counter of winning relative quarters, l, restarts exactly halfway in between two consecutive football successes of a country that won the World Cup more than once during the study period. Overall, the

among the control countries. Instead, Brazil will contribute to the estimation of the treatment effect of interest only through its 2002 World Cup success. See section II for more details.

[5]GDP is not expressed in per-capita terms as population data at quarterly frequency are available only for a few countries prior to the mid 1990s. Moreover, even population levels may be affected by a victory in a major sport competition like the World Cup (see Fumarco and Principe, 2021).

[6]Indeed, the World Cup has always taken place every four years between June and July, namely in between the end of the second quarter and the beginning of the third quarter of a given year. The only exception was the last completed World Cup, which is not part of the analysis; it was held in Qatar at the end of the fourth quarter of 2022.

vector of coefficients β_l will measure how winning the World Cup affects national GDP growth for each quarter around the running of the football competition.

$HOST_{c,t}$ denotes a control dummy for hosting the World Cup. It takes value one in the year when country c hosted a World Cup and zero otherwise. Its inclusion in (1) controls for the short-term economic effects of hosting the World Cup, which is a potential confounding factor in the analysis. Indeed, hosting the World Cup may affect GDP growth through the tourism inflow and the vast range of economic activities that are directly associated with the running and organization of the tournament.

Instead, the inclusion of the fourth lag in logged GDP, $GDP_{c,t-4}$, on the right-hand side of (1) controls for the fact that the likelihood of winning the World Cup appears correlated with the size of the national economy. Indeed, only eight countries and exclusively from Western Europe or South America (i.e. Argentina, Brazil, England, France, Germany, Italy, Spain and Uruguay) won at least one of the 22 editions of the World Cup. Moreover, the coefficient ζ_1 provides a chance to test the so-called conditional convergence hypothesis, namely to verify whether current GDP growth is negatively related to past GDP levels (Barro, 1991, Barro and Sala-i Martin, 1992, Mankiw, Romer, and Weil, 1992, Islam, 1995).[7]

α_c are country-specific fixed effects and μ_t are quarter-specific fixed effects. The former set of fixed effects accounts for unobserved and time-invariant country traits that affect economic growth. Quarterly fixed effects control for global shocks to GDP growth that hit all countries c on the same quarter. Finally, $\epsilon_{c,t}$ is the error term, which subsumes all residual time-varying and country-specific shocks to GDP growth. Because the latter is computed by means of a fourth-difference transformation, which compares two GDP records that are four calendar quarters distant from each other, $\epsilon_{c,t}$ is not only autocorrelated (as standard in a panel framework) but also likely to present a Moving Average (MA) structure. Indeed, any significant determinant of GDP growth omitted from Equation 1 and absorbed by $\epsilon_{c,t}$ could propagate in time and affect even GDP growth computed at the interim lags between t and $t-4$.

This statistical pattern is likely to characterize any analysis that relies on a long-difference transformation. By measuring the difference between two non-consecutive realizations of the outcome, long-differences inevitably introduce a MA component of an order which is directly tied to that of the chosen data transformation. Here, this issue gets possibly exacerbated by the spirit of the empirical strategy, which aims at estimating a plausibly temporary in nature effect such as that of winning the World Cup on GDP growth. Thus, failing to control for relevant shocks to GDP growth in the period immediately preceding the World Cup may compromise the identification of the event-study coefficients in the very short term following the treatment event. Equation (1) shall be able to consistently estimate the vector of interest, β_l, only under the condition that all the existing residual shocks do not systematically hit World Cup winners. Contrarily, any positive shock to GDP growth that also increases the chances of winning the World

[7]As noted by Caselli, Esquivel, and Lefort (1996), the growth model (1) is equivalent to a dynamic equation for (logged) GDP levels with a fourth lag on the right-hand side. In that case, the coefficient on lagged GDP is a measure of persistence rather than the speed of convergence, but otherwise the models are statistically identical.

Cup (e.g. large investments in the national football sector) would represent a source of upward bias in the treatment effects of interest potentially more serious than usual.

For this reason, it is important that the analysis appropriately accounts for the non-random probability of winning the World Cup. In this paper, I experiment with alternative lag specifications in logged GDP on the right-hand side of Equation (1), in order to reduce the risk of omitted variables in the baseline model. Furthermore, the next section presents a more agnostic identification strategy which does not aim at modeling selection into treatment explicitly, but rather compares countries with a similar evolution in GDP growth up to the occurrence of each World Cup event. Reasonably, this approach identifies GDP growth series affected by a similar set of factors, either observable or not, thus limiting the relevance of any MA error structure considerably. Still, the Data S1 discusses the results of a supplementary analysis which, using a multi-step approach, directly attempts at identifying and filtering out the MA component of $\Delta_4 GDP_{c,t}$ before the estimation of any treatment effect. Equation (1) is estimated via ordinary least squares (OLS) and SEs are clustered at the country level.

Identification of β_l in fact relies on three key assumptions: (i) parallel pre-trends; (ii) no anticipation effects; (iii) and exogeneity of a World Cup victory. Intuitively, the parallel trend assumption imposes that, prior to the football competition, countries winning the World Cup do not display trends in GDP growth that systematically differ from those of the control countries. Along the same lines, the absence of anticipation effects requires GDP growth not to react before the World Cup is actually won by country c. Finally, the exogeneity of a success in the World Cup assumes that the unobserved time-varying factors which influence the likelihood of winning the World Cup do not affect GDP growth either. Considering that, conditional on past GDP levels (proxied by the fourth lag in logged GDP) and factors like the historical football culture of a nation (absorbed by country fixed effects), a success in the World Cup is hardly predictable and often determined by pseudo-random factors (e.g. drawings of teams, game-specific episodes), all these requirements can be thought of as arguably satisfied.[8]

Synthetic DiD

Nevertheless, this paper implements even the synthetic DiD (SDiD) approach proposed by Arkhangelsky *et al.* (2021), which combines features from Synthetic Control (Abadie and Gardeazabal, 2003, Abadie, Diamond, and Hainmueller, 2010) and DiD (Ashenfelter and Card, 1985, Bertrand, Duflo, and Mullainathan, 2004) to model settings in which the parallel trend assumption is potentially violated. Because the SDiD strategy requires a reasonable pool of control units to construct an appropriate counterfactual trend in GDP growth to that of the World Cup winners, the attention in the SDiD analysis will be devoted only to the six World Cups held between 1994 and 2018.[9] Indeed, GDP data at quarterly frequency are available just for a limited number of countries prior to 1994 (more details are provided in section II).

[8]See also Acemoglu *et al.* (2019), who rely on a similar identification strategy to study how transition to or away from democracy affects growth.

[9]Thus, the set of World Cup winners in the SDiD model is made of: France (1998 and 2018), Brazil (2002), Italy (2006), Spain (2010) and Germany (2014).

Another challenge to estimate a SDiD model in the current framework is that France won the World Cup both in 1998 and 2018 (i.e. multiple treatments at different timing). To accommodate this feature of the data, the SDiD analysis will use a sample obtained by splitting the GDP time series into national subseries of 10 quarters, each of them covering the period around the running of a given World Cup. More specifically, for each country I define GDP subseries which start in the seventh quarter prior (i.e. $q = -7$) and terminate in the second quarter after (i.e. $q = 2$) the post-1994 World Cup that they refer to. Only the subseries of the winning country which covers the period around the World Cup won will be considered as affected by the treatment. In addition, this approach will permit the SDiD strategy to estimate an average treatment effect in the very short run, which is the only time window when the event-study design outlined in subsection II highlights an increase in GDP growth due to victory in the World Cup (see section III).

As an example, the GDP time series of Spain is divided into six shorter time series. The earliest subseries covers the period around the 1998 World Cup, by starting in the third quarter of 1996 and ending in the fourth quarter of 1998. Instead, the most recent subseries covers the period around the 2018 World Cup: it starts in the third quarter of 2016 and ends in the fourth quarter of 2018. Only one of these six subseries includes the second quarter of 2010, when Spain won the first (and last, so far) World Cup of its history. This latter subseries will be included in the set of treated series, denoted by N_1. The remaining five subseries of Spain will be part of the control group N_0, which in total will comprise 268 GDP subseries. The overall number of time series n used for the SDiD analysis therefore results from the number of countries and their number of available 10-quarter subseries ($N = N_0 + N_1 = 268 + 6 = 274$). Hence, the total number of GDP records used for the SDiD analysis is 2,740.

