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# **The Long-Term Effect of FIFA World Cup on Gender Gap in Education and Employment: Evidence from Vietnam**

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## **Abstract**

The FIFA Soccer World Cups often happen within one month just before the national entrance exam to universities and colleges in Vietnam. Watching soccer matches can distract male students from their studies and reduce their probability to pass the exam. We find that Vietnamese men who had the university entrance exam during the FIFA Soccer World Cups tend to have a lower proportion of having a bachelor's degree. Exposure to World Cups also reduces the probability of having a formal job, a high-skilled job and management position for men. Using the exposure to World Cups as a natural shock for tertiary education, we find a large and positive effect of tertiary education on employment. It confirms the important role of education in reducing gender gap in employment.

**Keywords:** Return to education, employment, gender gap, World Cup, Vietnam.

**JEL Classification:** J16, J21, I25.

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## **1. Introduction**

In most countries, women have a lower rate of labor market participation and lower wages than men, especially in low- and middle-income countries (World Bank 2012). A negative correlation between gender inequality in education and economic level has been widely documented (e.g., Duflo 2012; Diebolt and Perrin 2013). In this study, we will show that reducing gender gap in education can narrow gender gap in employment for the case of Vietnam. We find an unusual factor that decreases the gender gap in education and employment: the FIFA World Cup.

Football or soccer is the most popular sport in the world. The FIFA World Cup is the competition event contested by the senior men's national teams from the members of Fédération Internationale de Football Association (FIFA). The competition has been played every four years in a host country since 1930. There are several studies looking at the impact of World Cups on economic outcomes of the host countries (Hagn and Maennig, 2008; Allmers and Maennig, 2009). In this study, we show that World Cups can have a negative effect on tertiary education and employment of men in Vietnam even though Vietnam has never hosted or even participated in the World Cup competition.

Our study aims to make two contributions to the education and gender literatures. Firstly, it shows males in Vietnam who took the university entrance exam during the World Cup month have a lower probability of entering university and having a bachelor's degree, relatively to females. It implies that exposure to a sport event can reduce learning and working of men, thereby relatively reducing the gender gap in education and labor market participation. Secondly, it uses the exposure to World Cups as the instrument for education to estimate the effect of education on employment. Economists have been long searching for

exogenous shocks to education to identify the return of education. Examples of common instruments used to estimate returns to education include distance to college (Card, 1993), tuition costs (Kane and Rouse, 1995), and minimum mandatory schooling laws (Angrist and Krueger, 1991; Oreopoulos, 2006), family background (Parker and Van Praag, 2006; Carneiro et al., 2011). Regarding the effect of exposure to World Cups, Metcalfe et al. (2019) find a negative average effect of the tournament on exam performance of students in England. Unlike this study, our study finds not only a short-term but also a long-term effect of exposure to World Cups. To our knowledge, this study is the first attempt to use the exposure to a sport event as the instrument for education.

The remaining paper is structured as follows. The second section describes the data set. The third and fourth sections present the estimation method and empirical results, respectively. The fifth section concludes.

