A kick for the GDP: the effect of winning the FIFA World Cup

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Abstract

This paper uses OECD data starting from 1961 to examine whether winning the FIFA World Cup boosts GDP growth, as it is 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 FIFA World Cup increases GDP growth by at least 0.25 percentage points in the two subsequent quarters. This result seems primarily driven by enhanced exports growth, which is consistent with a greater appeal enjoyed by national products and services on the global market after the victory of a major sport event. Instead, there are no significant effects on GDP growth for the host country.

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1 Introduction

It is commonly believed that winning the FIFA World Cup involves a boost in GDP growth.[1] This popular conviction lays on the idea that a 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 an enhanced Keynesian animal spirit have the potential to affect the business cycle (Blanchard 1993, Carroll et al. 1994, Farmer and Guo 1994, Francois and Lloyd-Ellis 2003, Ferreira and Dufourt 2006, Bidder and Smith 2012).[2] 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".[3] 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 football World Cup, a phenomenon that in 2014 Forbes called the "World Cup GDP Curse".[4]

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 informing how the GDP growth rate of the same countries would have behaved had they not won the football World Cup. This lack of evidence is somehow surprising, considering that winning the World Cup is - within the pool of few and usually rich countries that are rated as favorites - 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 FIFA World Cup have primarily investigated only whether hosting the football World Cup is beneficial to the national economy (Burgan and Mules 1992, Szymanski 2010). For instance, Baade and Matheson (2004) find that the 1994 World

[1] The Fédération Internationale de Football Association (FIFA) is the international body governing all the intercontinental football competitions. It was founded in Paris in 1904.

[2] The 2018 World Cup held in France has been the third most watched sporting event of all time with approximately 3.57 billions of viewers overall, preceded only by the 2016 Rio de Janeiro Olympics and the 2012 London Olympics.

[3] https://www.washingtontimes.com/news/2018/jul/12/world-cup-winners-can-expect-gdp-boost-economy.

[4] https://www.forbes.com/sites/allenstjohn/2014/07/13/world-cup-gdp-curse/?sh=2771f9447db0.

Cup hosted by the US was more of a burden than an economic opportunity. The authors conclude that US host cities experienced up to $9.3 billions of cumulative losses, contrarily to the expected $4-billion gain. Similarly, Hagn and Maennig (2008) argue that the 1974 World Cup held in Germany have not had 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.[5]

The Olympic Games are another major sportive event widely studied in the literature. Again, most efforts have been devoted to measure the costs and benefits of hosting the Summer Olympics.[6] Many studies agree on the fact that hosting the Olympic Games does not bring considerable economic benefits, especially in the long-run (e.g. Billings and Holladay 2012, Li et al. 2013, Baade and Matheson 2016). However, Bernard and Busse (2004) document a permanent 20% rise in trade following a bid to host the Olympic Games, regardless of whether eventually the bid was successful or not. Furthermore, Hotchkiss et al. (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.[7]

This paper contributes to this body of research by providing the first causal evidence on the economic effects of winning the FIFA World Cup. It implements an event-study design that studies whether GDP growth increases in the quarters following the victory of the football World Cup, by pooling together all countries which won the tournament starting from 1961 and comparing them with a set of countries that, by contrast, did not win the cup.[8] It also provides a synthetic difference-in-difference analysis by following the novel approach

[5]Even non-economic outcomes have been examined in relation to the football World Cup. See for instance the analysis of Metcalfe et al. (2019) on English students' performance.

[6]A noticeable 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 et al. (1974).

[7]The economic effects of hosting other sportive tournaments than the FIFA World Cup and the Olympic Games have also been already investigated. See for instance Baade and Matheson (2001), Matheson and Baade (2004) and Matheson and Baade (2006) for evidence on the Major League Baseball, the NCAA basketball tournament and the Super Bowl.

[8]The main exceptions are represented by Argentina (World Cup winner in 1978 and 1986) and Brazil (World

proposed by Arkhangelsky et al. (2021), which permits to examine the GDP growth rate of winning countries and compare 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 FIFA 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 same econometric strategies also suggest that the FIFA World Cup does not provide the host country with an evident boost in GDP growth.

The rest of the paper is organized as follows. Section 2 presents the econometric strategy and the data. Section 3 reports the results. Section 4 draws the conclusions.

2 Econometric strategy

2.1 Event study

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

$$\Delta GDP_{c,t} = \sum_{l,l\neq 0} \beta_l WIN^l_{c,t} + \sum_{l',l'\neq -1} \theta_{l'} HOST^{l'}_{c,t} + \zeta_1 GDP_{c,t-1} + \alpha_c + \mu_t + \epsilon_{c,t}, \qquad (1)$$

where Δ denotes the first-difference operator, while $GDP_{c,t}$ is the logged GDP of country c in quarter t. Thus, this paper investigates the effects of winning and hosting the FIFA World Cup on the quarterly GDP growth rate, which is computed by comparing logged GDP of a given country between two consecutive quarters.[9] However, subsection 3.4 tests the robustness of the results by using alternative GDP outcomes.

Cup winner in 1958, 1962, 1970, 1994 and 2002), for which quarterly data on GDP are available only since 1993 and 1996, respectively. As a consequence, Argentina will be classified among the control countries, while Brazil will contribute to the estimation of the treatment effect of interest only through its 2002 World Cup success. See subsection 2.3 for more details.

[9]GDP is not expressed in per-capita terms as even population levels may be affected by the FIFA World Cup, for instance through higher birth rates in the quarters following the victory of this football tournament. Moreover, population data at quarterly frequency are available only for a few countries prior to the mid 1990s.

The variables of interest are the relative-time indicators $WIN_{c,t}^{l}$. They take value one for country c being l quarters from winning the FIFA World Cup and 0 otherwise. For countries that never won the World Cup in the period under study (i.e. the control countries), $WIN_{c,t}^{l}$ 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.[10] Importantly, the vector $WIN_{c,t}^{l}$ comprises two residual indicators, $WIN_{c,t}^{-16}$ and $WIN_{c,t}^{+16}$, which bin together all quarters that are more than 4 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 FIFA World Cup more than once during the study period.[11]

In a specular way, $HOST_{c,t}^{l'}$ denote relative-time indicators for hosting the FIFA World Cup. They take value one for country c being l' quarters from hosting the World Cup and zero otherwise.[12] Since to host the World Cup is more likely to impact GDP growth during the running of the tournament than later (for instance via tourism inflow), the reference category excluded from the vector $HOST_{c,t}^{l'}$ corresponds to the first quarter of the World Cup year ($l' = -1$), namely before the football competition even started. Overall, the vectors of coefficients β and θ will measure how winning and hosting the FIFA World Cup affect national GDP growth for each quarter around the running of the football competition, respectively.

The inclusion of the first lag in logged GDP, $GDP_{c,t-1}$, on the right-hand side of (1) controls for the fact that the likelihood of winning (or hosting) the FIFA World Cup appears correlated with national wealth. Indeed, only 8 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 21 editions of the football World Cup. Moreover, the coefficient ζ_1 provides a chance to test the so-called convergence hypothesis, namely to verify

[10] Indeed, the football World Cup generally takes 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.

[11] More in detail, l restarts in the second quarters of 1982 and 2002 for Germany (World Cup winner in 1974, 1990 and 2014), the second quarter of 1994 for Italy (World Cup winner in 1982 and 2006), and the second quarter of 2008 for France (World Cup winner in 1998 and 2018).

[12] In this case, the counter of relative quarters restarts in the second quarter of 1978 for Mexico and in the second quarter of 1990 for Germany, which are the midpoints between the first and the second FIFA World Cup hosted by these countries (1970 and 1986 for Mexico; 1974 and 2006 for Germany). Again, the most distant quarters from the hosting of the World Cup are binned together in two residual indicators.

whether current GDP growth is negatively related to past levels of wealth (Barro 1991, Barro and Sala-i Martin 1992, Mankiw et al. 1992, Islam 1995).

α_c are country-specific fixed effects and μ_t are quarter-specific fixed effects. The former set of fixed effects approximates the long-term trajectory of quarterly GDP growth, by accounting for unobserved and time-invariant country traits that affect economic growth.[13] 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. Equation 1 is estimated via ordinary least squares (OLS) and standard errors are clustered at the country level.

Identification of the vector of interest, β_l, 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 FIFA 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 FIFA World Cup assumes that the unobserved time-varying factors which influence the likelihood of winning the football World Cup do not affect GDP growth either. Considering that, conditional on past levels of wealth (proxied by the first 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 as arguably satisfied.[14]

[13] See Acemoglu and Molina (2021) and Kremer et al. (2022) for a discussion about the inclusion of country-specific fixed effects in convergence regression models, which however is standard in the empirical literature (e.g. Caselli et al. 1996 and Acemoglu et al. 2019).

[14] The identification assumptions mentioned above are less likely to hold for World Cup host countries. Indeed, the probability of success of a bid to host the FIFA World Cup certainly depends on growth determinants, such as the reception capacity of the candidate countries in terms of sportive, tourist and transport infrastructures. Moreover, the economic effects of hosting the FIFA World Cup are likely to materialize years before the actual running of the tournament, for instance through the construction or renovation of football stadiums and other facilities. These issues can be detected from the estimated pre-hosting coefficients $\hat{\theta}_{l'}$ with $l' < 0$, although with the caveats highlighted by Roth (2019).

2.2 Synthetic difference-in-difference

Nevertheless, this paper implements even the synthetic difference-in-difference (SDiD) approach proposed by Arkhangelsky et al. (2021), which combines features from Synthetic Control (Abadie and Gardeazabal 2003, Abadie et al. 2010) and Difference-in-Difference (Ashenfelter and Card 1984, Bertrand et al. 2004) to model settings that potentially lack of parallel trends. 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 6 football World Cups held after 1994.[15] Indeed, GDP data at quarterly frequency are available just for a limited number of countries prior to 1994 (more details are provided in subsection 2.3).

Another challenge to estimate a SDiD model in the current framework is that France won the FIFA 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 FIFA 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 2.1 highlights an increase in GDP growth due to the victory of the football World Cup (see subsection 3.1).

As a matter of example, the GDP time series of Spain is divided into 6 shorter time series. The earliest subseries covers the period around the 1998 FIFA World Cup, by starting in the third quarter of 1986 and ending in the fourth quarter of 1988. Instead, the most recent subseries covers the period around the 2018 FIFA World Cup: it starts in the third quarter of 2016 and ends in the fourth quarter of 2018. Only one of these 6 subseries includes the second quarter of 2010, when Spain won the first (and last, so far) football World Cup of its history. This latter subseries will be included in the set of treated series, denoted by N_1. The remaining 5 subseries of Spain will be part of the control group N_0, which in total will comprise 263 GDP subseries. The overall number of time series n used for the SDiD analysis therefore results from the product between the number of countries and their number of available subseries ($N = N_0 + N_1 = 263 + 6 = 269$).

[15] 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).

The SDID problem to solve can therefore be written as:

$$(\hat{\lambda}, \hat{\beta}, \hat{\alpha}, \hat{\mu}) = \underset{(\lambda,\beta,\alpha,\mu)}{\arg\min} \left\{ \sum_{n=1}^{269} \sum_{q=-7}^{2} \left(\Delta GDP_{n,q} - \beta WIN_{n,q} - \alpha_n - \mu_q\right)^2 \hat{\omega}_n \hat{\tau}_q \right\}, \tag{2}$$

where λ is the average treatment effect of winning the World Cup in the two subsequent quarters, while $WIN_{n,q}$ 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 comprise 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. Hence, 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 FIFA World Cup was hosted by c (e.g. the subseries of Brazil covering the period around the 2014 FIFA World Cup held in Brazil). However, a similar synthetic difference-in-difference approach is implemented to assess the effect of hosting the World Cup on GDP growth, in which case the corresponding GDP subseries of the country winning the World Cup held in country c gets excluded (e.g. the subseries of Brazil covering the period around the 2002 FIFA World Cup won by Brazil and held in both South Korea and Japan).