The SDID problem to solve can be written as:

$$(\hat{\lambda}, \hat{\beta}, \hat{\alpha}, \hat{\mu}) = \underset{(\lambda,\beta,\alpha,\mu)}{\arg\min} \left\{ \sum_{n=1}^{274} \sum_{q=-7}^{2} \left(\Delta_4 \text{GDP}_{n,q} - \beta \text{WIN}_{n,q} - \alpha_n - \mu_q\right)^2 \hat{\omega}_n \hat{\tau}_q \right\}, \qquad (2)$$

where λ is the average treatment effect of winning the World Cup in the two subsequent quarters, while $\text{WIN}_{n,q}$ is a static DiD indicator that takes value one after winning the World Cup and 0 otherwise. The right-hand side of (2) does not include any indicator for hosting the World Cup, since host countries do not represent good counterfactuals of winning countries as they are themselves potentially affected by the event under study. For this reason, the analysis described in this section is performed by discarding from the sample the subseries n which belongs to country c and covers the quarter when the World Cup was hosted by c (e.g. the subseries of Brazil covering the period around the 2014 World Cup held in Brazil).[10]

Similarly, (2) does not include any lag in logged GDP. Indeed, selection effects into treatment are explicitly modeled by $\hat{\omega}_n$ and $\hat{\tau}_q$, which, respectively, denote subseries-specific and relative quarter-specific synthetic weights. The objective of the former is to

[10]The only exception is the French GDP subseries around the 1998 World Cup, which is retained in the main SDiD analysis because France both hosted and won that World Cup. However, results are provided even after excluding this specific GDP subseries (see section III).

create parallel trends in GDP growth in the eight pre-World Cup quarters between the six treated subseries and a convex combination of the 268 control series. This goal is achieved by solving a problem of the following form:

$$(\hat{\omega_0}, \hat{\omega}) = \underset{(\omega_0 \in \mathbb{R}, \omega \in \Omega)}{\arg\min} \sum_{q=-7}^{0} \left(\omega_0 + \sum_{n_0=1}^{268} \omega_{n_0} \Delta_4 \text{GDP}_{n_0,q} - \frac{1}{6} \sum_{n_1=269}^{274} \Delta_4 \text{GDP}_{n_1,q} \right)^2 + \zeta^2 8 \|\omega\|_2^2, \tag{3}$$

where the synthetic weights for the control series, ω_{n_0}, vary and need to sum up to one, while the six treated series receive the same weight. ω_0 denotes an intercept term. Its inclusion in (3) provides some flexibility with respect to the pre-trends of treated and control series, which are not required to match perfectly (as in a standard synthetic control model) but only to be parallel.[11] Any constant difference between the two groups is in fact controlled by the series-specific fixed effects, α_n, included in (2). Instead, ζ is a regularization parameter, which guarantees the uniqueness of the synthetic weights by matching the average change in GDP growth of the control series.

On the other hand, the relative quarter-specific synthetic weights, τ_q, guarantee that the post-World Cup GDP growth of each control series differs by up to a constant from its average GDP growth in the pre-event period. Formally:

$$(\hat{\tau_0}, \hat{\tau}) = \underset{(\tau_0, \tau)}{\arg\min} \sum_{n_0=1}^{274} \left(\tau_0 + \sum_{q=-7}^{0} \tau_q \Delta_4 \text{GDP}_{n_0,q} - \frac{1}{2} \sum_{q=1}^{2} \Delta_4 \text{GDP}_{n_0,q} \right)^2. \tag{4}$$

Again, the synthetic weights for the pre-World Cup period, τ_q with $q \leq 0$, vary and need to sum up to one. Instead, the two post-World Cup quarters receive an equal weight of 0.5.

Data and samples

Time series data at quarterly frequency on GDP (and components) by country come from the OECD quarterly national accounts (QNA) dataset. The event-study model, (1), is estimated using a sample starting in 1961 and ending in 2021 inclusive. However, the GDP time series provided by the OECD starts after 1961 for several countries. As a result of this framework, the baseline sample is unbalanced and the GDP growth rates of only a subset of the actual number of World Cup winners and hosts are observed around the football tournament date. The information is summarized in Table A1.

Two countries of particular interest are Argentina and Brazil, which both won the World Cup more than once but present a quarterly GDP series starting only in 1993 and

[11] Another advantage of the algorithm developed by Arkhangelsky *et al.* (2021) is the possibility to estimate the treatment effect of interest by exploiting information from all World Cup winners at once, while standard synthetic control analyses often have to focus on settings in which only one unit is affected by the treatment of interest (see for instance Billmeier and Nannicini, 2013 and Campos, Coricelli, and Moretti, 2019). Given the limited number of countries for which GDP records are available at quarterly frequency, a synthetic control type of analysis for each separate World Cup event would be severely underpowered.

Table 1
Summary statistics for the event-study sample

	Winner		*Non-winner*		
	Mean	SD	Mean	SD	t-*test*
			1960–80		
GDP (in thousands of 2015 US dollar millions)	1,098.60	(417.39)	498.43	(1,163.13)	9.91***
Population (in millions)	54.43	(13.91)	26.15	(46.02)	11.85***
GDP per capita	19,697.70	(4,049.61)	19,708.23	(9015.79)	−0.02
Year-on-Year GDP growth	3.96	(2.83)	4.54	(3.42)	−3.08***
			1980–2000		
GDP (in thousands of 2015 US dollar millions)	1,802.83	(592.64)	852	(1,958.94)	9.99***
Population (in millions)	60.93	(22.04)	40.59	(99.01)	4.24***
GDP per capita	29,873.18	(5,652.38)	27,323.93	(14,022.82)	3.72***
Year-on-Year GDP growth	2.25	(1.82)	3.14	(3.54)	−5.11***
			2000–20		
GDP (in thousands of 2015 US dollar millions)	2,563.41	(659.91)	1,211.01	(2,750.20)	10.99***
Population (in millions)	84.61	(50.41)	65.80	(194.02)	2.17**
GDP per capita	35,574.93	(10,442.53)	33,633.54	(19,068.19)	2.24**
Year-on-Year GDP growth	1.05	(3.48)	2.55	(3.91)	−8.17***
			Full sample		
GDP (in thousands of 2015 US dollar millions)	1,908.88	(843.57)	958.65	(2,302.79)	14.68***
Population (in millions)	68.51	(37.53)	49.65	(148.58)	4.54***
GDP per capita	29,258.50	(10,061.40)	28,887.99	(16,921.76)	0.76
Year-on-Year GDP growth	2.33	(3.24)	3.22	(3.87)	−7.81***
Number of countries	6		42		
Number of observations	1,295		7,342		

Notes: Summary statistics by winner status for the full sample and selected 20-year subperiods. The t-statistics reported in the last column test whether the mean differences between winning and non-winning countries are statistically significant. GDP and population figures come from OECD data provided at quarterly and yearly frequency, respectively.

1996, respectively.[12] Since the 2022 Qatar World Cup is not part of the analysis and the Argentinian GDP series starts 10 years later than its previous World Cup success (Mexico 1986), the analysis collocates Argentina in the set of control countries. On the contrary, Brazil is collocated in the treated group and its GDP series hence starts only in the second quarter of 1998, which corresponds to precisely four years after the victory in the 1994 World Cup held in the USA.

A breakdown between host, winning and control countries is provided in Table A2. Six countries won at least one World Cup in the period when their GDP time series is examined: England (in 1966), Germany (in 1974, 1990 and 2014), Italy (in 1982 and 2006), France (in 1998 and 2018), Brazil (in 2002) and Spain (in 2010). Twelve countries hosted the World Cup. Thirty-six countries neither won nor hosted the World Cup in the analysis window.

The event-study sample is made of 8,637 observations, with an average of about 180 quarterly GDP records per country. Summary statistics by winner status for both the full sample and selected twenty-year periods are provided in Table 1, together

[12]Another type of exception is England, which hosted and won the 1966 World Cup, but for which GDP data are available only at the aggregate level of the UK.

with a *t*-statistic testing whether mean differences are statistically significant. On average, winning countries are characterized by larger populations and economies, especially starting from the eighties when quarterly GDP records are available for most countries.

III. Results

The economic effects of winning the World Cup

The main results of the event-study design are provided in Table 2. Most of the pre-victory coefficients are not statistically different from zero. This finding indicates that, conditional on past GDP levels and country fixed effects, the likelihood of winning the World Cup is largely unrelated to GDP growth. On the contrary, national GDP displays an accelerated growth in the first two quarters after success in the World Cup. More specifically, column 1 of Table 2 indicates that winning the World Cup causes quarterly GDP to grow by 0.454 and 0.683 percentage points in the first and second quarter following the football competition, respectively. These effects are statistically significant at the 10% level and indistinguishable from each other.[13] However, GDP growth returns to the pre-World Cup rate starting from the third quarter following the tournament: none of the remaining posttreatment indicators are in fact statistically significant. Thus, winning the World Cup seems to increase GDP growth only temporarily, with an effect that vanishes completely already after two quarters.

Finally, the coefficient associated with the host dummy is negative and not statistically significant. This finding is in line with the existing literature, as it confirms that there are limited economic returns from the act of hosting the World Cup itself.

A magnifying lens on the short term

The results reported in section III suggest that winning the World Cup has only a weak and short-lived positive effect on GDP growth, which seems to last for at most two quarters. This section provides additional evidence in support of this finding, by focusing on a narrower time window around the World Cup date and using the synthetic DiD approach presented in section II. The results of this analysis are summarized in Figure 1.

The trend in GDP growth of the synthetic control resembles well that of the winning country in the pretournament period. The two GDP growth series differ between each other only by a term that seems constant over time. Instead, after the running of the World Cup, the winning country presents a more pronounced GDP growth than its synthetic control. The gap in YoY GDP growth between the average World Cup winner and its counterfactual seems partially closed after two quarters from the World Cup. Overall, the average treatment effect in the two post-World Cup periods is estimated to be of 0.481 percentage points in GDP growth, which is slightly lower than the one recorded by the baseline event-study specification (see Table 2), but again statistically significant at the 10% level.