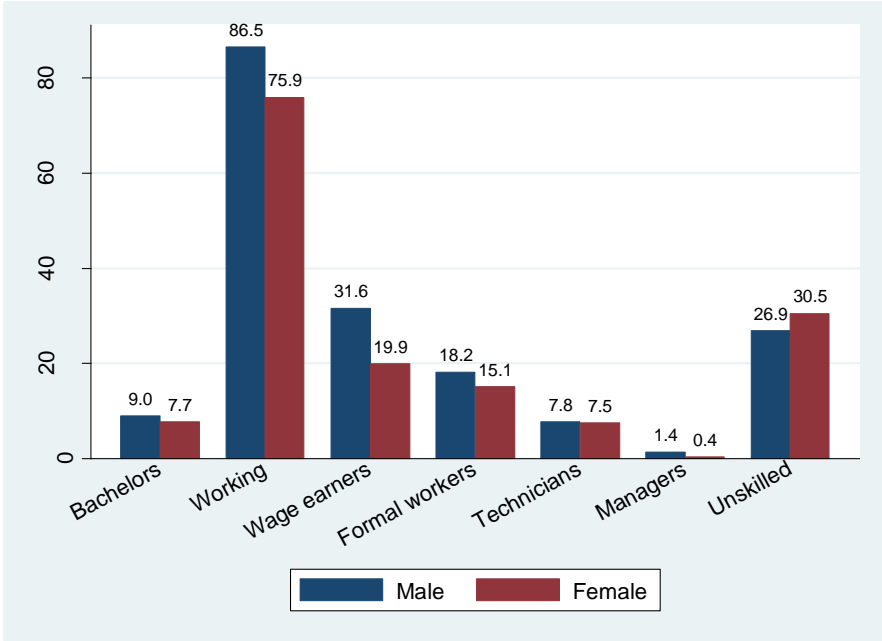
## **2. Data set**

This study uses the data from the 15 percent sample of the Vietnam Population and Housing Census (VPHC). The census was conducted by the General Statistics Office of Vietnam with technical support from United Nations Population Fund (UNFPA). The 2009 VPHC was conducted in 2009, nationwide, collecting data on basic demographics, migration, education, employment, basic assets of the individuals and housing conditions of each household. This sample covered 3,692,042 households with 14,177,590 individuals.

Females had a slightly lower rate of having a college degree than males in 2009 (Figure 1). However, there is a relatively large gap in employment between males and females. The working rate of females was around 10 percentage lower than males. The

proportion of having a wage job is also lower for females than males. Males are also more likely to be technicians (high-skilled job) and managers than females.

Figure 1. Gender gap in labor market



Source: Estimation from the 2009 VPHC.

**3. Estimation method**

We first estimate the effect of exposure of male students to the World Cup on their education. The World Cup tournament takes place every four years and it happens within one month often from early June to early July. In Vietnam, the national entrance exam to universities and colleges are conducted in early July. Except the 2002 World Cup which was hosted in South Korea and Japan, World Cups have been hosted by countries in Europe and America. A large number of football matches happened in the evening and night time in Vietnam. Watching football matches can result in tiredness, which in turn affect the learning of students, especially before the exam. As a result, the proportion of students who pass the university entrance exam can be lower in World Cup years. Put differently, people who had

the university entrance exam in World Cup years are less likely to enter the university and to have a college degree.

World Cups take place every four years, and there can be a seasonal problem. To address this problem, we use the difference-in-differences to estimate the effect of exposure to World Cups on male students. We assume that female students are much less interested in football, and their exam results are not affected by World Cups.

$$College_i = \beta_0 + World\_Cup_i \cdot \beta_1 + World\_Cup_i \cdot Male_i \cdot \beta_2 + Male_i \cdot \beta_3 + X_i \cdot \beta_4 + u_i, \quad (1)$$

where  $College_i$  is a dummy variable indicating whether individual  $i$  has a bachelor's degree.  $World\_Cup_i$  is a dummy indicating whether the individual had the university entrance exam in a World Cup year. It also indicates the year when people were aged at 18, since this is the age to complete high school and take the university entrance exam (except students who start school earlier or repeat grades).  $Male_i$  is a dummy of gender, and  $X_i$  is a vector of other control variables include age, urban and regional dummies. We conducted sensitivity analysis, and find the results are robust to different sets of control variables.

Variable  $World\_Cup$  measures a possible seasonal or time effect. Years that World Cups happen might be different from other years. Variable  $Male$  reflects the difference between males and females. The interaction between these two variables measures the effect of exposure to World Cups on the probability of having a bachelor's degree on males. In the next step, we use the interaction variable as the instrument for having a bachelor's degree to estimate the effect of having a bachelor's degree on employment variables.

#### 4. Empirical results

Table 1 reports results of regressions of model (1). We use a linear probability model instead of a non-linear binary model (e.g., probit or logit), since the interaction effect in a non-linear model and a linear model can have different magnitudes and signs (Ai and Norton, 2003; Puhani, 2012). Table 1 shows that having the university entrance exam in World Cup years reduce the probability of having a bachelor's degree by 0.00196. Since the percentage of men with a bachelor's degree is 9%, the effect is around 2.2% of the mean. We conduct two placebo tests. Firstly, the live transmission of World Cups in Vietnam has been conducted since the 1974 World Cup.<sup>1</sup> It means that male born since around 1956 were affected. We separate two samples: people born before 1954 and those born since 1954. It shows a negligible and insignificant effect of World Cups on people born before 1954 but a strong and significant effect on people born since 1954. Secondly, we estimate the effect of World Cups on the completion of high schools. In Vietnam, students can receive the high school diploma if they pass a high school completion exam in the end of May. This exam happens before World Cup months and is not affected by the World Cups. The regressions show that there are no effects of World Cup on the probability of having a high school diploma.