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 create parallel trends in GDP growth in the 8 pre-World Cup quarters between the 6 treated subseries and a convex combination of the 263 control series. They do so by solving a problem of the following form:

$$(\hat{\omega_0}, \hat{\omega}) = \underset{(\omega_0 \in \mathbb{R}, \omega \in \Omega)}{\arg\min} \sum_{q=-7}^{0} \left(\omega_0 + \sum_{n_0=1}^{263} \omega_{n_0} \Delta GDP_{n_0,q} - \frac{1}{6} \sum_{n_1=264}^{269} \Delta GDP_{n_1,q} \right)^2 + \zeta^2 8 \left\| \omega \right\|_2^2, \tag{3}$$

where the synthetic weights for the control series, ω_{n_0}, vary and need to sum up to one, while the 6 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.[16] 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,

[16] 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

which guarantees the uniqueness of the synthetic weights by matching the average one-quarter change in GDP growth of the control series.[17]

On the other hand, the relative quarter-specific synthetic weights, τ_q, guarantees 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:

$$(\hat{\tau_0}, \hat{\tau}) = \underset{(\tau_0,\tau)}{\arg\min} \sum_{n_0=1}^{263} \left(\tau_0 + \sum_{q=-7}^{0} \tau_q \Delta GDP_{n_0,q} - \frac{1}{2} \sum_{q=1}^{2} \Delta GDP_{n_0,q} \right)^2. \tag{4}$$

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. Equation 4 does not contain any regularization parameter, which stems from the fact that Arkhangelsky et al. (2021) allow for correlation within time for the same unit, but not across units for the same quarter. This assumption is plausibly violated in the setup described here, which simultaneously exploits several GDP subseries of the same country. These latter are possibly correlated for a given relative quarter q, beyond what captured by the corresponding fixed effects μ_q included in (2). For this reason, this paper provides also a heterogeneity analysis that estimates the SDiD separately for each post-1994 World Cup, the results of which are reported and discussed in subsection 3.4.

2.3 Data and samples

Time series data at quarterly frequency on GDP (and components) by country come from the OECD quarterly national accounts (QNA) dataset.[18] The event-study model, (1), is estimated using a sample starting in 1961 and ending in 2021 (included). 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

standard synthetic control analyses often have to focus separately on each treated unit per time (see for instance Billmeier and Nannicini 2013 and Campos et al. 2019).

[17] See Arkhangelsky et al. (2021) for the formal derivation of the regularization parameter, which is beyond the scope of this section.

[18] More specifically, this paper uses data from the quarterly time series labeled as VPVOBARSA by the OECD. This time series expresses national GDP (and components) in US dollars, using seasonally adjusted volume estimates and 2015 Purchasing Power Parities (PPPs). Data were accessed on 13 July 2022 from: `https://stats.oecd.org/`.

football tournament date. These information are all summarized in Table 1.

Table 1: 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 United Kingdom as a whole. ∗ The GDP series of Brazil is let it start in the second quarter of 1998, namely four years after its victory in the 1994 World Cup.

Two countries of particular interest are Argentina and Brazil, which both won the FIFA World Cup more than once but present a quarterly GDP series starting only in 1993 and 1996, respectively.[19] Since the GDP series starts 10 years later than its latest success in the FIFA World Cup (i.e. the 1986 World Cup held in Mexico), the analysis collocates Argentina in the set of control countries. On the contrary, Brazil is collocated in the treated group and its GDP series is let to start only in the second quarter of 1998, which corresponds to precisely four years after the victory in the 1994 World Cup held in the US.

A breakdown between host, winning and control countries is provided in Table 2. 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). Instead, twelve countries hosted the World Cup. Finally, thirty-five countries neither won nor hosted the World Cup in the analysis window. The sample is made of 8,650 observations, with an average of about 184 quarterly GDP growth records per country.

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

Table 2: Breakdown of the sample

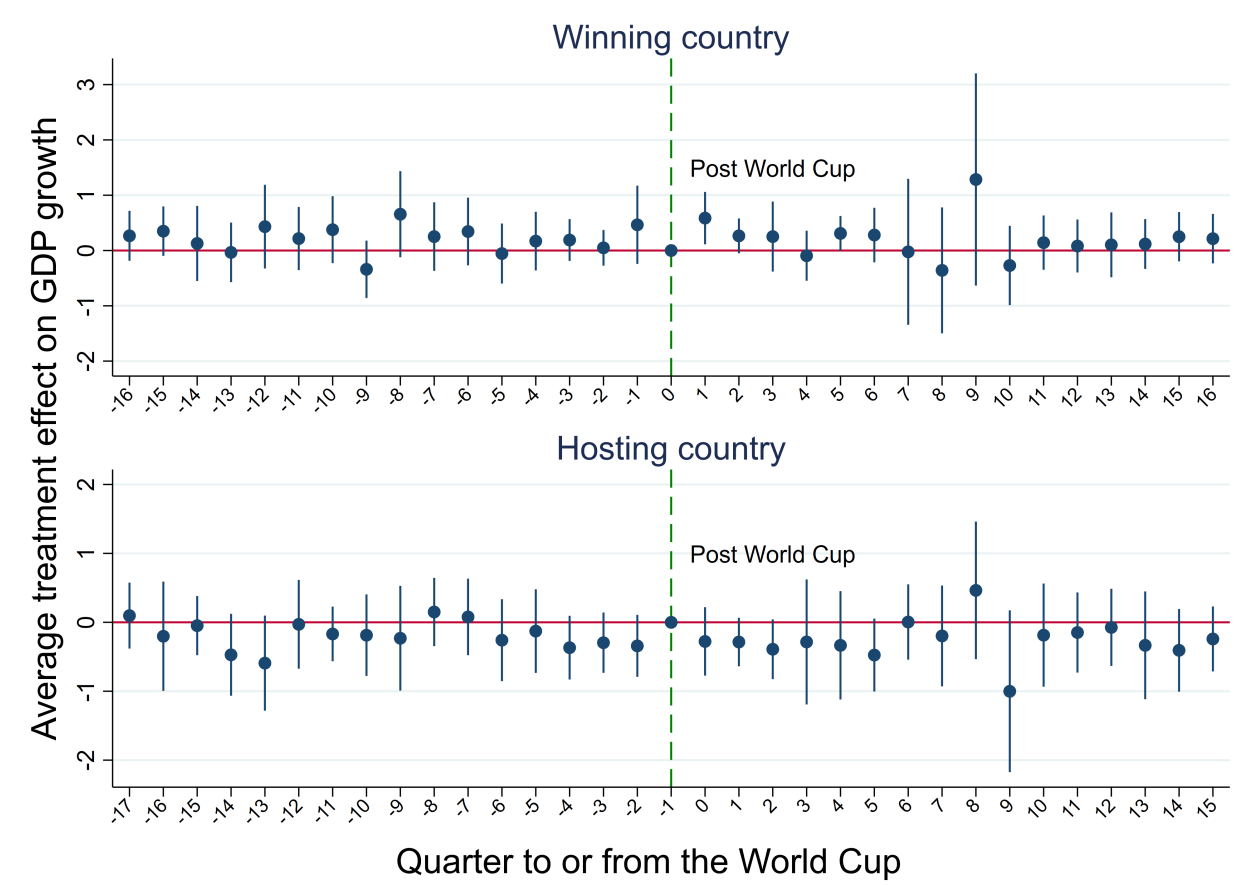
Control	Host	Winner
Argentina	Brazil	Brazil
Australia	England	England
Austria	France	France
Belgium	Germany	Germany
Bulgaria	Italy	Italy
Canada	Japan	Spain
Chile	Mexico	
Colombia	South Africa	
Costa Rica	South Korea	
Czech Republic	Spain	
Denmark	Russia	
Estonia	United States	
Finland		
Greece		
Hungary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

3 Results

3.1 The dynamic effects of winning and hosting the FIFA World Cup on GDP growth

The main results of the event-study design are summarized by Figure 1. Instead, the magnitude and statistical significance of the model coefficients are reported in Table A1 (for the growth convergence term and the effects of winning the World Cup) and Table A2 (for the effects of hosting the World Cup).

Figure 1: The effects of winning and hosting the FIFA World Cup on GDP growth



Notes: OLS coefficients and 95% confidence intervals for the event-study indicators included in (1). The top panel displays the event-study indicators β_l for winning the FIFA World Cup. The bottom panel displays the event-study indicators $\theta_{l'}$ for hosting the FIFA World Cup. Standard errors are clustered at the country level.

The top panel of Figure 1 shows that winning the FIFA World Cup is not preceded by significant trends in GDP growth. Indeed, most of the pre-victory coefficients are not statistically different from zero. This finding ensures that, conditional on past levels of

wealth 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 a success in the FIFA World Cup. More specifically, column 1 of Table A1 indicates that winning the World Cup causes quarterly GDP to grow by 0.586 and 0.265 percentage points in the first and second quarter following the football competition, respectively. The first effect is even statistically significant at the 5% level.

The coefficient for lagged GDP turns out to be statistically significant too. The negative convergence term suggests that a 1%-increase in logged GDP in the previous quarter reduces current GDP growth by 0.316 percentage points.[20] Thus, the analysis performed in this paper provides additional evidence in support of the convergence theory, according to which poor countries grow faster than richer nations (see also Dowrick and Nguyen 1989 and Barro 2015).

The bottom panel of Figure 1 displays the economic effects of hosting the FIFA World Cup. Again, the event-study specification does not provide striking evidence against the parallel trend assumption, despite the FIFA is likely to require the host country to invest in sportive and transport infrastructures years before the running of the football competition. Most pre-World Cup indicators are in fact statistically indistinguishable from zero. Similarly, the post-World Cup coefficients are generally negative and marginally significant. If anything, Figure 1 documents slightly lower GDP growth rates for the host country after the running of the FIFA World Cup. Overall, these findings indicate that there are no considerable economic benefits from hosting the football World Cup, especially in the period close to the tournament date.

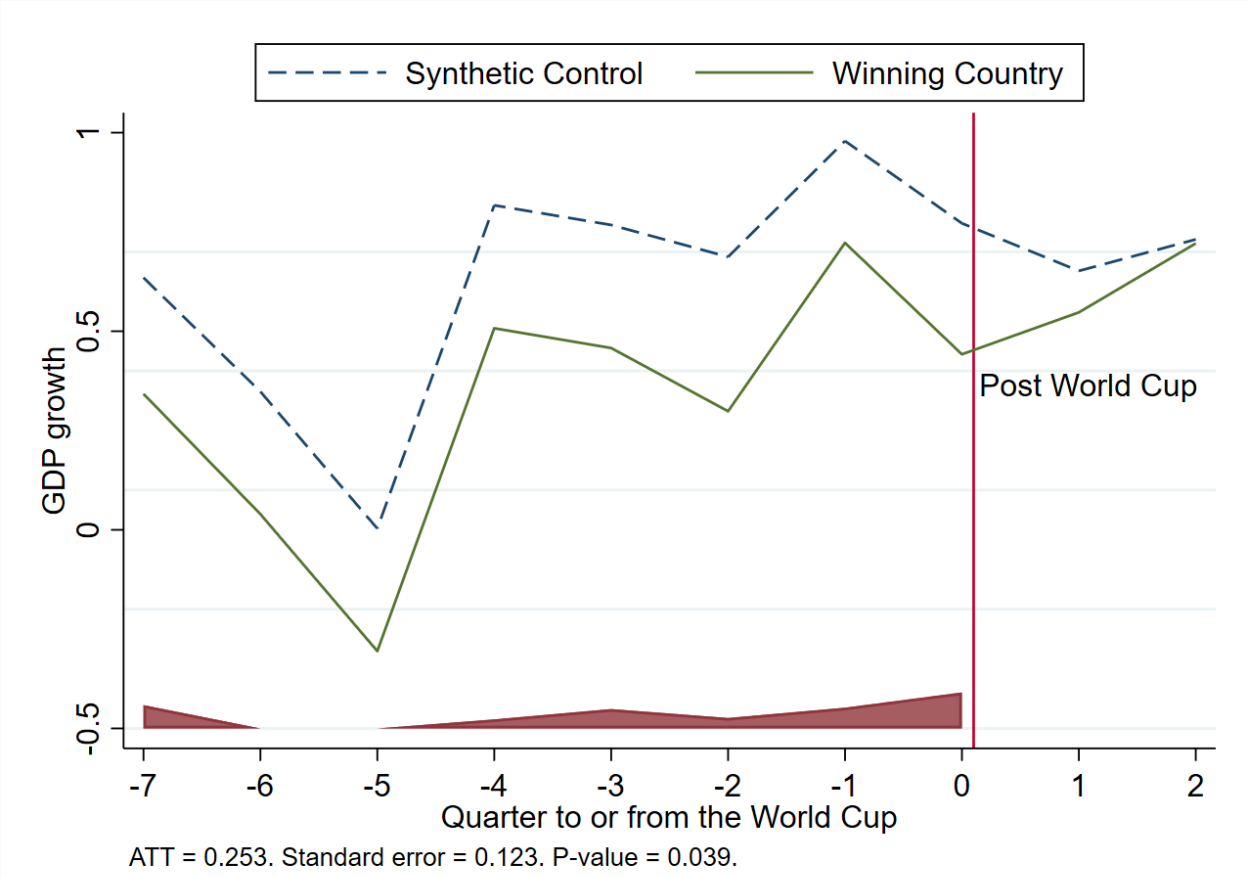
3.2 A magnifying lens on the short-term

The results reported in subsection 3.1 suggest that winning the FIFA World Cup has only a short-lived positive effect on GDP growth, which seems to last for at most few 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 difference-in-difference approach presented in subsection 2.2. The results of this analysis are summarized in Figure 2.