[13] A Wald test for their equality yields a *P*-value of 0.22.

Table 2
Event-study OLS estimates

	Δ_4 GDP	
	(1)	(2)
GDP (-4)	−1.368**	(0.588)
Host	−0.591	(0.545)
Winning the World Cup (−16 or more)	0.640	(0.673)
Winning the World Cup (−15)	0.363	(0.538)
Winning the World Cup (−14)	0.276	(0.655)
Winning the World Cup (−13)	0.286	(0.474)
Winning the World Cup (−12)	−0.082	(0.503)
Winning the World Cup (−11)	−0.226	(0.604)
Winning the World Cup (−10)	0.074	(0.769)
Winning the World Cup (−9)	−0.139	(0.616)
Winning the World Cup (−8)	0.098	(0.695)
Winning the World Cup (−7)	0.209	(0.570)
Winning the World Cup (−6)	0.196	(0.589)
Winning the World Cup (−5)	0.484	(0.621)
Winning the World Cup (−4)	−0.107	(0.535)
Winning the World Cup (−3)	−0.288	(0.479)
Winning the World Cup (−2)	−0.605	(0.432)
Winning the World Cup (−1)	0.125	(0.206)
Winning the World Cup (+1)	0.454*	(0.246)
Winning the World Cup (+2)	0.683*	(0.370)
Winning the World Cup (+3)	0.233	(0.335)
Winning the World Cup (+4)	0.140	(0.317)
Winning the World Cup (+5)	−0.189	(0.357)
Winning the World Cup (+6)	−0.034	(0.422)
Winning the World Cup (+7)	−0.288	(0.761)
Winning the World Cup (+8)	−0.314	(0.985)
Winning the World Cup (+9)	0.418	(0.387)
Winning the World Cup (+10)	−0.145	(0.421)
Winning the World Cup (+11)	0.021	(0.461)
Winning the World Cup (+12)	0.289	(0.583)
Winning the World Cup (+13)	−0.593	(0.606)
Winning the World Cup (+14)	−0.320	(0.628)
Winning the World Cup (+15)	−0.412	(0.676)
Winning the World Cup (+16 or more)	−0.109	(0.477)
Observations	8,637	
Within $R2$	0.423	

Notes: Event-study OLS coefficients reported in column 1. Clustered SEs at the country level reported in column 2. Significance levels: $^{*}P < 0.1$; $^{**}P < 0.05$; $^{***}P < 0.01$.

Similar results are displayed in Figure A1, which replicates the SDiD analysis after excluding the French subseries around the 1998 World Cup, both hosted and won by France. If anything, the average treatment effect is slightly larger and more imprecisely estimated than the one reported at the bottom of Figure 1.

Mechanisms

This section explores the nature of the drivers standing behind the increase in GDP growth that immediately follows a success in the World Cup. To do so, it replicates the entire

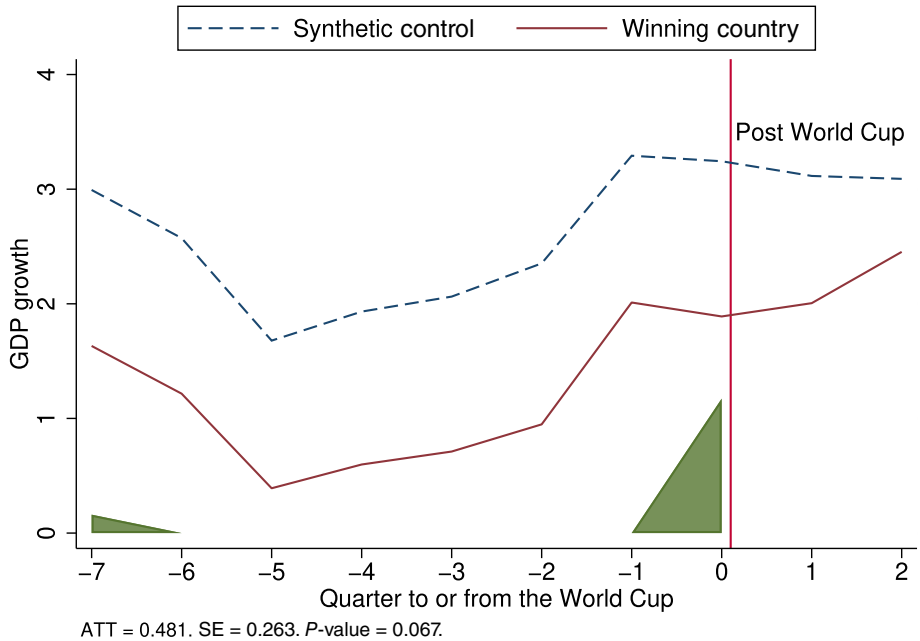

Figure 1. A synthetic difference-in-difference approach [Colour figure can be viewed at *wileyonlinelibrary.com*]
Notes: average treatment effect of winning the World Cup on year-over-year (YoY) GDP growth as estimated by the synthetic difference-in-difference model (2). The solid red line displays the GDP growth of the average World Cup winning subseries. The blue dashed line displays the GDP growth of its synthetic counterfactual. Standard errors are clustered at the country-subseries level and obtained via 1,000 bootstrap replications. The green areas at the bottom of the figure measure the time-specific synthetic weights, as estimated by equation (4). The analysis uses 10-quarter GDP subseries around the six World Cups held between 1998 and 2018. The total number of GDP records used is 2,740 (i.e. 274 GDP subseries)

analysis, but using as outcome variables the growth rates of the following five GDP components: private consumption, government consumption, capital formation, exports and imports. The results of the event-study approach are summarized in Figure 2, while the full set of coefficients is reported in Table A3.

The findings suggest that the effect on GDP growth is mainly determined by an increase in export growth. The fourth panel of Figure 2 shows that export growth is, on average, 5.12 percentage points higher in the second quarter following the victory of the World Cup. However, the growth rate of the export sector was already increasing for the winning country in the quarters preceding the World Cup, which clearly represents a violation of the parallel trend assumption. For this reason, the export time series is also examined using the synthetic DiD approach, the results of which are summarized in Figure 3. This strategy is considerably more successful in matching the pretrend in export growth rates between the set of treated units and the set of control ones. In the post-World Cup period, Figure 3 clearly shows how the export growth of the average winning country increases sharply if compared to its counterfactual. However, the associated treatment effect (an increase of 4.5 percentage points in export growth) is estimated very imprecisely and it is not statistically significant.

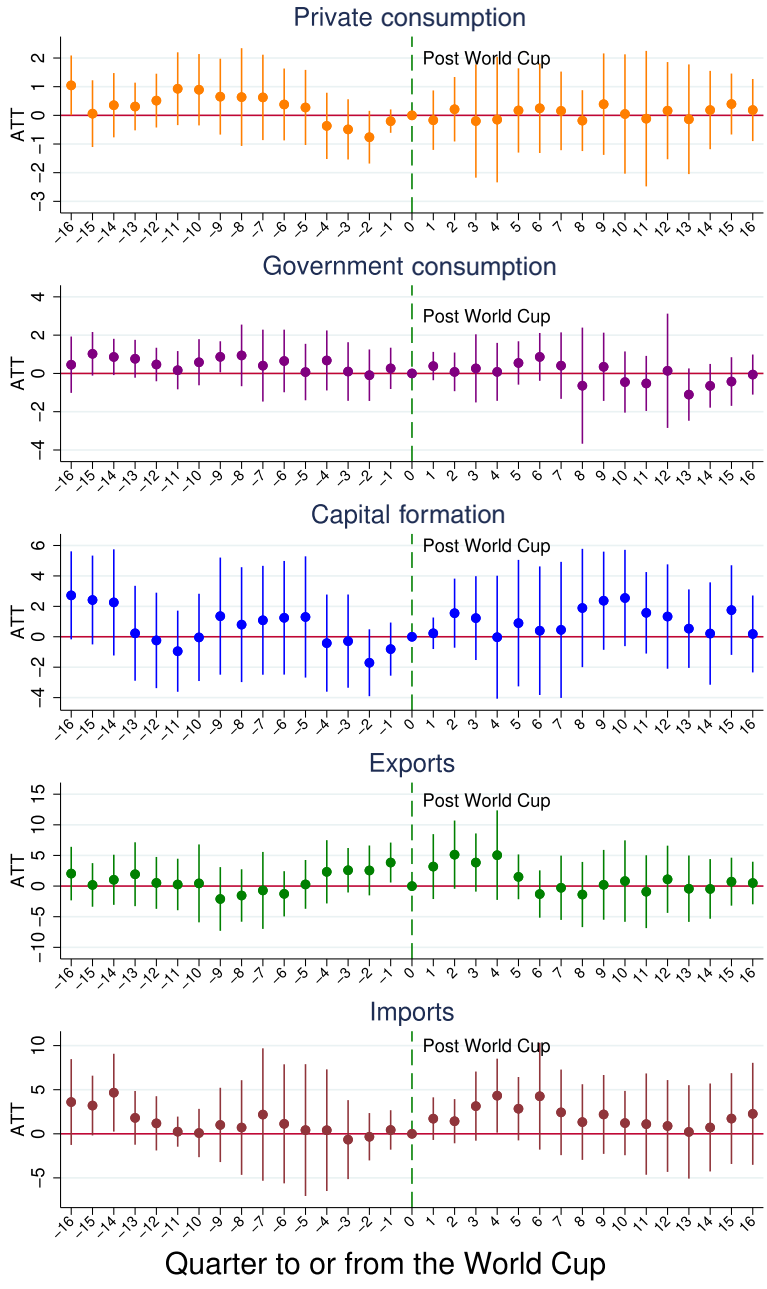

Figure 2. The effect of winning the World Cup on GDP components [Colour figure can be viewed at *wileyonlinelibrary.com*]
Notes: OLS coefficients and 95% confidence intervals for the event-study indicators for winning the World Cup included in (1), estimated separately for each of the following GDP components: private consumption, government consumption, capital formation, exports and imports. Standard errors are clustered at the country level