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<sup>1</sup> According to this news: <https://baomoi.com/44-nam-world-cup-tren-truyen-hinh-viet-nam/c/26339574.epi>

Table 1: OLS regressions of obtaining a bachelor's degree and a high school diploma

Explanatory variables	Dependent variable is 'Holding a bachelor's degree'			Dependent variable is 'Holding a high school diploma'		
	All sample	People born before 1954	People born since 1954	All sample	People born before 1954	People born since 1954
University entrance in	-0.00196***	0.00038	-0.00245***	-0.00134	-0.00200	-0.00087
World Cup year × Male	(0.00056)	(0.00101)	(0.00065)	(0.00083)	(0.00177)	(0.00095)
University entrance in	0.00127***	-0.00068	0.00153***	-0.00118*	-0.00278***	0.00006
World Cup year	(0.00039)	(0.00052)	(0.00049)	(0.00062)	(0.00102)	(0.00072)
Male (male=1, female=0)	0.01499***	0.05063***	0.00638***	0.09454***	0.15831***	0.07912***
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.21860***	0.09960***	0.36131***	0.48391***	0.93047***	1.15393***
	(0.01293)	(0.02347)	(0.02372)	(0.01489)	(0.04342)	(0.02335)
Observations	7,495,949	1,523,490	5,972,459	7,495,949	1,523,490	5,972,459
R-squared	0.077	0.070	0.079	0.149	0.177	0.141

Note: Heteroskedasticity-robust standard errors in parentheses, corrected for sampling weight and cluster correlation.  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.  
Control variables include age, age squared, urban and regional dummies.  
Source: Estimation from the 2009 VHPC.

Table 2 reports reduced-form regression of employment on exposure to the World Cups during the university entrance exam. The World Cups have no effects on having a wage job. However, it reduces the probability of having a job in the formal sector by 0.24 percentage points.<sup>2</sup> It also reduces the probability of being technician as well as managers for men. The magnitude of the effect on the probability of being technician or managers is very small, since there is a small proportion of men having these occupations. The exposure to World Cups increases the probability of having unskilled jobs for men.

<sup>2</sup> A formal job is defined as the job with social insurance. Workers with social insurance contribution are eligible for health insurance, employment subsidies and pensions (when retiring).



Table 2: OLS regression of employment variables

Explanatory variables	Dependent variables				
	Wage workers (yes=1, no=0)	Formal workers (yes=1, no=0)	Technicians (yes=1, no=0)	Managers (yes=1, no=0)	Unskilled workers (yes=1, no=0)
University entrance in World Cup year × Male	-0.00009 (0.00098)	-0.00242*** (0.00084)	-0.00181*** (0.00063)	-0.00080*** (0.00023)	0.00232** (0.00099)
University entrance in World Cup year	0.00015 (0.00069)	0.00170*** (0.00064)	0.00156*** (0.00055)	0.00042*** (0.00012)	-0.00203*** (0.00074)
Male (male=1, female=0)	0.12686***	0.02584***	-0.00842***	0.00962***	-0.04905***
Control variables	Yes	Yes	Yes	Yes	Yes
Constant	0.45645*** (0.02749)	0.50145*** (0.03121)	0.20203*** (0.00949)	-0.01395*** (0.00235)	0.54211*** (0.03635)
Observations	5,972,459	5,972,459	5,972,459	5,972,459	5,972,459
R-squared	0.118	0.114	0.056	0.010	0.108

Note: Heteroskedasticity-robust standard errors in parentheses, corrected for sampling weight and cluster correlation.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Control variables include age, age squared, urban and regional dummies.

Source: Estimation from the 2009 VHPC.

Table 3 reports 2SLS regression of employment on bachelor's degree, in which the interaction between World Cup years and male is used as the instrument for the bachelor's degree.<sup>3</sup> Having a bachelor's degree has a strong effect on having a formal job, a technical and management position. Having a bachelor's degree reduces the probability of having unskilled employment.

<sup>3</sup> Although dependent variables are binary, we use two-stage least squares (2SLS) regression to estimate the linear probability model instead of probit or logit models. The 2SLS estimators are still consistent and widely used for the binary model with binary endogenous variables (Angrist, 2001; Angrist and Krueger, 2001). 2SLS is more robust than bivariate probit models (Nichols, 2011).