The trend in GDP growth of the synthetic control resembles well that of the winning country in the pre-tournament 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 FIFA World Cup, the winning country presents a more pronounced GDP growth than its synthetic

[20] Magnitude-wise, this convergence coefficient is only slightly larger than the one documented in Acemoglu and Molina (2021), who estimate a similar specification to (1) although using GDP data at yearly frequency.

Figure 2: A synthetic difference-in-difference approach



Notes: average treatment effect of winning the FIFA World Cup on quarterly GDP growth as estimated by the synthetic difference-in-difference model (2). The solid green line displays the GDP growth of the average FIFA 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.

control. The gap in quarterly GDP growth between the average World Cup winner and its counterfactual seems entirely closed after 2 quarters from the FIFA World Cup. Overall, the average treatment effect in the two post-World Cup periods is estimated to be of 0.253 percentage points in quarterly GDP growth, which is lower than the one recorded by the baseline event-study specification (see Table A1), but again statistically significant at the 5% level.

Similarly, Figure A1 plots the results of a synthetic difference-in-difference model that examines whether hosting the World Cup brings short-term economic benefits. Again, there is no significant increase in GDP growth in the quarters following the running of the World Cup, with an average treatment effect that is equal to -0.074 and very far from being sta-

tistically significant at any conventional level.[21] Thus, the results provided in this section are consistent with those discussed in subsection 3.1: only winning the FIFA World Cup involves a short-term boost in GDP growth.

3.3 Mechanisms

This section explores the nature of the drivers standing behind the increase in GDP growth that immediately follows a success in the FIFA World Cup. To do so, it replicates the entire analysis, but using as outcome variables the quarterly growth rates of the following five GDP components: private consumption, government consumption, capital formation, exports and imports.[22] The results of the event-study approach are summarized in Figure 3, while the full set of coefficients is reported in Table A3.

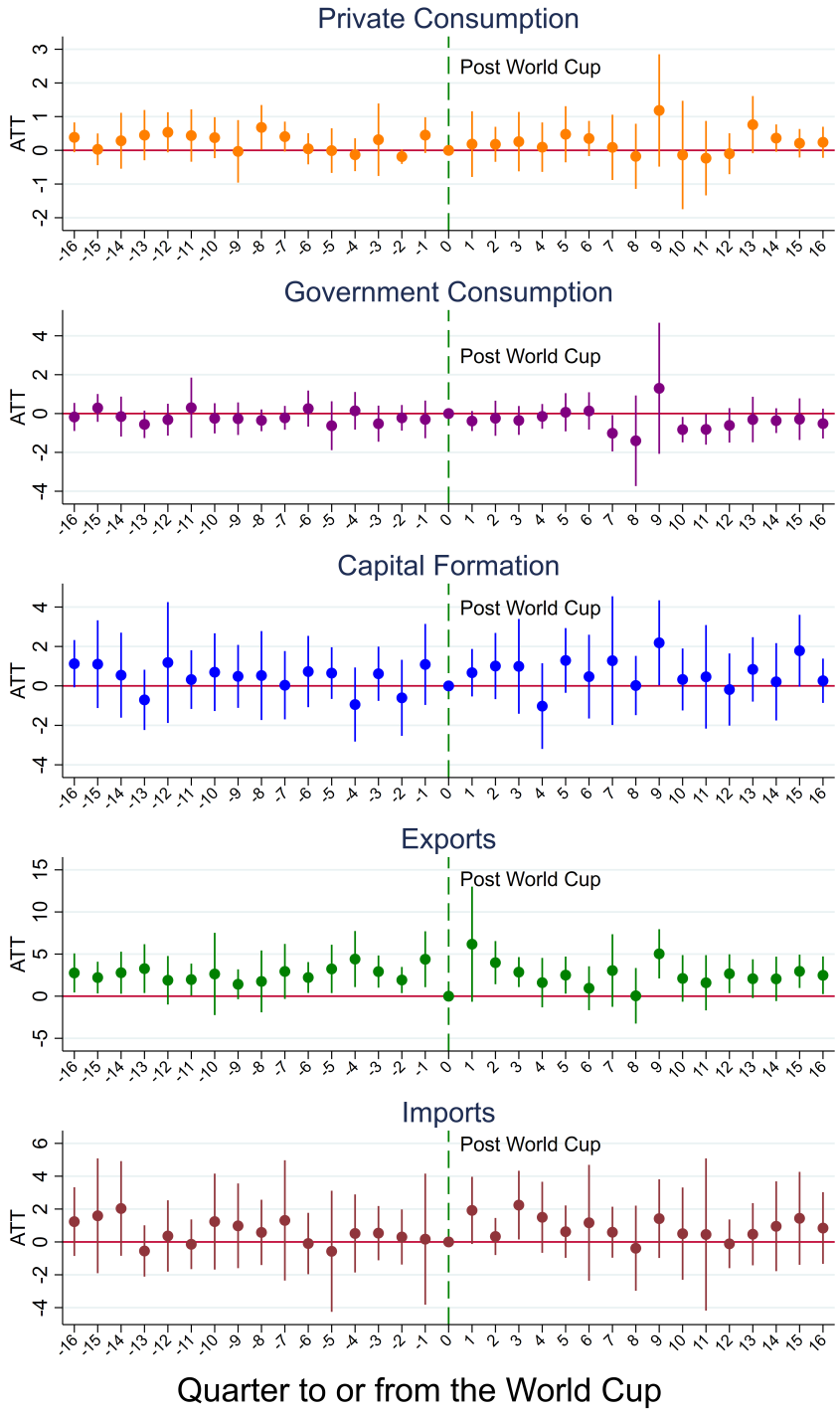
The findings suggest that the effect on GDP growth is mainly determined by an increase in exports growth. The fourth panel of Figure 3 shows that exports growth is, on average, 6.175 percentage points higher in the first quarter following the victory of the World Cup. However, the growth rate of the export sector was already increasing for the winning country in the quarters preceding the football World Cup, which clearly represents a violation of the parallel trend assumption. For this reason, the exports time series is also examined using the synthetic DiD approach, the results of which are summarized in Figure 4. This strategy is considerably more successful in matching the pre-trend in export growth rates between the set of treated units and the set of control ones. Again, the post-victory treatment effect turns out to be positive, highlighting how the exports growth of the average winning country increases substantially if compared to its counterfactual. However, this treatment effect (an increase of 3 percentage points in exports growth) is estimated very imprecisely and only not far from being statistically significant at the 10% level.

The remaining panels of Figure 3 indicate that, following the victory of the FIFA World Cup, capital formation increases only slightly, with such effects that are not statistically significant. Winning the football World Cup is also associated with an increase in imports growth, although this boost is less pronounced (1.92 percentage points) than that of the exports sector. Hence, to win the FIFA World Cup seems to lead to an overall improvement

[21] In the same spirit of the event-study specification implemented in subsection 3.1, the reference period in the analysis on the effect of hosting the World Cup is assumed to be the last quarter before the start of the World Cup, i.e. before any tourism inflow related to the World Cup in the host country. As a consequence, the pre-event period and the post-event period in Figure A1 are now made of 6 and 3 quarters, respectively.

[22] Even the first lag in logged GDP is replaced with the first lag in logged GDP component.

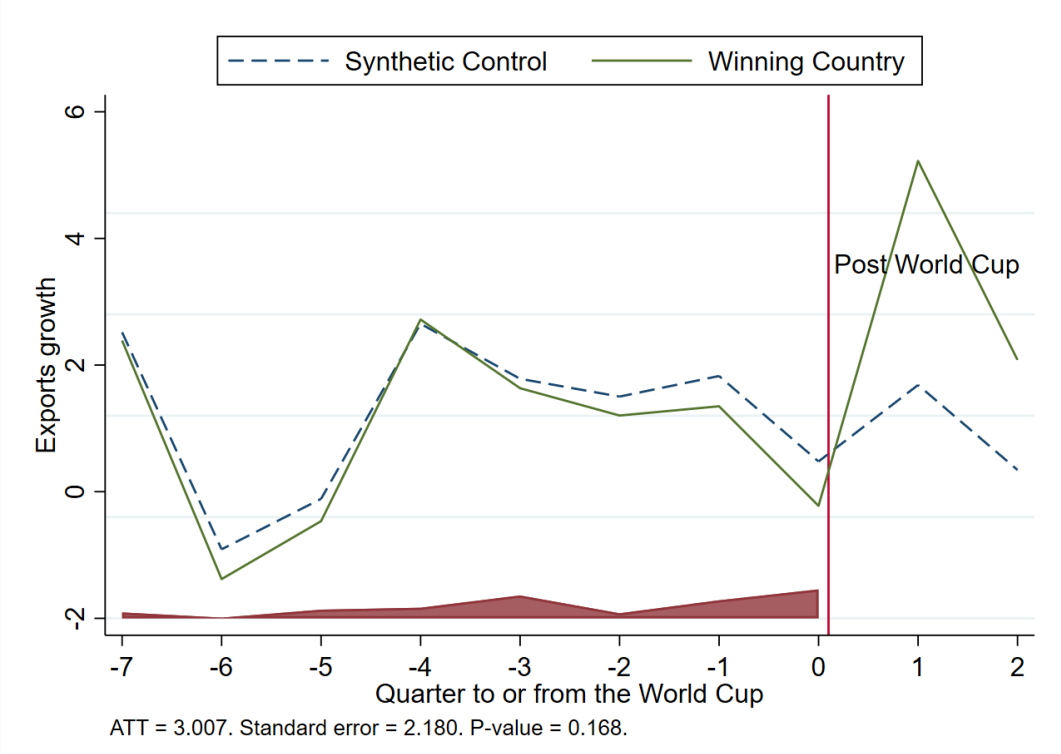
Figure 3: The effect of winning the FIFA World Cup on GDP components



Notes: OLS coefficients and 95% confidence intervals for the event-study indicators for winning the FIFA 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.

of the trade balance, at least in the very short term. The second panel of Figure 3 suggests, if anything, a slight reduction in government consumption growth after a victory in the FIFA World Cup. 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, government consumption and imports than for private consumption or exports.[23]

Figure 4: A synthetic difference-in-difference approach (Exports growth)



Notes: average treatment effect of winning the FIFA World Cup on quarterly exports growth as estimated by the synthetic difference-in-difference model (2). The solid green line displays the exports growth of the average FIFA World Cup winning subseries. The blue dashed line displays the exports growth of its synthetic counterfactual. Standard errors are clustered at the country-subseries level and obtained via 1,000 bootstrap replications.