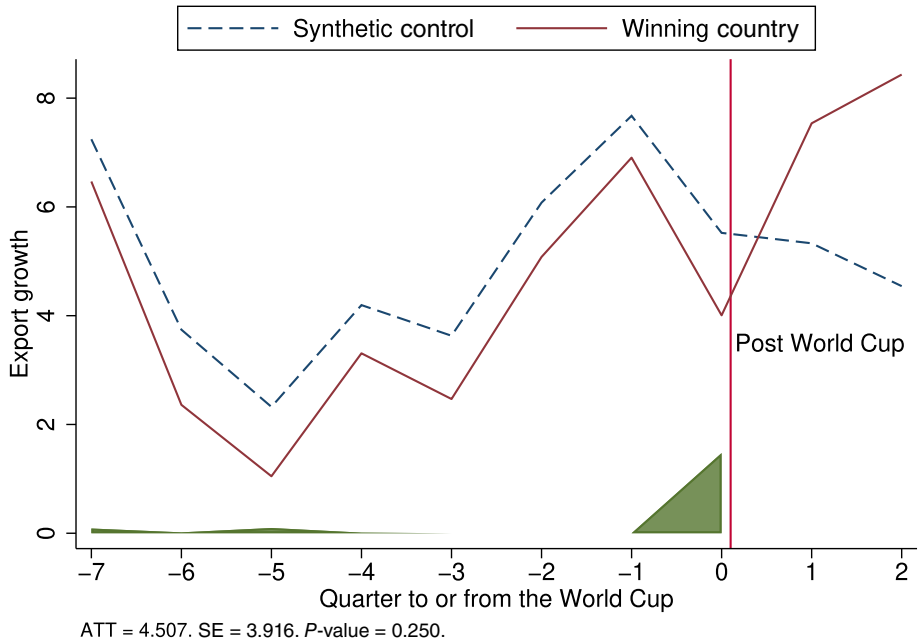

Figure 3. A synthetic difference-in-difference approach (Export growth). [Colour figure can be viewed at *wileyonlinelibrary.com*]
Notes: average treatment effect of winning the World Cup on year-over-year (YoY) export growth as estimated by the synthetic difference-in-difference model (2). The solid red line displays the export growth of the average World Cup winning subseries. The blue dashed line displays the export growth of its synthetic counterfactual. SEs are clustered at the country-subseries level and obtained via 1,000 bootstrap replications. The green areas at the bottom of the figure measure the time-specific synthetic weights, as estimated by equation (4). The analysis uses 10-quarter export subseries around the 6 World Cups held between 1998 and 2018. The total number of export records used is 2,690 (i.e. 269 export subseries)

The remaining panels of Figure 2 indicate that, following the victory of the World Cup, capital formation increases only slightly, with such effects that are not statistically significant. Winning the World Cup is also associated with an increase in import growth, although this boost is less pronounced (1.43 percentage points) than that of the export sector. Furthermore, it is noticeable from Table A3 how every GDP component presents a negative and significant convergence coefficient, which is larger in magnitude for capital formation and imports than for private consumption, government consumption or exports. Finally, qualitatively similar patterns emerge from performing the synthetic DiD strategy on each of these alternative outcomes, the results of which are displayed in Figures A2–A5.

IV. Robustness checks

GDP dynamics

This section tests further the robustness of the results by providing a set of analyses that deviate from equation (1) in the way they model GDP dynamics. Indeed, the inclusion

of the fourth lag in GDP as a covariate in equation (1) might not control for all the economic factors which potentially correlate with both GDP growth and the probability of success in the World Cup. Hence, it is important to investigate how the estimates of the baseline coefficients change when modelling the GDP dynamics with alternative specifications.

To begin, column 1 of Table A4 reports estimates after excluding the fourth lag in GDP from the set of control variables. The rationale of this sensitivity check is that lagged GDP may be in turn affected by the event under study, thus potentially representing a 'bad control' in the model and leading to the contamination of the main estimates of interest. However, the event-study coefficients provided in column 1 are very similar to the baseline ones displayed in Table 2. Hence, the findings of this paper do not rely on the inclusion of lagged GDP in the regression model, even though this control variable is a significant predictor of current GDP growth and possibly of the likelihood of winning the World Cup.

Columns 2-4 of Table A4 experiment by replacing the fourth lag in logged GDP with respectively the third, fifth and sixth lag in logged GDP. All models report findings that are in line with the rest of the paper. This fact suggests that the order of the lag does not matter, provided that it is sufficiently predetermined to the first two quarters following the World Cup.

Instead, column 4 includes all the first six lags as controls, thus modeling GDP dynamics with a rich autoregressive specification similar to Acemoglu *et al.* (2019). The results of this model should be taken with caution, since the inclusion of the very first lags in GDP is likely to impact directly the temporary treatment effect identified by the event-study indicators. The coefficients reported in column 5 highlight an increase in GDP growth only in the first quarter following the World Cup, which however is statistically significant at the 1% level.

Column 6 provides results for a model in which the fourth lag in logged GDP gets interacted with decade dummies, in order to capture the potential time-varying evolution of convergence effects. Indeed, a current debate in the convergence literature is about whether convergence patterns have changed over time (see for instance Acemoglu and Molina, 2021 and Kremer, Willis, and You, 2022). The coefficients of these interaction terms indicate that, if anything, the convergence phenomenon has sharpened over the last thirty years. Nevertheless, the event-study indicators associated with the first two quarters after the victory of the World Cup remain positive and statistically significant at the 10% level. Thus, the possible time-varying nature of convergence patterns does not represent an issue for the conclusions of this study. Overall, the set of results reported in this section confirms the existence of a short-lived boost to national GDP due to a success in the World Cup.

Country selection

Another concern related to the results presented so far is that they are obtained from a sample of countries that is quite heterogeneous. For instance, the control group listed in Table A2 consists of countries that are generally considered to have virtually no

chance to either win or host a World Cup. As a result, the same countries might have experienced alternative types of treatment related to the World Cup, such as an against any odds qualification to the final stage of the tournament or a better ranking placement compared to the expectations. These instances can all represent a confounding factor in the analysis.

For this reason, the current section provides a robustness check in which the baseline event-study model, (1), is estimated using a smaller and more homogeneous sample of countries. For each World Cup under study, I select the two control countries that—in the year prior to the football event—resemble the most the World Cup winner in either yearly GDP levels or total population. If a control country is selected as the nearest neighbour of a World Cup winner more than once, its GDP time series is duplicated accordingly (i.e. matching with replacement). Then, I estimate (1) using only the sample made of World Cup winners and matched control countries. This alternative subgroup of control countries certainly presents more similarities to the sample of World Cup winners listed in Table A2, thus allowing to verify whether the heterogeneity in the baseline sample poses a risk to identification.

Results are summarized by Figure 4, the notes of which fully specify the outcome of the matching procedure. For instance, Mexico turns out to be the most similar control country to a World Cup winner in terms of GDP levels. Indeed, it is chosen 8 times as the nearest GDP neighbour. Instead, Turkey best resembles World Cup winners in terms of total population, by being selected six times as the control country with the closest population size. Nevertheless, estimating (1) following these matching algorithms makes the first two post-World Cup indicators highly significant. Their associated coefficients are even larger in magnitude than those reported in Table 2 (see Table A5). Thus, the differences between treated and control countries do not seem to represent an issue for the conclusions of this study.

Media coverage of the World Cup finalists

Since the treatment effect estimated in this paper seems primarily linked to the export sector, a natural question is whether the goods and services produced by the World Cup winner simply benefit from the unique visibility offered by the final game of the World Cup, which is an event generally viewed by more than 1 billion people worldwide. Large companies which operate internationally may be willing to exploit the reaching of the final by the national team, for instance through the purchase of advertising space on foreign broadcasters in order to increase their global market shares.