Table 3: The effect of bachelor's degree on employment (2SLS)

Explanatory variables	Dependent variables				
	Wage workers (yes=1, no=0)	Formal workers (yes=1, no=0)	Technicians (yes=1, no=0)	Managers (yes=1, no=0)	Unskilled workers (yes=1, no=0)
Having bachelor's degree	0.03642 (0.39756)	0.98605*** (0.33656)	0.73791*** (0.19023)	0.32784*** (0.11424)	-0.94517** (0.43434)
Control variables	Yes	Yes	Yes	Yes	Yes
Constant	0.44330*** (0.14852)	0.14518 (0.12642)	-0.06458 (0.06826)	-0.13240*** (0.04062)	0.88361*** (0.16107)
Observations	5,972,459	5,972,459	5,972,459	5,972,459	5,972,459

Note: The instrument is 'University entrance in World Cup year  $\times$  Male'. Control variables include age, age squared, urban and regional dummies.  
Heteroskedasticity-robust standard errors in parentheses, corrected for sampling weight and cluster correlation.  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.  
Source: Estimation from the 2009 VHPC.

## 5. Conclusion

Women in many countries have to do certain tasks and chores more than men, which can limit their education and consequentially career opportunities. In this paper, we study a reverse effect during FIFA Cups when men voluntarily limit their focus on education to watch soccer matches. We find that exposure to FIFA Cups reduces the probability of having a college degree and good employment for men vis-à-vis women. Using the World Cup event as the instrument for education, we also show the important role of education in finding a good employment. These finding highlights the critical role of giving opportunities in reducing the gender gap in education and employment.

## References

Ai, D. and E.C. Norton (2003): Interaction Terms in Logit and Probit Models, *Economics Letters* 80: 123-129.

Allmers, S., & Maennig, W. (2009). Economic impacts of the FIFA soccer World Cups in France 1998, Germany 2006, and outlook for South Africa 2010. *Eastern Economic Journal*, 35(4), 500-519.

Angrist, D.J., and Krueger A.B. (2001). Instrumental variables and the search for identification: From supply and demand to natural experiments. *Journal of Economic Perspectives*, 15(4), 69–85.

Angrist, J. D., & Keueger, A. B. (1991). Does compulsory school attendance affect schooling and earnings?. *The Quarterly Journal of Economics*, 106(4), 979-1014.

Angrist, J.D. (2001). Estimation of limited dependent variable models with dummy endogenous regressors: Simple strategies for empirical practice. *Journal of Business & Economic Statistics*, 19(1), 2-28.

Card, D. (1993). Using geographic variation in college proximity to estimate the return to schooling. Working Paper No. w4483, National Bureau of Economic Research, 1050 Massachusetts Ave., Cambridge.

Carneiro, P., Heckman, J. J., & Vytlacil, E. J. (2011). Estimating marginal returns to education. *American Economic Review*, 101(6), 2754-81.

Diebolt, C., and F. Perrin (2013). ‘From Stagnation to Sustained Growth: the Role of Female Empowerment’. *American Economic Review*, 103(3): 545–49.

Duflo, E. (2012). ‘Women Empowerment and Economic Development’. *Journal of Economic Literature*, 50(4): 1051–79.

Hagn, F., & Maennig, W. (2008). Employment effects of the football World Cup 1974 in Germany. *Labour Economics*, 15(5), 1062-1075.

Kane, Thomas, and Cecilia Rouse. 1995. “Labor Market Returns to Two- and Four-Year Colleges.” *American Economic Review* 85(3): 600-614.

Metcalfe, R., Burgess, S., & Proud, S. (2019). Students' effort and educational achievement: Using the timing of the World Cup to vary the value of leisure. *Journal of Public Economics*, 172, 111-126.

Nichols, A. (2011). Causal inference for binary regression. In *Stata Conference Chicago (version June 14, 2011)*.

Oreopoulos, Philip. 2006. "Estimating Average and Local Average Treatment Effects of Education when Compulsory Schooling Laws Really Matter." *American Economic Review* 96(1): 152-175.

Parker, S. C., & Van Praag, C. M. (2006). Schooling, capital constraints, and entrepreneurial performance: The endogenous triangle. *Journal of Business & Economic Statistics*, 24(4), 416–431.

Puhani, P. A. (2012). The treatment effect, the cross difference, and the interaction term in nonlinear "difference-in-differences" models. *Economics Letters*, 115(1), 85-87.

World Bank (2012). *World Development Report 2012: Gender Equality and Development*. Washington, DC: The World Bank.