Qualitatively similar patterns emerge from performing the synthetic DiD strategy on each of these alternative outcomes, the results of which are displayed in Figure A2, Figure A3, Figure A4 and Figure A5. Instead, Figure A6 reports the dynamic effects of hosting the FIFA World Cup on the growth rate of each GDP component. No striking result emerges from Figure A6, consistently with the conclusion that to host the FIFA World Cup does not impact significantly economic growth. At first sight, this finding appears in contrast with the

[23]See Rassekh et al. (2001) for additional and broadly consistent convergence results by GDP component.

gravity model estimated by Rose and Spiegel (2011), which provides evidence in support of a positive and permanent increase in exports for countries that hosted the Olympic Games or the FIFA World Cup. However, the authors themselves recognize how their results stem entirely from the signal in terms of openness to trade generally associated with a country bid to host a mega sport event, rather than from the act of holding the tournament in itself. On the contrary, this latter is one of the two focuses of interest of the current analysis, which investigates the dynamic effects of winning and hosting the FIFA World Cup by examining the period around the running date of the football competition.

3.4 Robustness checks

3.4.1 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.

Column 1 of Table 3 reports estimates after excluding lagged GDP from the set of control variables. The rationale of this sensitivity check is that the very first lag in quarterly 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 Figure 1.[24] Hence, the findings of this paper do not rely on the inclusion of lagged GDP in the regression model, despite this control variable is a significant predictor of current GDP growth and possibly of the likelihood of winning the FIFA World Cup.

Similarly, columns 2-4 of Table 3 experiment with alternative lags in GDP to model GDP dynamics. Columns 2 and 3 replace the first lag in GDP with respectively the second, third and fourth lag in GDP, which are measures of past national wealth progressively more predetermined to the running of the FIFA World Cup. Instead, column 4 includes all the first four lags as controls, thus modeling GDP dynamics with a richer specification. All models report findings that are in line with the rest of the paper. Interestingly, the convergence coefficient increases in magnitude the farther from the World Cup date the indicator of past wealth is measured.

Column 6 provides results for a model in which the first 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

[24]For the sake of brevity, Table 3 reports only coefficients for the event-study indicators in the four years around the World Cup date. The full set of results is available from the author upon request.

Table 3: Robustness checks to GDP dynamics

	ΔGDP						Δ_4GDP	GDP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Winning the World Cup (-8)	0.657*	0.656*	0.657*	0.657*	0.630*	0.657*	0.354	0.007*
	(0.387)	(0.386)	(0.385)	(0.385)	(0.366)	(0.384)	(0.660)	(0.004)
Winning the World Cup (-7)	0.251	0.245	0.247	0.247	0.256	0.252	0.387	0.003
	(0.309)	(0.308)	(0.308)	(0.308)	(0.311)	(0.305)	(0.559)	(0.003)
Winning the World Cup (-6)	0.344	0.341	0.339	0.343	0.328	0.344	0.357	0.003
	(0.304)	(0.305)	(0.305)	(0.303)	(0.285)	(0.307)	(0.599)	(0.003)
Winning the World Cup (-5)	-0.055	-0.058	-0.058	-0.061	-0.104	-0.055	0.631	-0.001
	(0.270)	(0.269)	(0.268)	(0.268)	(0.260)	(0.273)	(0.664)	(0.003)
Winning the World Cup (-4)	0.172	0.166	0.166	0.166	0.139	0.169	0.152	0.002
	(0.262)	(0.262)	(0.262)	(0.261)	(0.251)	(0.262)	(0.582)	(0.003)
Winning the World Cup (-3)	0.193	0.187	0.188	0.187	0.180	0.189	0.090	0.002
	(0.186)	(0.187)	(0.187)	(0.187)	(0.190)	(0.187)	(0.479)	(0.002)
Winning the World Cup (-2)	0.052	0.046	0.046	0.047	0.047	0.048	-0.202	0.000
	(0.158)	(0.160)	(0.160)	(0.160)	(0.157)	(0.161)	(0.454)	(0.002)
Winning the World Cup (-1)	0.470	0.463	0.463	0.463	0.450	0.463	0.318	0.005
	(0.353)	(0.351)	(0.351)	(0.350)	(0.343)	(0.351)	(0.321)	(0.004)
Winning the World Cup (+1)	0.590**	0.584**	0.583**	0.584**	0.566**	0.586**	0.437*	0.006**
	(0.235)	(0.233)	(0.234)	(0.234)	(0.218)	(0.235)	(0.250)	(0.002)
Winning the World Cup (+2)	0.268*	0.262	0.259	0.257	0.243	0.265*	0.687*	0.003*
	(0.157)	(0.157)	(0.158)	(0.158)	(0.160)	(0.157)	(0.364)	(0.002)
Winning the World Cup (+3)	0.256	0.250	0.248	0.248	0.219	0.252	0.529	0.003
	(0.313)	(0.313)	(0.313)	(0.314)	(0.310)	(0.315)	(0.331)	(0.003)
Winning the World Cup (+4)	-0.090	-0.099	-0.100	-0.102	-0.141	-0.094	0.433	-0.001
	(0.225)	(0.224)	(0.224)	(0.224)	(0.234)	(0.225)	(0.400)	(0.002)
Winning the World Cup (+5)	0.315*	0.308*	0.305*	0.305*	0.283*	0.309*	0.158	0.003*
	(0.157)	(0.158)	(0.158)	(0.158)	(0.158)	(0.157)	(0.369)	(0.002)
Winning the World Cup (+6)	0.286	0.278	0.278	0.286	0.287	0.280	0.183	0.003
	(0.243)	(0.243)	(0.243)	(0.250)	(0.245)	(0.245)	(0.409)	(0.002)
Winning the World Cup (+7)	-0.017	-0.026	-0.028	-0.027	-0.033	-0.028	-0.098	-0.000
	(0.655)	(0.655)	(0.655)	(0.655)	(0.649)	(0.661)	(0.757)	(0.007)
Winning the World Cup (+8)	-0.351	-0.360	-0.362	-0.363	-0.389	-0.363	-0.365	-0.004
	(0.564)	(0.564)	(0.564)	(0.563)	(0.551)	(0.570)	(1.115)	(0.006)
GDP (-1)						-0.280**		0.997***
						(0.128)		(0.001)
GDP (-2)		-0.263**			6.318*			
		(0.120)			(3.450)			
GDP (-3)			-0.327**		-0.992			
			(0.132)		(4.409)			
GDP (-4)				-0.358**	-5.656**		-1.144**	
				(0.135)	(2.449)		(0.546)	
GDP (-1) * 1970s						-0.054		
						(0.053)		
GDP (-1) * 1980s						-0.047		
						(0.032)		
GDP (-1) * 1990s						-0.072		
						(0.054)		
GDP (-1) * 2000s						-0.078*		
						(0.041)		
GDP (-1) * 2010s						-0.039		
						(0.041)		
Observations	8651	8603	8556	8509	8509	8650	8509	8650
Within R^2	0.407	0.411	0.412	0.413	0.417	0.409	0.427	0.999

Notes: Event-study OLS estimates for winning the FIFA World Cup with different model specifications in terms of GDP dynamics. Clustered standard errors by country are reported in parenthesis. Significance levels: *p<0.1; **p<0.05; ***p<0.01.

convergence patterns have changed over time (see for instance Acemoglu and Molina 2021 and Kremer et al. 2022). The coefficients of these interaction terms indicate that, if anything, the convergence phenomenon have 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. Thus, the possible time-varying nature of convergence patterns does not represent an issue for the conclusions of this study.

Finally, columns 7 and 8 of Table 3 test the robustness of the findings to the use of slightly different outcome variables. Column 7 provides estimates for a quarterly growth model where GDP growth rates are computed by comparing the same quarter in two consecutive years (i.e. replacing the first-difference operator with the fourth-difference one, Δ_4, in Equation 1), rather than on a quarter-by-quarter basis as described in section 3. Again, the regression results point toward an increase in GDP growth in the two quarters following a success in the World Cup. However, this time the effect seems to peak in the second post-World Cup quarter.

Consistent findings are provided also in column 8 of Table 3, which tests the robustness of the findings to the use of logged GDP rather than quarterly GDP growth as the dependent variable in Equation 1. The displayed coefficients indicate a significant (at the 5% level) 0.60%-increase in GDP after one quarter from the victory of the World Cup. Overall, the set of results reported in this section highlights the existence of a short-lived boost to national GDP due to a success in the FIFA World Cup. Furthermore, it supports the robustness of the event-study design implemented in this paper, since no pre-treatment indicator displayed in Table 3 turns out to be strongly statistically significant.

3.4.2 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 2 is made of countries that are generally considered to have virtually no chance to either win or host a football World Cup. As a result, the same countries might have experienced alternative types of treatment related to the FIFA 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. More in detail, I restrict the treated group to comprise only countries that ever won the FIFA World Cup and the control group to be made of only South American countries or countries which joined the European Union at most in 1995. This alternative subgroup

of control countries certainly presents more similarities to the sample of World Cup winners listed in Table 2, thus allowing to verify whether the heterogeneity in the baseline sample poses a risk to identification. The results are summarized by Figure A7, which again shows a statistically significant (at the 5% level) increase in GDP growth driven by the exports sector within two quarters from winning the FIFA World Cup. Thus, the differences between treated and control countries do not seem to represent a serious issue for the conclusions of this study.

3.4.3 Media coverage of the World Cup finalists

Since the treatment effect estimated in this paper seems primarily linked to the export sector, one question that is natural to raise is whether the goods and services produced by the World Cup winner simply benefit of the unique visibility offered by the final game of the FIFA World Cup, which is an event generally viewed by more than 1 billion of 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 exports growth of World Cup winners and runner-ups. Reasonably, these two groups of countries enjoy a similar amount and type of media coverage on the day(s) of the final. Thus, the World Cup runner-ups provide an ideal counterfactual to test whether the consequences for the export sector are at least in part due to a media effect.

Table 4: DiD analysis comparing FIFA World Cup winners and runner-ups

	ΔExports	ΔImports	ΔPCons	ΔGCons	ΔCapForm
Winner * Post World Cup	3.507*	-0.079	-0.002	1.106	0.336
	(1.919)	(1.072)	(0.262)	(0.716)	(0.557)
Observations			176		
Within R^2	0.175	0.166	0.199	0.195	0.102

Notes: DiD models comparing 10-quarter GDP component subseries of winners and runner-ups at the following FIFA World Cups: UK 1966; Germany 1974; Spain 1982; France 1998; Korea and Japan 2002; Germany 2006; South Africa 2010; Brazil 2014. PCons = Private Consumption; GCons = Government Consumption; CapForm = Capital Formation. Controls included but not reported: first 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 column 2. Significance levels: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$.

To do so, I first pool together all the available export subseries used for the SDiD analysis and retain only those associated with the pair of finalists in a given FIFA 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, $WIN_{n,q}$, in order to estimate the average treatment effect in the two post-World Cup quarters.[25]

The results and additional details on this analysis are provided in Table 4. The first column displays a positive and statistically significant effect on exports growth for the World Cup winner, which is also consistent in magnitude with the SDiD estimate reported in Figure 4. Again, the same conclusion does not apply to the other GDP components. Hence, the findings of this paper cannot be explained by the exceptional media coverage devoted to the World Cup finalists on the days of the final.

3.4.4 Heterogeneity by World Cup winner

The last set of results provided in this paper is obtained by performing the synthetic difference-in-difference analysis separately for each post-1994 FIFA World Cup. The rationale for implementing this strategy is twofold. First, it tests the robustness of the SDiD estimates by comparing GDP subseries that, contrarily to the approach described in subsection 2.2, are unlikely to be correlated between each other beyond a common seasonality effect, as they all belong to different countries and cover the same window of time. Second, it permits to explore the heterogeneity of the treatment effect by examining each FIFA World Cup winner singularly, and therefore to gather a better understanding of which countries and football tournaments drive the conclusions of this work.