To investigate whether this potential mechanism is at play, this section presents the results of a standard difference-in-difference (DiD) model which compares the growth rates of World Cup winners and runners-up. Reasonably, these two groups of countries enjoy a similar amount and type of media coverage on the day(s) of the final. Furthermore, their national teams played the same and maximum possible number of World Cup games, which are a potential source of distraction for the population. Consequently, reaching the World Cup final may reduce productivity levels and induce a (negative) anticipation effect on GDP growth. Thus, the World Cup

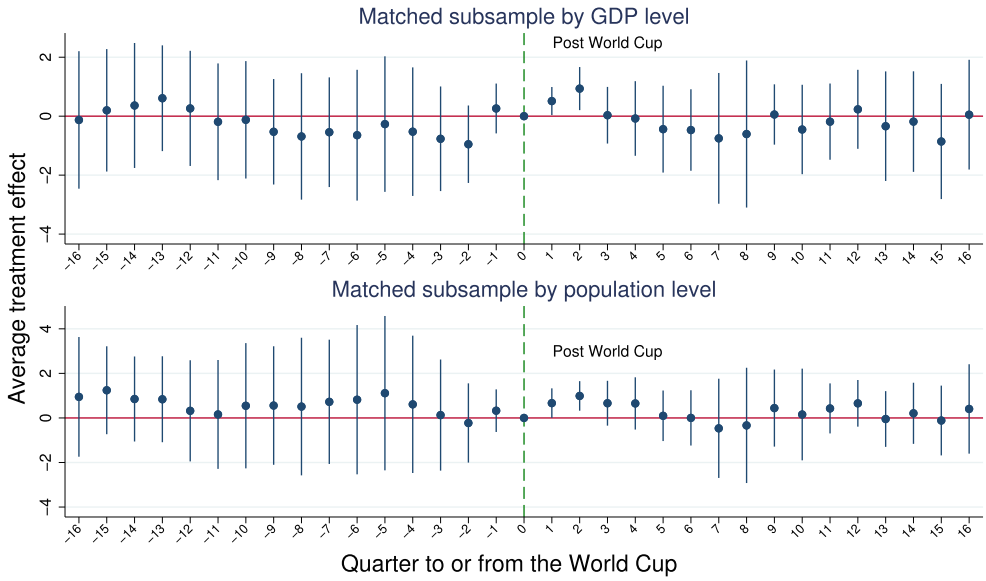

Figure 4. Robustness check using a matched sample of countries. [Colour figure can be viewed at *wileyonlinelibrary.com*]
Notes: OLS coefficients and 95% confidence intervals for the winning event-study indicators included in (1), that is, β_l. The control group is chosen based on a matching algorithm (with replacement) selecting the control countries that are most similar to World Cup winners in terms of either GDP levels (top panel) or population levels (bottom panel). The control group matched by GDP levels comprises: Canada; India; Indonesia (×2); Japan (×3); Korea; Mexico (×8); Russia (×4). The control group matched by population levels comprises: Colombia; Indonesia; Japan; Korea (×3); Mexico (×4); Russia; South Africa (×3); Turkey (×6)

runners-up provide an ideal counterfactual to test the economic effects of winning the World Cup.

To do so, I first pool together all the available subseries used for the SDiD analysis and retain only those associated with the pair of finalists in a given World Cup (e.g. the subseries of France and Italy around the 2006 World Cup). Then, I estimate a similar specification to (1) which replaces the event-study indicators with their static counterpart, $\text{WIN}_{n,q}$, in order to estimate the average treatment effect in the two post-World Cup quarters.[14]

The results and additional details on this analysis are provided in Table 3. The first column displays a positive and statistically significant effect (at the 10% level) on YoY GDP growth for the World Cup winner, which is twice as large as the SDiD estimate reported in Figure 3 and closer to the post-matching ATT displayed in Figure 4. Again, most of this effect appears driven by the export sector, the growth rate of which increases by up to 6.36 percentage points on average.[15] Hence, the findings of this paper cannot be explained by the exceptional media coverage devoted to the World Cup finalists in the run-up to the final.

[14]Importantly, the analysis described in this section makes use of only the World Cups around which I can observe the GDP levels of both the winner and the runner-up.

[15]However, this time the analysis highlights even a weak increase in both private and government consumption.

Table 3
DiD analysis comparing World Cup winners and runners-up

	Δ_4GDP component					
	Total	Exports	Imports	PCons	GCons	CapForm
Winner * Post World Cup	1.022*	6.357***	1.857	0.874*	1.112*	−0.249
	(0.487)	(1.699)	(2.301)	(0.447)	(0.623)	(1.577)
Observations	178					
Within $R2$	0.388	0.412	0.525	0.428	0.311	0.364

Notes: DiD models comparing 10-quarter GDP component subseries of winners and runners-up at the following World Cups: UK 1966; Germany 1974; Spain 1982; France 1998; Korea and Japan 2002; Germany 2006; South Africa 2010; Brazil 2014; Russia 2018. PCons = Private Consumption; GCons = Government Consumption; CapForm = Capital Formation. Controls included but not reported: fourth lag in the examined GDP component; indicators for the second, third and fourth quarter of the calendar year. Clustered standard errors at the subseries level reported in parenthesis.
Significance levels: $^{*}P < 0.1$; $^{**}P < 0.05$; $^{***}P < 0.01$.

V. Conclusions

Every four years, media outlets and analysts claim that the men's FIFA World Cup winner will experience a boost in GDP as a result of a wave of national pride which translates into higher economic activity. However, robust evidence in this respect is relatively scarce. This paper has investigated if winning the World Cup actually involves a positive effect on GDP growth, by using time series data provided by the OECD and implementing both an event-study design and the synthetic DiD approach proposed by Arkhangelsky *et al.* (2021). Importantly, the econometric strategy makes use of a variety of dynamic model specifications to control for past GDP levels, which not only determine the probability of winning major sport competitions as documented by Bernard and Busse (2004), but also affect the current rate of economic growth (Barro, 1991, Barro and Sala-i Martin, 1992).

The analysis has shown that winning the World Cup leads to a statistically significant increase in GDP growth only in the two quarters following the victory of the World Cup. Over this period, YoY GDP growth is, according to the most conservative estimates produced by this study, 0.48 percentage points higher if compared to a counterfactual situation in which the World Cup had not been won. This effect seems to be driven by enhanced export growth, which possibly results from the greater international appeal enjoyed by a country after winning the most renowned among the football competitions. Similar arguments are at least sponsored by the International Olympic Committee (IOC) to promote bids and projects for hosting the Olympic Games, which is certainly an opportunity for a country to be in the global spotlight.[16] Moreover, an expected boost to exports is mentioned by Preuss (2004) as one of the reasons behind the decision of the South Korean government to host in Seoul the 1988 Games, which were supposed to 'raise international awareness of Korean manufactured products'. Similarly to Bayar and Schaur (2014), the current paper argues that a visibility channel of this sort may apply even to the winner of a major sport event.

[16]See for instance the Olympic Games Framework 2024 at: https://stillmed.olympic.org/Documents/Host_city_elections/IOC_Olympic_Games_Framework_English_Interactive.pdf.

The findings perhaps clash with the general pessimism of the literature on the economic returns of major sport events, which in multiple occasions resulted in an unprofitable enterprise for the host country (Hagn and Maennig, 2008, Baade and Matheson, 2016). Indeed, this analysis suggests that winning a major sport competition might lead to a short-lived economic boost, without the need to incur the financial burden which is usually associated with its organization. Overall, the results provided in this study have shed some light on a publicly debated issue that ends up influencing macroeconomic forecasts and, consequently, policymaking. Moreover, they assume particular relevance in light of the recent FIFA proposal to make the World Cup a more frequent event, which supposedly should take place every 2 years.

Final Manuscript Received: October 2022

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Supporting Information

Additional Supporting Information may be found in the online Appendix:

Data S1. Supporting information.

Data replication package: the data replication package is available at https://doi.org/10.3886/E188961

Appendix A:

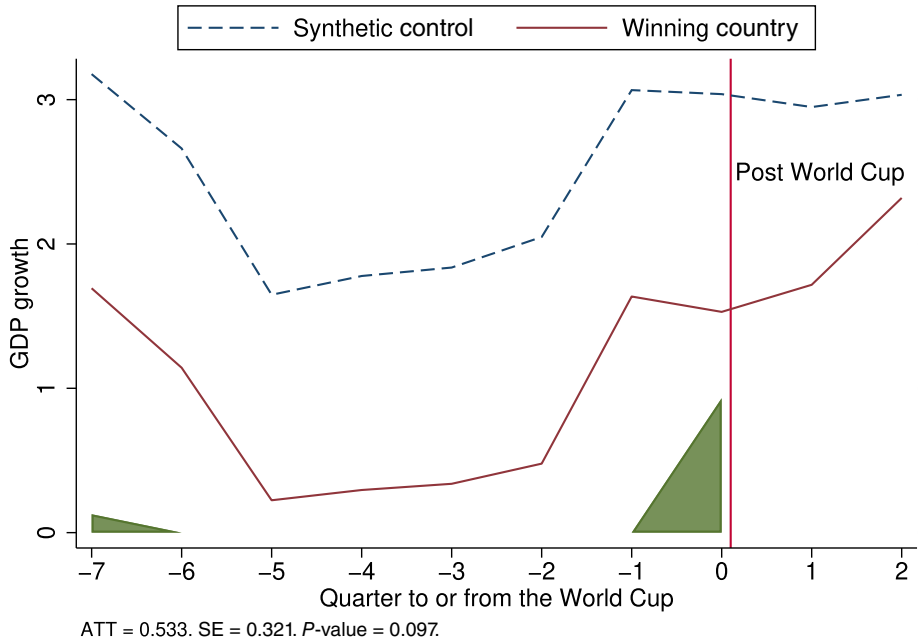

Figure A1. SDiD analysis without the French GDP records around the 1998 World Cup. [Colour figure can be viewed at *wileyonlinelibrary.com*]
Notes: Average treatment effect of winning the World Cup on year-over-year (YoY) GDP growth as estimated by the synthetic difference-in-difference model (2). The analysis excludes the 10 French GDP records around the 1998 World Cup, because France was both the host and the winner of the 1998 World Cup. The solid red line displays the GDP growth of the average World Cup winning subseries. The blue dashed line displays the GDP growth of its synthetic counterfactual. Standard errors are clustered at the country-subseries level and obtained via 1,000 bootstrap replications. The green areas at the bottom of the figure measure the time-specific synthetic weights, as estimated by equation (4). The analysis uses 10-quarter GDP subseries around the six World Cups held between 1998 and 2018. The total number of GDP records used is 2,730 (i.e. 273 GDP subseries)