The results are summarized in Table 5. The first panel shows that the winning country experienced an increase in quarterly GDP growth following 5 out of the 6 FIFA World Cups studied here. The only exception is Spain, which displays a negative treatment effect in column 4. This finding can be due to the fact that Spain won its first FIFA World Cup at the beginning of the 2010 sovereign debt crisis, which possibly blurred the benefits that stem from a success in the FIFA World Cup.[26] Magnitude-wise, the positive treatment effects associated

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

[26] Moreover, Spain won the European football championship both in 2008 and 2012, bearing witness to how that generation of Spanish players has been one of the most flourishing in the entire football history. Spain was in fact considered as the great favorite of all international football competitions of the time, which possibly made the victory in the 2010 FIFA World Cup to be even less surprising if compared to the other

Table 5: Heterogeneous synthetic difference-in-difference analysis by FIFA World Cup

	FIFA World Cup winner					
	France (1998)	Brazil (2002)	Italy (2006)	Spain (2010)	Germany (2014)	France (2018)
				ΔGDP		
ATT	0.382	0.350	0.362	-0.047	0.263	0.348
se	(2.049)	(0.774)	(0.698)	(0.877)	(0.519)	(0.728)
				ΔExports		
ATT	0.551	13.46***	2.284	1.126	1.320	0.485
se	(8.735)	(2.322)	(2.960)	(3.313)	(1.956)	(2.384)
				ΔImports		
ATT	0.788	-0.439	1.473	-0.202	0.049	0.250
se	(7.645)	(2.924)	(2.629)	(2.958)	(1.964)	(2.836)
				ΔPCons		
ATT	1.486	-1.316	0.425	-0.754	0.449	0.705
se	(1.960)	(1.056)	(0.817)	(1.137)	(0.628)	(0.971)
				ΔGCons		
ATT	0.427	-0.639	0.045	-0.512	0.194	0.115
se	(1.923)	(1.348)	(4.722)	(1.273)	(2.565)	(2.313)
				ΔCapForm		
ATT	1.258	0.565	0.951	-0.984	-1.501	1.577
se	(4.511)	(2.961)	(2.225)	(3.563)	(2.601)	(9.746)

Notes: Synthetic difference-in-difference analysis performed separately for each post-1994 FIFA World Cup. PCons = Private Consumption; GCons = Government Consumption; CapForm = Capital Formation. Standard errors are clustered at the country level and obtained via 1,000 placebo replications. Significance levels: *p<0.1; **p<0.05; ***p<0.01.

with the other five World Cups are comparable and slightly larger than the baseline synthetic estimate reported in Figure 4, going from a minimum of 0.263 (Germany 2014) to a maximum of 0.382 (France 1998) percentage points of higher GDP growth. However, the only two post-treatment data points used in each of these analyses make the estimation very imprecise and the effects on GDP growth statistically insignificant.

The second panel of Table 5 presents positive treatment effects on exports growth across all columns. This finding confirms how winning the FIFA World Cup is unequivocally followed by a boost, whether great or small, to the export sector. This conclusion seems particularly true if the focus is devoted to the trade balance of Brazil (column 2), which recorded a significant 13.46-ppt higher export growth than its counterfactual in the two quarters following the success of Brazil in the 2002 FIFA World Cup. Instead, the export effects associated with the other football events are smaller in magnitude and not statistically

examined events.

significant. Still, they are more pronounced than the effects associated with the other GDP components, except for France in both 1998 and 2018. Moreover, Table 5 presents treatment effects with mixed signs for all the other GDP components, thus confirming how the effect of winning the FIFA World Cup on GDP growth is, if anything, driven by the export sector.

4 Conclusions

Periodically every four years media outlets and analysts claim that the 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 scarce if not absent at all. This paper has investigated if winning the football 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 difference-in-difference approach proposed by Arkhangelsky et al. (2021). Importantly, the econometric strategy makes use of a variety of dynamic model specifications to control for past levels of national wealth, which not only determine the probability of winning sport competitions as documented by Bernard and Busse (2004), but they also affect the current rate of economic growth (Barro 1991, Barro and Sala-i Martin 1992).

The analysis has shown that winning the FIFA 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, quarterly GDP growth is, according to the most conservative estimates produced by this study, 0.25 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 exports growth and by a general improvement of the trade balance (especially for Brazil in 2002), 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 the opportunity for a country to be in the global spotlight.[27] Moreover, the 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 1998 Games, which were supposed to "raise international awareness of Korean manufactured products". The current paper is, to the best of my knowledge, the first to argue that such visibility channel can apply even to the winning country of a major

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

sport event.

On the contrary, the analysis reported in this work has suggested that being the host country of the FIFA World Cup does not bring any significant economic benefit, at least in the short and medium term. Thus, this paper has reported findings also in line with the literature that casts doubts on the effective economic returns from hosting major sport events (Hagn and Maennig 2008, Baade and Matheson 2016). Overall, the results provided in this study have shed some light on a publicly debated issue that ends up influencing macroeconomic forecasts and, consequently, policy making. Moreover, they assume particular relevance in light of the recent proposal by the FIFA of making the football World Cup a more recurrent event, which supposedly should that take place every two years.

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A Appendix

Table A1: Event-study OLS indicators and standard errors for winning the FIFA World Cup

	ΔGDP	
	(1)	(2)
GDP (-1)	-0.316**	(0.124)
Winning the World Cup (-16 or more)	0.266	(0.224)
Winning the World Cup (-15)	0.350	(0.222)
Winning the World Cup (-14)	0.128	(0.337)
Winning the World Cup (-13)	-0.034	(0.267)
Winning the World Cup (-12)	0.432	(0.376)
Winning the World Cup (-11)	0.216	(0.284)
Winning the World Cup (-10)	0.377	(0.301)
Winning the World Cup (-9)	-0.340	(0.258)
Winning the World Cup (-8)	0.657*	(0.387)
Winning the World Cup (-7)	0.252	(0.308)
Winning the World Cup (-6)	0.344	(0.304)
Winning the World Cup (-5)	-0.055	(0.270)
Winning the World Cup (-4)	0.170	(0.263)
Winning the World Cup (-3)	0.190	(0.188)
Winning the World Cup (-2)	0.048	(0.161)
Winning the World Cup (-1)	0.465	(0.352)
Winning the World Cup (+1)	0.586**	(0.235)
Winning the World Cup (+2)	0.265*	(0.157)
Winning the World Cup (+3)	0.252	(0.314)
Winning the World Cup (+4)	-0.094	(0.225)
Winning the World Cup (+5)	0.309*	(0.157)
Winning the World Cup (+6)	0.280	(0.245)
Winning the World Cup (+7)	-0.024	(0.656)
Winning the World Cup (+8)	-0.359	(0.566)
Winning the World Cup (+9)	1.284	(0.953)
Winning the World Cup (+10)	-0.271	(0.357)
Winning the World Cup (+11)	0.143	(0.244)
Winning the World Cup (+12)	0.081	(0.238)
Winning the World Cup (+13)	0.103	(0.292)
Winning the World Cup (+14)	0.118	(0.224)
Winning the World Cup (+15)	0.250	(0.221)
Winning the World Cup (+16 or more)	0.215	(0.222)
Observations	8650	
Within R2	0.409	

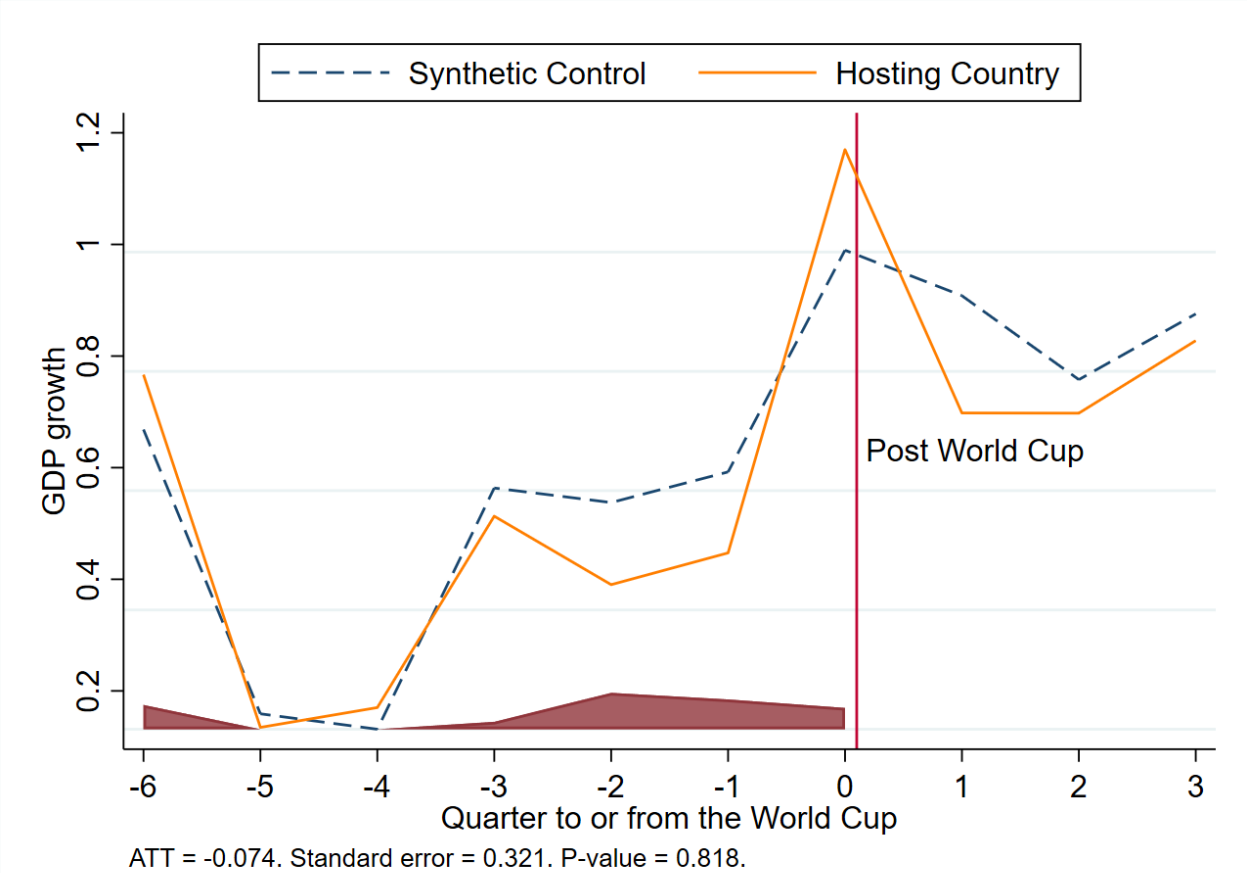
Notes: Event-study OLS estimates for winning the FIFA World Cup reported in column 1. Clustered standard errors at the country level reported in column 2. Significance levels: *p<0.1; **p<0.05; ***p<0.01.

Table A2: Event-study OLS indicators and standard errors for hosting the FIFA World Cup

	ΔGDP	
	(1)	(2)
Hosting the World Cup (-17 or more)	0.097	(0.237)
Hosting the World Cup (-16)	-0.202	(0.394)
Hosting the World Cup (-15)	-0.048	(0.213)
Hosting the World Cup (-14)	-0.471	(0.295)
Hosting the World Cup (-13)	-0.592*	(0.343)
Hosting the World Cup (-12)	-0.029	(0.320)
Hosting the World Cup (-11)	-0.169	(0.197)
Hosting the World Cup (-10)	-0.187	(0.294)
Hosting the World Cup (-9)	-0.231	(0.378)
Hosting the World Cup (-8)	0.150	(0.246)
Hosting the World Cup (-7)	0.078	(0.276)
Hosting the World Cup (-6)	-0.259	(0.295)
Hosting the World Cup (-5)	-0.128	(0.301)
Hosting the World Cup (-4)	-0.368	(0.230)
Hosting the World Cup (-3)	-0.296	(0.217)
Hosting the World Cup (-2)	-0.342	(0.223)
Hosting the World Cup (+0)	-0.277	(0.246)
Hosting the World Cup (+1)	-0.286	(0.175)
Hosting the World Cup (+2)	-0.391*	(0.215)
Hosting the World Cup (+3)	-0.285	(0.450)
Hosting the World Cup (+4)	-0.334	(0.390)
Hosting the World Cup (+5)	-0.475*	(0.263)
Hosting the World Cup (+6)	0.004	(0.271)
Hosting the World Cup (+7)	-0.198	(0.363)
Hosting the World Cup (+8)	0.463	(0.496)
Hosting the World Cup (+9)	-1.001*	(0.583)
Hosting the World Cup (+10)	-0.186	(0.372)
Hosting the World Cup (+11)	-0.148	(0.289)
Hosting the World Cup (+12)	-0.074	(0.278)
Hosting the World Cup (+13)	-0.334	(0.388)
Hosting the World Cup (+14)	-0.406	(0.298)
Hosting the World Cup (+15 or more)	-0.241	(0.234)
Observations	8650	
Within R2	0.409	

Notes: Event-study OLS estimates for hosting the FIFA World Cup reported in column 1. Clustered standard errors at the country level reported in column 2. Significance levels: *p<0.1; **p<0.05; ***p<0.01.

Figure A1: A synthetic difference-in-difference approach (Host country)



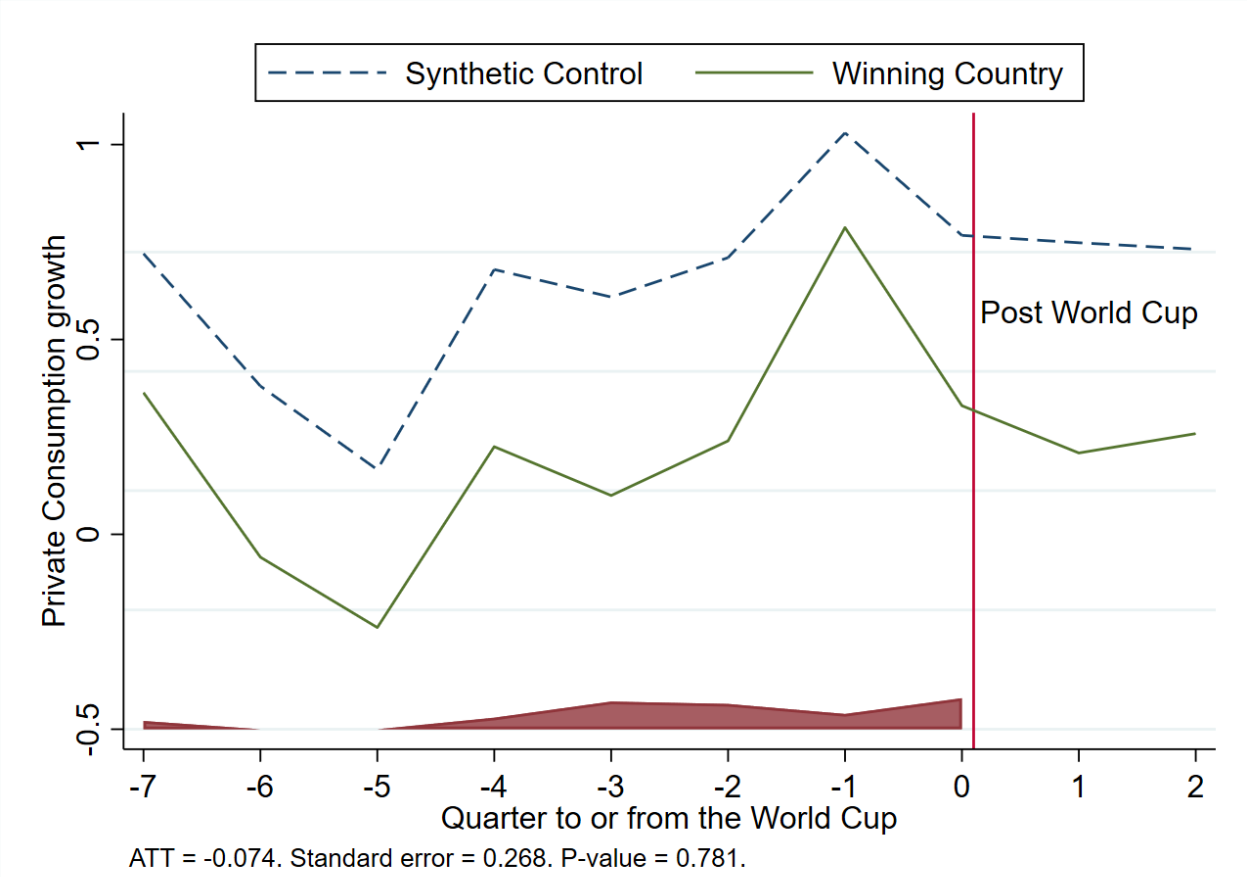
Notes: average treatment effect of hosting the FIFA World Cup on quarterly GDP growth as estimated by the hosting counterpart of the synthetic difference-in-difference model (2). The solid green line displays the GDP growth of the average FIFA World Cup host subseries. The blue dashed line displays the GDP growth of its synthetic counterfactual. Standard errors are clustered at the country-subseries level and obtained via 1,000 bootstrap replications.

Table A3: The effect of winning the FIFA World Cup on GDP components

	ΔPCons		ΔGCons		ΔCapForm		ΔExports		ΔImports	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Winning the World Cup (-16 or more)	0.386*	(0.219)	-0.176	(0.359)	1.126*	(0.595)	2.761**	(1.152)	1.237	(1.038)
Winning the World Cup (-15)	0.030	(0.233)	0.289	(0.356)	1.102	(1.105)	2.213**	(0.933)	1.591	(1.736)
Winning the World Cup (-14)	0.284	(0.412)	-0.157	(0.510)	0.544	(1.070)	2.787**	(1.238)	2.037	(1.431)
Winning the World Cup (-13)	0.451	(0.371)	-0.556	(0.351)	-0.708	(0.759)	3.275**	(1.440)	-0.550	(0.775)
Winning the World Cup (-12)	0.536*	(0.296)	-0.318	(0.408)	1.185	(1.522)	1.891	(1.431)	0.362	(1.078)
Winning the World Cup (-11)	0.439	(0.386)	0.300	(0.769)	0.321	(0.739)	1.977**	(0.939)	-0.143	(0.752)
Winning the World Cup (-10)	0.376	(0.302)	-0.246	(0.386)	0.697	(0.978)	2.640	(2.424)	1.237	(1.450)
Winning the World Cup (-9)	-0.031	(0.461)	-0.266	(0.416)	0.484	(0.793)	1.417	(0.881)	0.981	(1.281)
Winning the World Cup (-8)	0.680**	(0.330)	-0.350	(0.278)	0.525	(1.120)	1.758	(1.824)	0.579	(0.987)
Winning the World Cup (-7)	0.407*	(0.221)	-0.221	(0.305)	0.035	(0.860)	2.940*	(1.622)	1.311	(1.817)
Winning the World Cup (-6)	0.046	(0.229)	0.253	(0.461)	0.729	(0.898)	2.219**	(0.910)	-0.097	(0.927)
Winning the World Cup (-5)	-0.008	(0.329)	-0.626	(0.624)	0.651	(0.651)	3.239**	(1.424)	-0.571	(1.830)
Winning the World Cup (-4)	-0.131	(0.242)	0.141	(0.481)	-0.945	(0.932)	4.409**	(1.653)	0.517	(1.180)
Winning the World Cup (-3)	0.315	(0.534)	-0.523	(0.461)	0.617	(0.683)	2.925***	(0.949)	0.534	(0.820)
Winning the World Cup (-2)	-0.186*	(0.108)	-0.221	(0.328)	-0.605	(0.957)	1.920**	(0.770)	0.301	(0.833)
Winning the World Cup (-1)	0.451*	(0.263)	-0.302	(0.481)	1.089	(1.020)	4.388**	(1.648)	0.168	(1.981)
Winning the World Cup (+1)	0.185	(0.484)	-0.384	(0.255)	0.670	(0.598)	6.175*	(3.394)	1.921*	(1.015)
Winning the World Cup (+2)	0.178	(0.258)	-0.242	(0.448)	1.008	(0.834)	3.981***	(1.272)	0.331	(0.560)
Winning the World Cup (+3)	0.258	(0.437)	-0.355	(0.369)	0.992	(1.193)	2.860***	(0.883)	2.242**	(1.038)
Winning the World Cup (+4)	0.094	(0.364)	-0.146	(0.316)	-1.024	(1.079)	1.612	(1.457)	1.500	(1.074)
Winning the World Cup (+5)	0.477	(0.414)	0.065	(0.488)	1.292	(0.815)	2.503**	(1.093)	0.625	(0.791)
Winning the World Cup (+6)	0.351	(0.259)	0.134	(0.477)	0.471	(1.055)	0.943	(1.294)	1.166	(1.751)
Winning the World Cup (+7)	0.088	(0.481)	-1.014**	(0.464)	1.281	(1.620)	3.047	(2.141)	0.590	(0.770)
Winning the World Cup (+8)	-0.178	(0.479)	-1.402	(1.158)	0.020	(0.746)	0.046	(1.638)	-0.382	(1.287)
Winning the World Cup (+9)	1.183	(0.828)	1.299	(1.674)	2.188**	(1.069)	5.033***	(1.451)	1.419	(1.189)
Winning the World Cup (+10)	-0.139	(0.799)	-0.828**	(0.326)	0.326	(0.780)	2.112	(1.373)	0.503	(1.395)
Winning the World Cup (+11)	-0.233	(0.548)	-0.815**	(0.392)	0.461	(1.304)	1.595	(1.628)	0.454	(2.300)
Winning the World Cup (+12)	-0.101	(0.301)	-0.609	(0.441)	-0.184	(0.908)	2.664**	(1.145)	-0.116	(0.736)
Winning the World Cup (+13)	0.762*	(0.422)	-0.310	(0.581)	0.837	(0.811)	2.077*	(1.144)	0.469	(0.940)
Winning the World Cup (+14)	0.362*	(0.201)	-0.366	(0.317)	0.209	(0.974)	2.058	(1.309)	0.952	(1.357)
Winning the World Cup (+15)	0.210	(0.210)	-0.290	(0.533)	1.785*	(0.905)	2.953***	(0.983)	1.436	(1.405)
Winning the World Cup (+16 or more)	0.239	(0.229)	-0.518	(0.381)	0.261	(0.558)	2.484**	(1.110)	0.845	(1.083)
PCons (-1)	-0.649***	(0.210)								
GCons (-1)			-2.238*	(1.186)						
CapForm (-1)					-2.822***	(1.018)				
Exports (-1)							-1.152***	(0.238)		
Imports (-1)									-1.580***	(0.251)
Observations					8579					
Within R2	0.376		0.047		0.103		0.250		0.261	

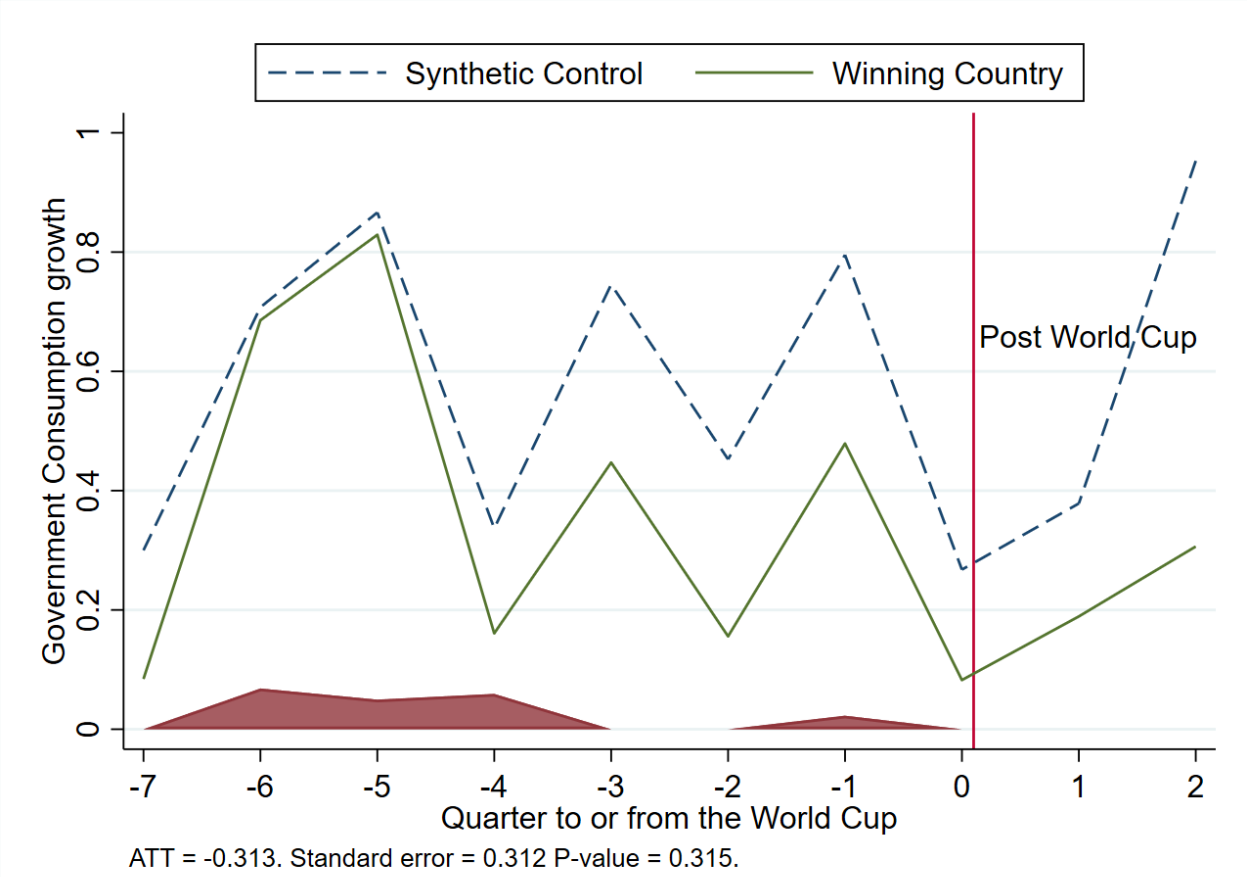
Notes: PCons = Private Consumption; GCons = Government Consumption; CapForm = Capital Formation. Event-study estimates for winning the World Cup reported in columns 1, 3, 5, 7 and 9. Clustered standard errors at the country level reported in columns 2, 4, 6, 8 and 10. Significance levels: *p<0.1; **p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