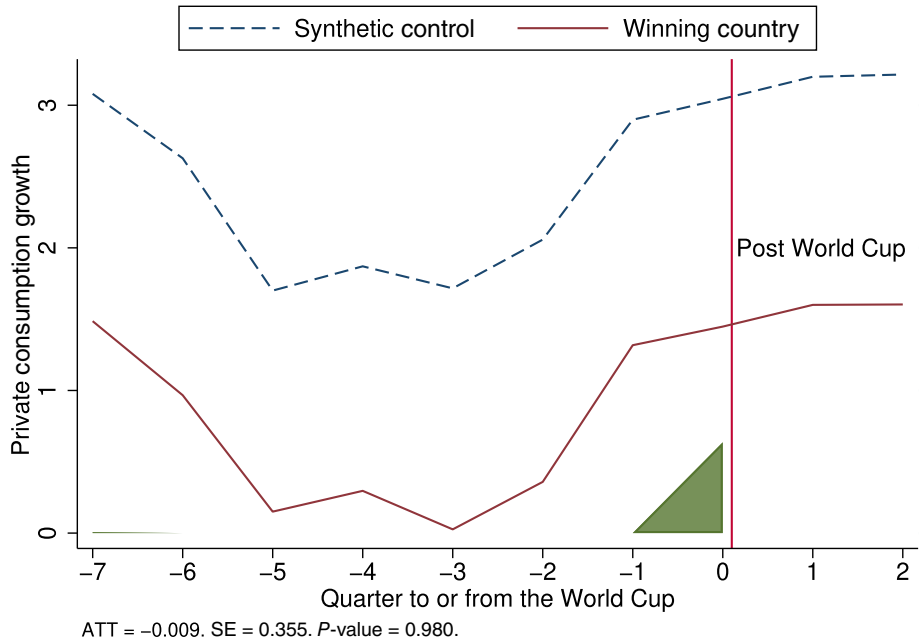

Figure A2. A synthetic difference-in-difference approach (Private consumption growth). [Colour figure can be viewed at *wileyonlinelibrary.com*]

Notes: Average treatment effect of winning the World Cup on year-over-year (YoY) private consumption growth as estimated by the synthetic difference-in-difference model (2). The solid red line displays the private consumption growth of the average World Cup winning subseries. The blue dashed line displays the private consumption growth of its synthetic counterfactual. Standard errors are clustered at the country-subseries level and obtained via 1,000 bootstrap replications. The green areas at the bottom of the figure measure the time-specific synthetic weights, as estimated by equation (4). The analysis uses 10-quarter private consumption subseries around the six World Cups held between 1998 and 2018. The total number of private consumption records used is 2,690 (i.e. 269 private consumption subseries)

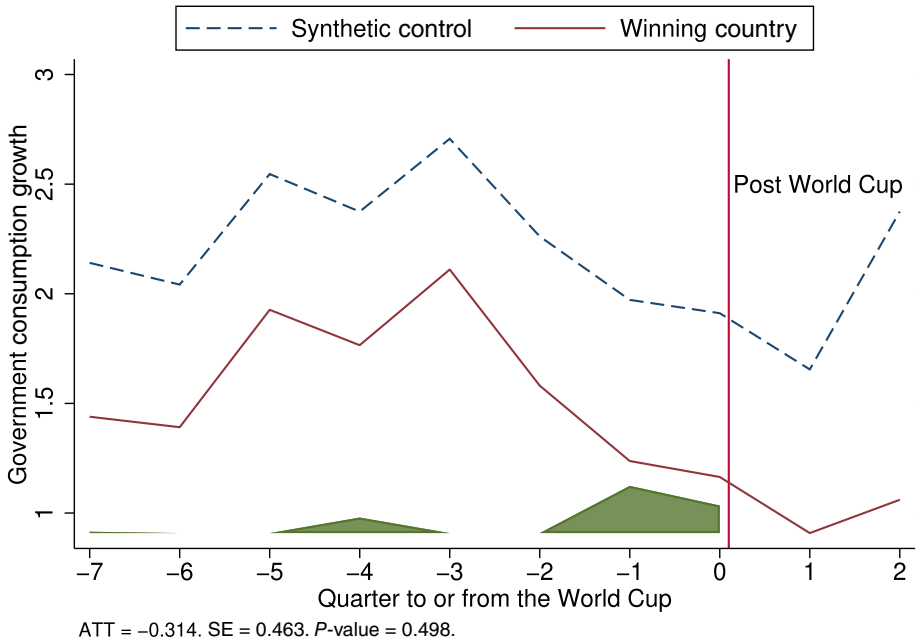

Figure A3. A synthetic difference-in-difference approach (Government consumption growth) [Colour figure can be viewed at *wileyonlinelibrary.com*]
Notes: average treatment effect of winning the World Cup on year-over-year (YoY) government consumption growth as estimated by the synthetic difference-in-difference model (2). The solid red line displays the government consumption growth of the average World Cup winning subseries. The blue dashed line displays the government consumption growth of its synthetic counterfactual. Standard errors are clustered at the country-subseries level and obtained via 1,000 bootstrap replications. The green areas at the bottom of the figure measure the time-specific synthetic weights, as estimated by equation (4). The analysis uses 10-quarter government consumption subseries around the six World Cups held between 1998 and 2018. The total number of government consumption records used is 2,690 (i.e. 269 government consumption subseries)

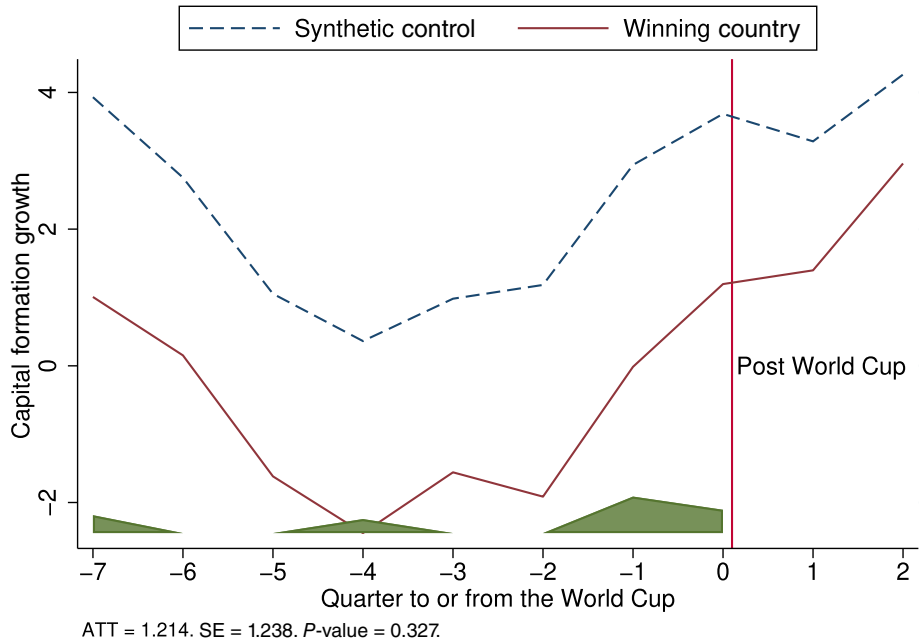

Figure A4. A synthetic difference-in-difference approach (Capital formation growth). [Colour figure can be viewed at *wileyonlinelibrary.com*]

Notes: Average treatment effect of winning the World Cup on year-over-year (YoY) capital formation growth as estimated by the synthetic difference-in-difference model (2). The solid red line displays the capital formation growth of the average World Cup winning subseries. The blue dashed line displays the capital formation growth of its synthetic counterfactual. Standard errors are clustered at the country-subseries level and obtained via 1,000 bootstrap replications. The green areas at the bottom of the figure measure the time-specific synthetic weights, as estimated by equation (4). The analysis uses 10-quarter capital formation subseries around the six World Cups held between 1998 and 2018. The total number of capital formation records used is 2,690 (i.e. 269 capital formation subseries)