Figure A2: A synthetic difference-in-difference approach (Private consumption growth)



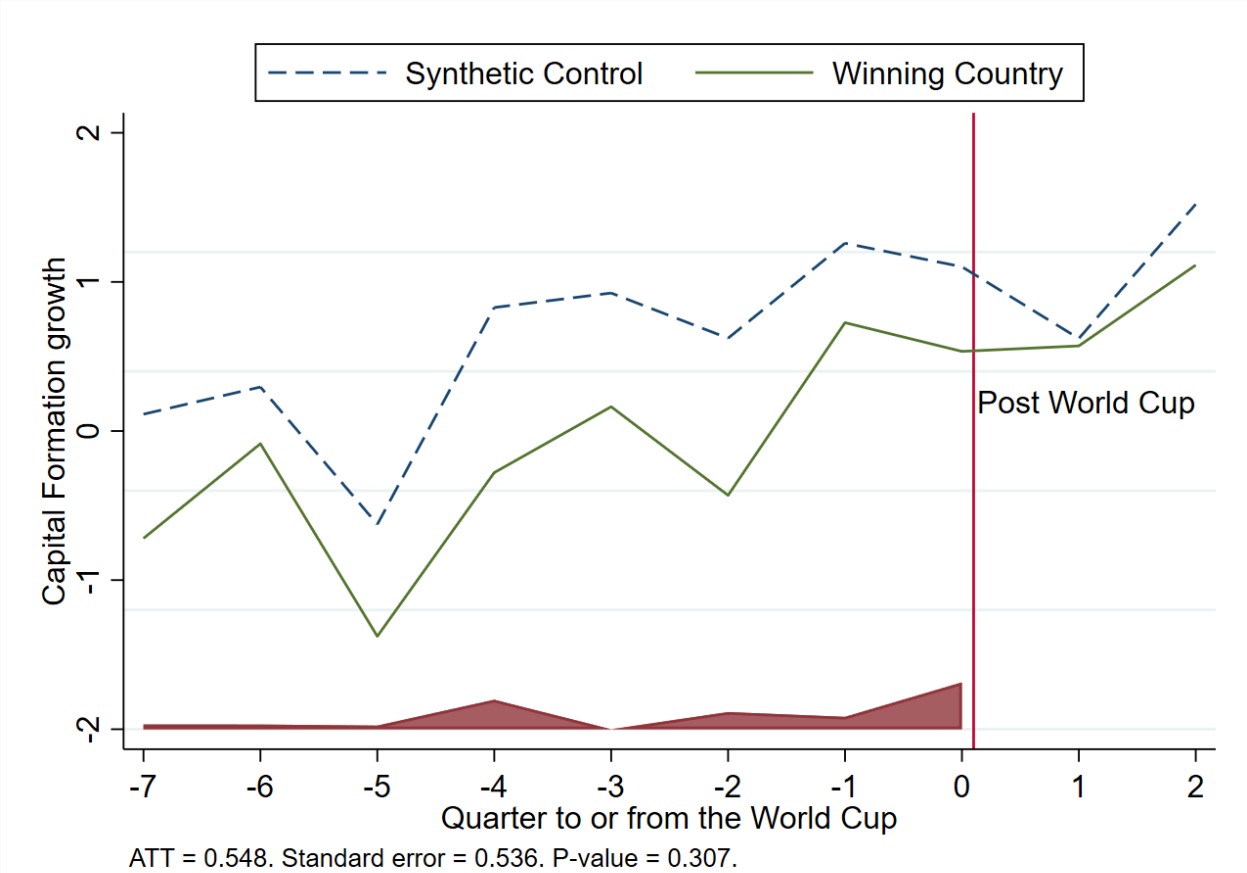
Notes: average treatment effect of winning the FIFA World Cup on quarterly private consumption growth as estimated by the synthetic difference-in-difference model (2). The solid green line displays the private consumption growth of the average FIFA World Cup winning subseries. The blue dashed line displays the private consumption growth of its synthetic counterfactual. Standard errors are clustered at the country-subseries level and obtained via 1,000 bootstrap replications.

Figure A3: A synthetic difference-in-difference approach (Government consumption growth)



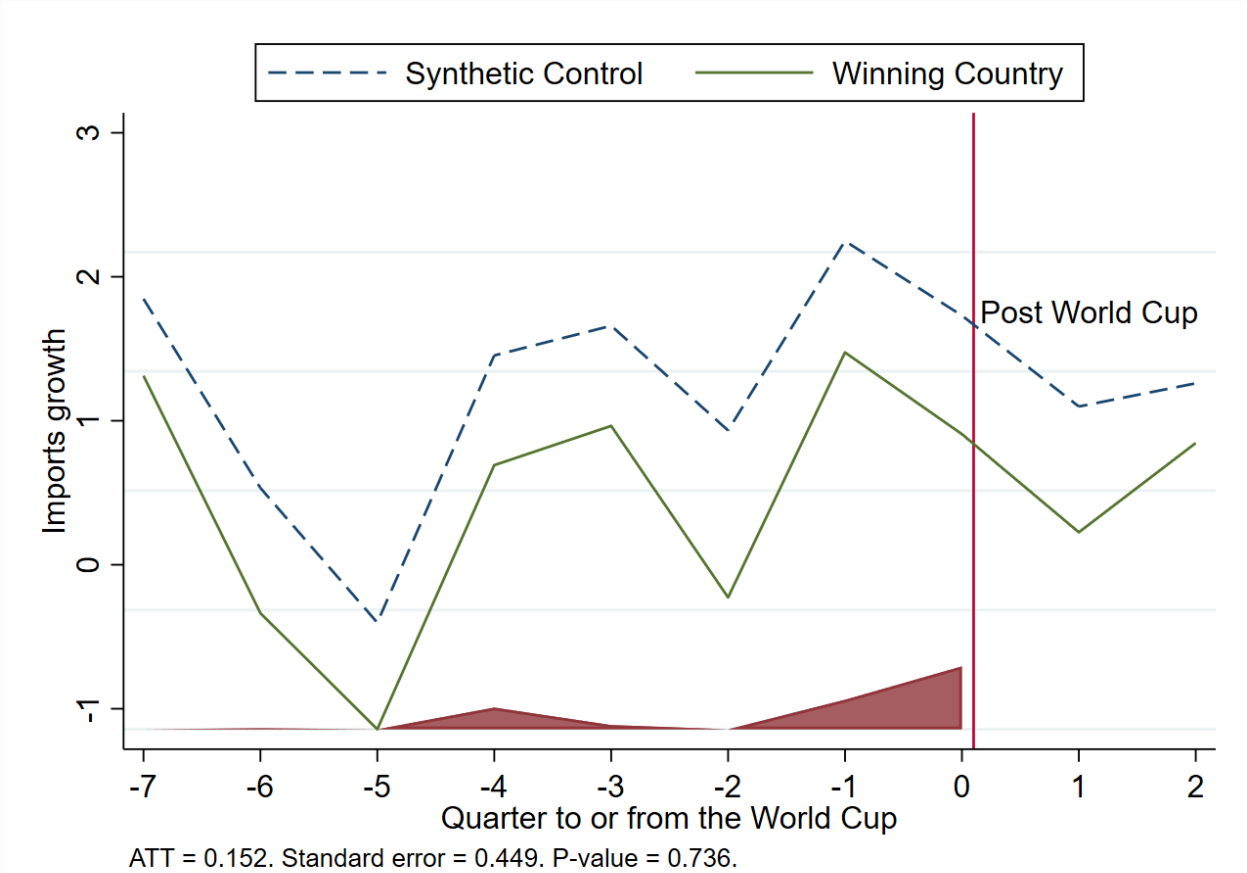
Notes: average treatment effect of winning the FIFA World Cup on quarterly government consumption growth as estimated by the synthetic difference-in-difference model (2). The solid green line displays the government consumption growth of the average FIFA World Cup winning subseries. The blue dashed line 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.

Figure A4: A synthetic difference-in-difference approach (Capital formation growth)



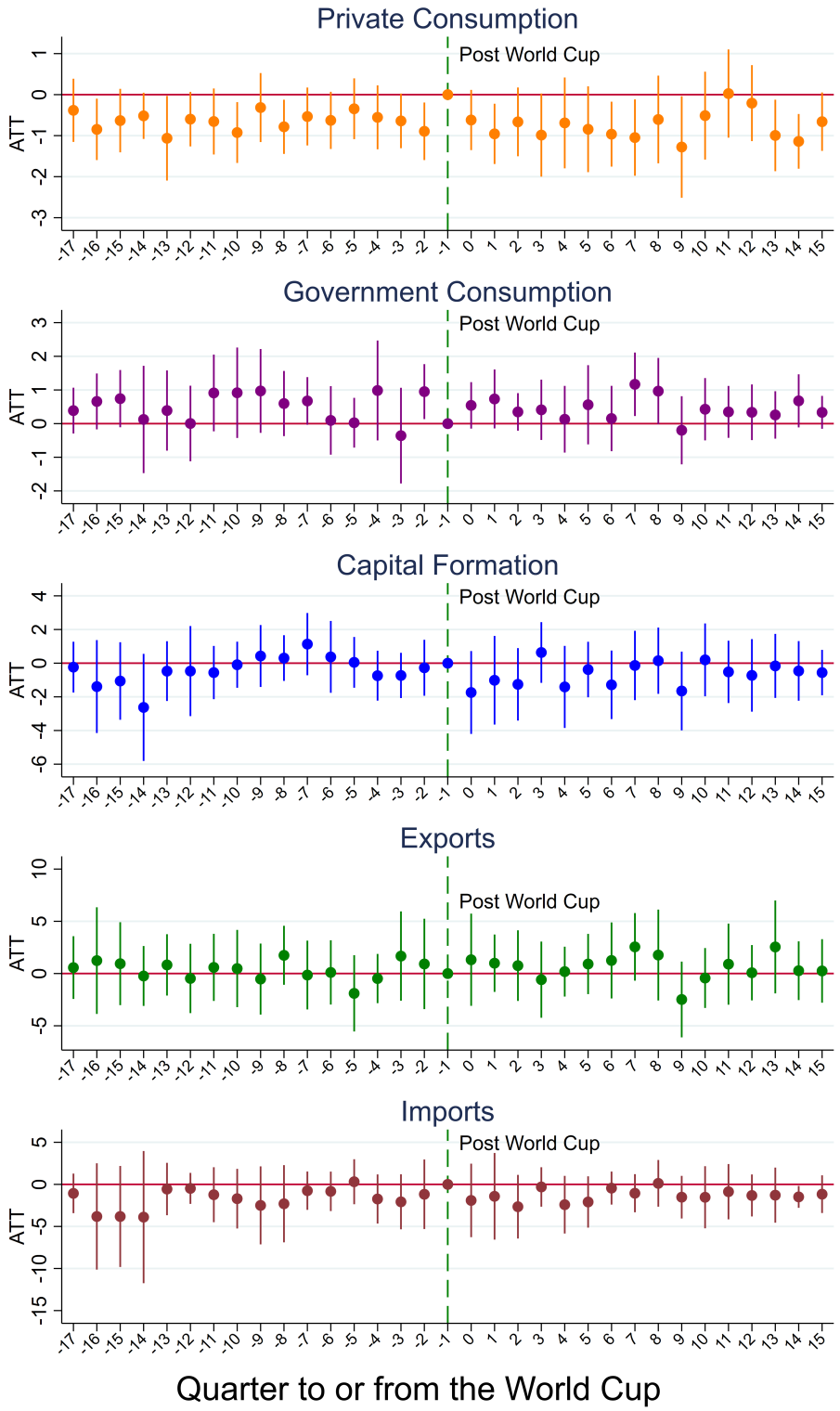
Notes: average treatment effect of winning the FIFA World Cup on quarterly capital formation growth as estimated by the synthetic difference-in-difference model (2). The solid green line displays the capital formation growth of the average FIFA World Cup winning subseries. The blue dashed line displays the capital formation growth of its synthetic counterfactual. Standard errors are clustered at the country-subseries level and obtained via 1,000 bootstrap replications.