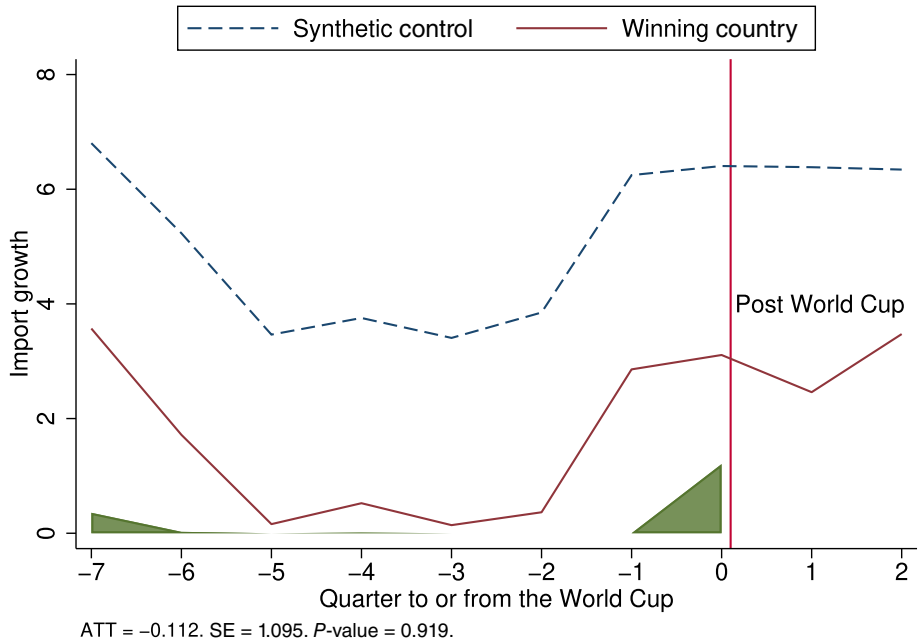

Figure A5. A synthetic difference-in-difference approach (Import growth). [Colour figure can be viewed at *wileyonlinelibrary.com*]
Notes: average treatment effect of winning the World Cup on year-over-year (YoY) import growth as estimated by the synthetic difference-in-difference model (2). The solid red line displays the import growth of the average World Cup winner. The blue dashed line displays the import growth of its synthetic counterfactual. Standard errors are clustered at the country-subseries level and obtained via 1,000 bootstrap replications. The green areas at the bottom of the figure measure the time-specific synthetic weights, as estimated by equation (4). The analysis uses 10-quarter import subseries around the six World Cups held between 1998 and 2018. The total number of import records used is 2,690 (i.e. 269 import subseries)

Table A1

Treated sample description

World Cup	Host			Winner		
	Country	GDP start	In-sample	Country	GDP start	In-sample
1962	Chile	1996-Q1	No	Brazil*	1998-Q2	No
1966	England*	1961-Q1	Yes	England*	1961-Q1	Yes
1970	Mexico	1961-Q1	Yes	Brazil*	1998-Q2	No
1974	Germany (West)	1961-Q1	Yes	Germany (West)	1961-Q1	Yes
1978	Argentina	1993-Q1	No	Argentina	1993-Q1	No
1982	Spain	1961-Q1	Yes	Italy	1961-Q1	Yes
1986	Mexico	1961-Q1	Yes	Argentina	1993-Q1	No
1990	Italy	1961-Q1	Yes	Germany (West)	1961-Q1	Yes
1994	USA	1961-Q1	Yes	Brazil†	1998-Q2	No
1998	France	1961-Q1	Yes	France	1961-Q1	Yes
2002	Japan/South Korea	1961-Q1	Yes	Brazil†	1998-Q2	Yes
2006	Germany	1961-Q1	Yes	Italy	1961-Q1	Yes
2010	South Africa	1961-Q1	Yes	Spain	1961-Q1	Yes
2014	Brazil†	1998-Q2	Yes	Germany	1961-Q1	Yes
2018	Russia	1995-Q1	Yes	France	1961-Q1	Yes

Notes: *GDP start* denotes the first record of the GDP time series of each World Cup winner or host starting from 1961. The *in-sample* column indicates whether the quarterly GDP time series of a given country is available during the period when the country hosted or won the World Cup.

*The GDP time series used for England is that of the UK as a whole.

†The GDP series of Brazil is let it start in the second quarter of 1998, namely 4 years after its victory in the 1994 World Cup.

Table A2

Breakdown of the event-study sample

Control	Host	Winner
Argentina	Brazil	Brazil
Australia	England	England
Austria	France	France
Belgium	Germany	Germany
Bulgaria	Italy	Italy
Canada	Japan	Spain
Chile	Mexico	
Colombia	South Africa	
Costa Rica	South Korea	
Croatia	Spain	
Czech Republic	Russia	
Denmark	USA	
Estonia		
Finland		
Greece		
Hungary		
India		
Indonesia		
Iceland		
Ireland		
Israel		
Latvia		
Lithuania		
Luxembourg		
Netherlands		
New Zealand		
Norway		
Poland		
Portugal		
Romania		
Saudi Arabia		
Slovak Republic		
Slovenia		
Sweden		
Switzerland		
Turkey		

Table A3

The effect of winning the World Cup on GDP components

	Δ_4 PCons		Δ_4 GCons		Δ_4 CapForm		Δ_4 Exports		Δ_4 Imports	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Winning the World Cup (−16 or more)	1.046**	(0.518)	0.454	(0.731)	2.723*	(1.438)	2.040	(2.171)	3.603	(2.417)
Winning the World Cup (−15)	0.059	(0.578)	1.024*	(0.566)	2.417	(1.451)	0.185	(1.769)	3.202*	(1.685)
Winning the World Cup (−14)	0.353	(0.557)	0.860*	(0.471)	2.260	(1.734)	1.025	(2.032)	4.664**	(2.192)
Winning the World Cup (−13)	0.308	(0.413)	0.766	(0.492)	0.230	(1.551)	1.935	(2.591)	1.808	(1.514)
Winning the World Cup (−12)	0.514	(0.466)	0.466	(0.435)	−0.240	(1.559)	0.519	(2.103)	1.188	(1.528)
Winning the World Cup (−11)	0.929	(0.631)	0.168	(0.496)	−0.949	(1.325)	0.260	(2.090)	0.245	(0.848)
Winning the World Cup (−10)	0.894	(0.618)	0.584	(0.599)	−0.041	(1.425)	0.438	(3.159)	0.091	(1.361)
Winning the World Cup (−9)	0.652	(0.657)	0.868**	(0.403)	1.357	(1.913)	−2.109	(2.583)	1.007	(2.093)
Winning the World Cup (−8)	0.637	(0.847)	0.941	(0.799)	0.797	(1.876)	−1.538	(2.126)	0.711	(2.667)
Winning the World Cup (−7)	0.626	(0.740)	0.408	(0.933)	1.085	(1.778)	−0.709	(3.120)	2.183	(3.730)
Winning the World Cup (−6)	0.380	(0.623)	0.651	(0.812)	1.248	(1.856)	−1.263	(1.832)	1.131	(3.354)
Winning the World Cup (−5)	0.275	(0.651)	0.071	(0.732)	1.303	(1.980)	0.275	(1.979)	0.421	(3.713)
Winning the World Cup (−4)	−0.368	(0.574)	0.678	(0.779)	−0.417	(1.587)	2.327	(2.565)	0.409	(3.427)
Winning the World Cup (−3)	−0.489	(0.522)	0.100	(0.760)	−0.286	(1.522)	2.584	(1.802)	−0.659	(2.225)
Winning the World Cup (−2)	−0.763	(0.456)	−0.093	(0.668)	−1.708	(1.092)	2.555	(2.022)	−0.333	(1.334)
Winning the World Cup (−1)	−0.202	(0.203)	0.265	(0.536)	−0.811	(0.868)	3.840**	(1.620)	0.436	(1.111)
Winning the World Cup (+1)	−0.169	(0.515)	0.384	(0.368)	0.229	(0.515)	3.183	(2.631)	1.719	(1.201)
Winning the World Cup (+2)	0.214	(0.559)	0.080	(0.501)	1.552	(1.128)	5.124*	(2.767)	1.429	(1.245)
Winning the World Cup (+3)	−0.198	(0.982)	0.264	(0.884)	1.228	(1.370)	3.844	(2.359)	3.138	(1.947)
Winning the World Cup (+4)	−0.149	(1.087)	0.082	(0.752)	−0.029	(2.008)	5.049	(3.631)	4.326**	(2.084)
Winning the World Cup (+5)	0.170	(0.730)	0.547	(0.563)	0.898	(2.066)	1.506	(1.816)	2.844	(1.786)
Winning the World Cup (+6)	0.247	(0.775)	0.863	(0.620)	0.398	(2.100)	−1.297	(1.918)	4.260	(3.007)
Winning the World Cup (+7)	0.156	(0.681)	0.407	(0.863)	0.454	(2.222)	−0.277	(2.606)	2.432	(2.410)
Winning the World Cup (+8)	−0.184	(0.527)	−0.640	(1.507)	1.892	(1.932)	−1.381	(2.643)	1.331	(2.131)
Winning the World Cup (+9)	0.390	(0.879)	0.347	(0.885)	2.371	(1.604)	0.204	(2.832)	2.196	(2.222)
Winning the World Cup (+10)	0.047	(1.034)	−0.451	(0.794)	2.550	(1.573)	0.815	(3.302)	1.218	(1.813)
Winning the World Cup (+11)	−0.116	(1.174)	−0.522	(0.715)	1.576	(1.331)	−0.916	(2.953)	1.100	(2.853)
Winning the World Cup (+12)	0.163	(0.842)	0.138	(1.483)	1.331	(1.704)	1.110	(2.725)	0.886	(2.586)

Table A3
Continued

	Δ_4 PCons		Δ_4 GCons		Δ_4 CapForm		Δ_4 Exports		Δ_4 Imports	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Winning the World Cup (+13)	−0.136	(0.950)	−1.105	(0.679)	0.535	(1.282)	−0.430	(2.692)	0.215	(2.633)
Winning the World Cup (+14)	0.185	(0.679)	−0.646	(0.568)	0.212	(1.672)	−0.466	(2.418)	0.719	(2.477)
Winning the World Cup (+15)	0.395	(0.528)	−0.424	(0.631)	1.755	(1.464)	0.714	(1.945)	1.729	(2.558)
Winning the World Cup (+16 or more)	0.186	(0.538)	−0.060	(0.520)	0.185	(1.256)	0.501	(1.726)	2.266	(2.872)
Host	−0.098	(0.801)	−0.155	(0.265)	−1.606	(1.404)	1.249	(0.983)	−0.390	(1.909)
PCons (−4)	−2.665***	(0.651)								
GCons (−4)			−3.349**	(1.278)						
CapForm (−4)					−7.795***	(1.624)				
Exports (−4)							−3.730***	(0.754)		
Imports (−4)									−6.056***	(0.952)
Observations	8,549									
Within $R2$	0.352		0.129		0.213		0.380		0.364	

Notes: PCons = Private Consumption; GCons = Government Consumption; CapForm = Capital Formation. Event-study estimates for winning the World Cup reported in columns 1, 3, 5, 7 and 9. Clustered SEs at the country level reported in columns 2, 4, 6, 8 and 10.
Significance levels: *$P < 0.1$; **$P < 0.05$; ***$P < 0.01$.

Table A4
Robustness checks to GDP dynamics

	Δ_4 GDP					
	(1)	(2)	(3)	(4)	(5)	(6)
Winning the World Cup (−6)	0.136	0.166	0.201	0.204	0.266	0.216
	(0.593)	(0.592)	(0.586)	(0.585)	(0.308)	(0.601)
Winning the World Cup (−5)	0.435	0.467	0.503	0.504	−0.088	0.504
	(0.631)	(0.628)	(0.616)	(0.615)	(0.252)	(0.631)
Winning the World Cup (−4)	−0.160	−0.129	−0.120	−0.104	−0.029	−0.087
	(0.548)	(0.542)	(0.539)	(0.536)	(0.206)	(0.556)
Winning the World Cup (−3)	−0.339	−0.309	−0.284	−0.301	0.057	−0.269
	(0.483)	(0.483)	(0.479)	(0.482)	(0.186)	(0.509)
Winning the World Cup (−2)	−0.653	−0.628	−0.601	−0.601	−0.053	−0.586
	(0.436)	(0.435)	(0.431)	(0.432)	(0.167)	(0.464)
Winning the World Cup (−1)	0.119	0.122	0.131	0.127	0.516	0.126
	(0.206)	(0.207)	(0.204)	(0.203)	(0.320)	(0.205)
Winning the World Cup (+1)	0.458*	0.454*	0.456*	0.451*	0.539***	0.453*
	(0.245)	(0.246)	(0.247)	(0.247)	(0.190)	(0.245)
Winning the World Cup (+2)	0.694*	0.691*	0.687*	0.683*	0.239	0.682*
	(0.370)	(0.372)	(0.371)	(0.373)	(0.171)	(0.369)
Winning the World Cup (+3)	0.206	0.219	0.263	0.265	0.175	0.252
	(0.334)	(0.336)	(0.331)	(0.331)	(0.265)	(0.343)
Winning the World Cup (+4)	0.120	0.134	0.146	0.170	−0.174	0.158
	(0.306)	(0.313)	(0.317)	(0.314)	(0.270)	(0.323)
Winning the World Cup (+5)	−0.210	−0.198	−0.192	−0.191	0.123	−0.170
	(0.351)	(0.354)	(0.357)	(0.356)	(0.167)	(0.360)
Winning the World Cup (+6)	−0.051	−0.041	−0.032	−0.041	0.333	−0.015
	(0.415)	(0.420)	(0.421)	(0.420)	(0.225)	(0.427)
GDP (−1)					92.314***	
					(3.108)	
GDP (−2)					13.347***	
					(4.735)	
GDP (−3)		−0.771			1.118	
		(0.690)			(3.890)	
GDP (−4)					−98.354***	−1.240**
					(5.155)	(0.585)
GDP (−5)			−1.476**		−8.741**	
			(0.585)		(3.580)	
GDP (−6)				−1.645***	−0.117	
				(0.585)	(2.124)	
GDP (−4) * 1970s						−0.169
						(0.196)
GDP (−4) * 1980s						−0.157
						(0.121)
GDP (−4) * 1990s						−0.327*
						(0.192)
GDP (−4) * 2000s						−0.449***
						(0.167)
GDP (−4) * 2010s						−0.204
						(0.177)
Observations	8,637	8,637	8,589	8,541	8,541	8,637
Within $R2$	0.418	0.420	0.426	0.429	0.858	0.426

Notes: Event-study OLS estimates for winning the World Cup with different model specifications in terms of GDP dynamics. Clustered SEs by country are reported in parenthesis.
Significance levels: $^{*}P < 0.1$; $^{**}P < 0.05$; $^{***}P < 0.01$.

Table A5
Event study estimates after matching

	Δ_4 GDP			
	Matching by GDP levels		Matching by population levels	
	(1)	(2)	(3)	(4)
GDP (−4)	−1.668**	(0.685)	−1.009	(0.581)
Host	−1.675**	(0.637)	−1.297	(0.757)
Winning the World Cup (−16 or more)	−0.128	(1.070)	0.946	(1.243)
Winning the World Cup (−15)	0.198	(0.953)	1.243	(0.913)
Winning the World Cup (−14)	0.362	(0.973)	0.850	(0.883)
Winning the World Cup (−13)	0.608	(0.823)	0.838	(0.893)
Winning the World Cup (−12)	0.264	(0.896)	0.320	(1.051)
Winning the World Cup (−11)	−0.191	(0.909)	0.157	(1.131)
Winning the World Cup (−10)	−0.123	(0.914)	0.547	(1.301)
Winning the World Cup (−9)	−0.530	(0.821)	0.557	(1.231)
Winning the World Cup (−8)	−0.688	(0.984)	0.511	(1.429)
Winning the World Cup (−7)	−0.544	(0.854)	0.723	(1.291)
Winning the World Cup (−6)	−0.645	(1.018)	0.819	(1.551)
Winning the World Cup (−5)	−0.269	(1.055)	1.112	(1.604)
Winning the World Cup (−4)	−0.526	(1.001)	0.610	(1.427)
Winning the World Cup (−3)	−0.767	(0.814)	0.128	(1.154)
Winning the World Cup (−2)	−0.952	(0.603)	−0.226	(0.823)
Winning the World Cup (−1)	0.261	(0.388)	0.326	(0.442)
Winning the World Cup (+1)	0.513**	(0.219)	0.665**	(0.307)
Winning the World Cup (+2)	0.936**	(0.335)	0.987***	(0.307)
Winning the World Cup (+3)	0.032	(0.441)	0.660	(0.466)
Winning the World Cup (+4)	−0.079	(0.581)	0.652	(0.543)
Winning the World Cup (+5)	−0.441	(0.676)	0.097	(0.525)
Winning the World Cup (+6)	−0.470	(0.635)	0.002	(0.574)
Winning the World Cup (+7)	−0.753	(1.018)	−0.466	(1.031)
Winning the World Cup (+8)	−0.606	(1.145)	−0.335	(1.197)
Winning the World Cup (+9)	0.057	(0.470)	0.442	(0.801)
Winning the World Cup (+10)	−0.452	(0.696)	0.155	(0.953)
Winning the World Cup (+11)	−0.186	(0.593)	0.428	(0.520)
Winning the World Cup (+12)	0.233	(0.615)	0.656	(0.485)
Winning the World Cup (+13)	−0.340	(0.853)	−0.048	(0.579)
Winning the World Cup (+14)	−0.184	(0.783)	0.208	(0.635)
Winning the World Cup (+15)	−0.859	(0.897)	−0.116	(0.725)
Winning the World Cup (+16 or more)	0.050	(0.854)	0.404	(0.929)
Observations	5,174		5,710	
Within $R2$	0.588		0.445	

Notes: OLS estimates for the event-study model obtained by using a more homogeneous sample of countries. The control group is chosen based on a matching algorithm (with replacement) selecting the control countries that are most similar to World Cup winners in terms of either GDP levels (columns 1 and 2) or population levels (columns 3 and 4). The control group matched by GDP levels comprises: Canada; India; Indonesia (×2); Japan (×3); Korea; Mexico (×8); Russia (×4). The control group matched by population levels comprises: Colombia; Indonesia; Japan; Korea (×3); Mexico (×4); Russia; South Africa (×3); Turkey (×6). Clustered SEs by country are reported in parenthesis.
Significance levels: $^{*}P < 0.1$; $^{**}p<0.05$; $^{***}p<0.01$.