Figure A5: A synthetic difference-in-difference approach (Imports growth)



Notes: average treatment effect of winning the FIFA World Cup on quarterly imports growth as estimated by the synthetic difference-in-difference model (2). The solid green line displays the imports growth of the average FIFA World Cup winner. The blue dashed line displays the imports growth of its synthetic counterfactual. Standard errors are clustered at the country-subseries level and obtained via 1,000 bootstrap replications.

Figure A6: The effect of hosting the FIFA World Cup on GDP components



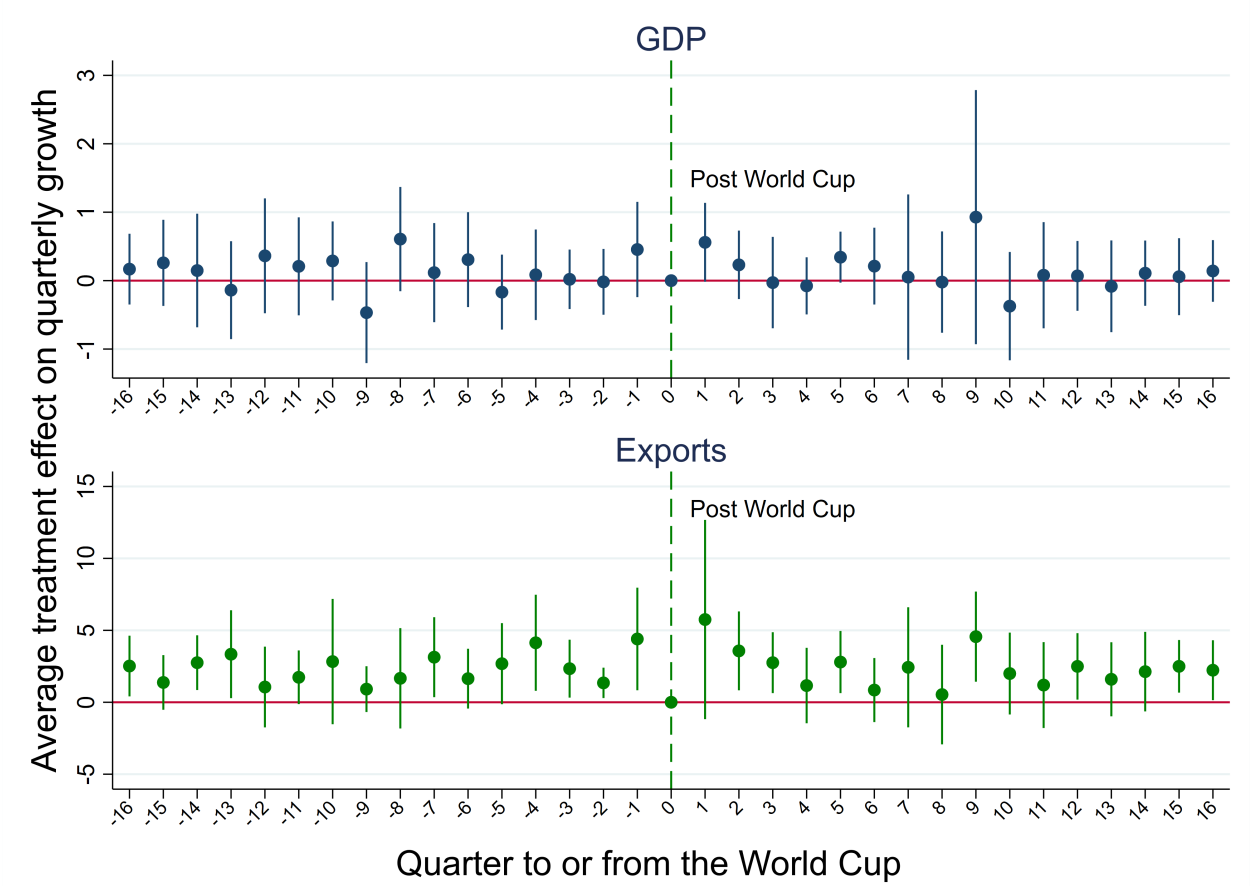
Notes: OLS coefficients and 95% confidence intervals for the event-study indicators for hosting the FIFA World Cup included in (1), estimated separately for each of the following GDP components: private consumption, government consumption, capital formation, exports and imports. Standard errors are clustered at the country level.

Table A4: The effect of hosting the FIFA World Cup on GDP components

	ΔPCons		ΔGCons		ΔCapForm		ΔExports		ΔImports	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Hosting the World Cup (-17 or more)	-0.383	(0.382)	0.387	(0.338)	-0.236	(0.749)	0.572	(1.491)	-1.071	(1.168)
Hosting the World Cup (-16)	-0.847**	(0.371)	0.659	(0.412)	-1.391	(1.371)	1.239	(2.534)	-3.814	(3.137)
Hosting the World Cup (-15)	-0.633	(0.384)	0.742*	(0.422)	-1.060	(1.144)	0.945	(1.971)	-3.817	(2.981)
Hosting the World Cup (-14)	-0.517*	(0.279)	0.123	(0.792)	-2.627	(1.580)	-0.233	(1.423)	-3.893	(3.900)
Hosting the World Cup (-13)	-1.063**	(0.512)	0.389	(0.591)	-0.472	(0.881)	0.828	(1.458)	-0.556	(1.547)
Hosting the World Cup (-12)	-0.598*	(0.330)	0.004	(0.558)	-0.469	(1.329)	-0.469	(1.647)	-0.478	(0.915)
Hosting the World Cup (-11)	-0.655	(0.400)	0.911	(0.566)	-0.557	(0.786)	0.588	(1.594)	-1.229	(1.623)
Hosting the World Cup (-10)	-0.924**	(0.368)	0.917	(0.667)	-0.093	(0.680)	0.480	(1.836)	-1.700	(1.760)
Hosting the World Cup (-9)	-0.316	(0.417)	0.971	(0.618)	0.426	(0.914)	-0.530	(1.688)	-2.499	(2.302)
Hosting the World Cup (-8)	-0.785**	(0.328)	0.597	(0.481)	0.303	(0.674)	1.746	(1.402)	-2.304	(2.278)
Hosting the World Cup (-7)	-0.533	(0.351)	0.674*	(0.351)	1.132	(0.919)	-0.144	(1.636)	-0.752	(1.130)
Hosting the World Cup (-6)	-0.628*	(0.346)	0.095	(0.506)	0.374	(1.060)	0.108	(1.528)	-0.828	(1.164)
Hosting the World Cup (-5)	-0.345	(0.368)	0.026	(0.367)	0.049	(0.749)	-1.897	(1.813)	0.314	(1.329)
Hosting the World Cup (-4)	-0.554	(0.387)	0.985	(0.737)	-0.743	(0.736)	-0.478	(1.170)	-1.736	(1.450)
Hosting the World Cup (-3)	-0.640*	(0.331)	-0.357	(0.706)	-0.729	(0.667)	1.673	(2.122)	-2.072	(1.624)
Hosting the World Cup (-2)	-0.894**	(0.348)	0.950**	(0.405)	-0.272	(0.825)	0.918	(2.148)	-1.178	(2.052)
Hosting the World Cup (+0)	-0.619*	(0.365)	0.542	(0.343)	-1.742	(1.223)	1.323	(2.190)	-1.907	(2.169)
Hosting the World Cup (+1)	-0.956**	(0.365)	0.733*	(0.435)	-1.016	(1.307)	0.991	(1.363)	-1.420	(2.557)
Hosting the World Cup (+2)	-0.664	(0.416)	0.348	(0.277)	-1.258	(1.069)	0.757	(1.678)	-2.657	(1.879)
Hosting the World Cup (+3)	-0.986*	(0.503)	0.410	(0.445)	0.635	(0.896)	-0.587	(1.811)	-0.307	(1.164)
Hosting the World Cup (+4)	-0.689	(0.550)	0.130	(0.492)	-1.411	(1.211)	0.184	(1.184)	-2.415	(1.701)
Hosting the World Cup (+5)	-0.844	(0.519)	0.561	(0.584)	-0.378	(0.819)	0.915	(1.431)	-2.092	(1.514)
Hosting the World Cup (+6)	-0.964**	(0.393)	0.152	(0.482)	-1.287	(1.011)	1.253	(1.807)	-0.443	(0.975)
Hosting the World Cup (+7)	-1.046**	(0.462)	1.169**	(0.468)	-0.136	(1.023)	2.553	(1.606)	-1.053	(1.126)
Hosting the World Cup (+8)	-0.606	(0.530)	0.966*	(0.489)	0.147	(0.978)	1.770	(2.161)	0.122	(1.378)
Hosting the World Cup (+9)	-1.277**	(0.615)	-0.198	(0.503)	-1.653	(1.162)	-2.484	(1.800)	-1.523	(1.258)
Hosting the World Cup (+10)	-0.512	(0.532)	0.428	(0.459)	0.197	(1.074)	-0.428	(1.423)	-1.531	(1.834)
Hosting the World Cup (+11)	0.026	(0.534)	0.348	(0.383)	-0.518	(0.919)	0.899	(1.928)	-0.872	(1.633)
Hosting the World Cup (+12)	-0.207	(0.460)	0.337	(0.410)	-0.725	(1.071)	0.077	(1.314)	-1.320	(1.238)
Hosting the World Cup (+13)	-0.995**	(0.432)	0.258	(0.350)	-0.163	(0.944)	2.548	(2.208)	-1.282	(1.626)
Hosting the World Cup (+14)	-1.139***	(0.331)	0.676*	(0.391)	-0.460	(0.880)	0.270	(1.395)	-1.488**	(0.644)
Hosting the World Cup (+15 or more)	-0.660*	(0.353)	0.335	(0.243)	-0.559	(0.670)	0.249	(1.510)	-1.167	(1.111)
Observations					8579					
Within R2	0.376		0.047		0.103		0.250		0.261	

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 standard errors at the country level reported in columns 2, 4, 6, 8 and 10. Significance levels: *p<0.1; **p<0.05; ***p<0.01.

Figure A7: Robustness check using a homogeneous sample of countries



Notes: OLS coefficients and 95% confidence intervals for the winning event-study indicators included in (1), i.e. β_l. The control group comprises only South American countries and countries that joined the European Union at most in 1995, namely: Argentina, Austria, Belgium, Chile, Colombia, Costa Rica, Denmark, Finland, Greece, Ireland, Luxembourg, Mexico, Netherlands, Portugal and Sweden.