

The Effects of The CHF on the Swiss Watch Exports

Name

Institutional Affiliation

POWERWRITINGS.COM

‘The effects of the CHF on the Swiss watch exports’

Introduction

Switzerland's economy is among the world's most advanced market economies that are free. The service sector, particularly tourism and the Swiss banking industry, have been earmarked to play overarching economic roles in steering the Swiss economy. Premised on the 2017 Global Competitive Report and the 2015 Global Innovation Index, the Switzerland economy ranks the first in the world. Among the landlocked countries, the 2016 data by the United Nations indicate that Switzerland is the third richest in the world proceeding Luxembourg and Liechtenstein. Together with Luxembourg and Norway, these are the only countries that are neither island nations nor ministates that boast of a GDP per capita of over \$70,000.

Results and Discussion**Two Stage OLS Regression Model****The null model**

The model intercepts only regression with no explanatory variables to predict the effect of exchange rate on watch export was fitted to assess the presence of heterogeneity among the countries and exchange rates among which the CHF was nested. In a multi-level mixed effects model, the simplest non-trivial specification that permits the intercept to vary between exchange rates and currencies without predictor variables was entered into the model, and the results are as presented in table 2.

Table 1: The empty model results

Fixed part	Coefficient	S.E	z-value	p-value	95% CI for est.	
					Lower	Upper
$\beta_0 = \text{Intercept}$	346.9961***	11.08029	31.32	0.000	325.2791	368.713

Random effect	Estimate	S.E	Wald-type approximation 95% C.I			
Between-exchange rate variance($\hat{\sigma}_v^2$)	46092.49***	3412.675	85.15	0.000	39866.44	53290.88
Between-country variance($\hat{\sigma}_u^2$)	1149.408	167.0367				

Premised on the results, the log odds of exchange rate on watch exports was estimated as $\beta_0 = 346.9961$ in the fixed effects while the variance between country and exchange was 1149.408 and 167.0367 respectively. As a result, this implies that the random effect tests depict that the random intercept between exchange rate and country variance were significantly different from zero indicating that it was necessary to include predictor variable(s) to the empty model to explicitly establish the individual effects of exchange rate on watch exports. Besides, the likelihood ratio test, as asserted by Zulfiqar & Thapa (2017), confirmed that the mixed-effects regression model would fit the data well, hence a two-stage OLS regression.

Table 2: Mixed effects of CHF on Swiss Watch exports

Log likelihood = -3111.8238						No. of observation = 480
						No. of groups = 384
						Wald Chi2 (0) = 0.23
						Prob > Chi2 = 0.6294
Watch Exports	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
_cons	346.9961	11.08029	31.32	0.000	325.2791	368.713

Random-effects parameters	Estimate	Std. Err.	[95% Conf. Interval]	
Exrate: Identity				
var(_cons)	46092.49	3412.675	39866.44	53290.88
var(Residual)	1149.408	167.0367	864.5181	1528.18

LR test vs. linear model: $\text{chibar2}(01) = 219.35$ Prob \geq $\text{chibar2} = 0.0000$

The between and within effects of exchange rate on watch exports

Random – effects GLS regression	Number of observations	= 480
Group variable	Number of groups	= 48
R – Squared:	observation per group:	
Within = 0.1796	Min	= 10
Between = 0.5311	avg	= 10.0
Overall = 0.1512	max	= 10
Corr (u _i , X) = 0 (assumed)	Wald Chi2 (1)	= 85.15
	Prob > Chi2	= 0.0000

Table 3: Between and Within the effects of exchange rate on watch exports

Watch exports	Coef.	Std. Err.	Z	P> z	[95% Conf. Interval]
Exchange rate	14.97636	1.62272	9.23	0	11.79588 18.15684
_cons	270.6502	10.6338	25.45	0	249.8083 291.492
sigma_u	0				
sigma_e	180.1418				
rho	0	(fraction of variance due to u _i)			

Table 1: Two Stage OLS regression

Source	SS	df	MS	Number of obs = 480		
Model	6873187.94	4	1718296.99	F (4, 475) = 67.42		
				Prob > F = 0.0000		
Residual	12105383	475	25485.0169	R - squared = 0.3622		
				Adj R - squared = 0.3568		
Total	18978571	479	39621.2338	Root MSE = 159.64		

Watch exports	coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Time	2.8885***	0.52841	5.47	0.000	1.850194	3.926822
Exchange rate	25.9038***	1.7517	14.79	0.000	22.46176	29.34584
All exports	0.04388***	0.00474	9.27	0.000	22.46176	0.0531809
Country	20.7471***	2.9709	6.98	0.000	14.90937	26.58481
_cons	-599.374	112.385	-5.33	0.000	-820.206	-378.5414

Post Diagnostic Tests

Homogeneity tests

Pairwise correlation test

According to the pairwise correlation, all the categorical variables indicated correlations of less than 0.7 which according to the rule of thumb indicated that there was no correlation between the predictor variables, hence, the absence of homogeneity among the explanatory variable to the watch exports.

*Variance Inflation Indicator (VIF)***Table 4:** Variance Inflation Indicator

Variable	VIF	1/VIF
Exchange rate	1.54	0.64899
Country number	1.37	0.72915
All exports	1.16	0.86521
Time	1.01	0.9908
Mean VIF	1.27	

*Link test***Table 5:** Link test

Source	SS	df	MS	Number of Observation = 480
Model	6879318.78	2	3439659.39	F (2, 477) = 135.60 Prob > F = 0.0000
Residual	12099252.2	477	25365.3086	R - squared = 0.3625 Adj R-squared = 0.3598
Total	18978571	479	39621.2338	Root MSE = 159.26

Watch exports	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
_hat	0.8306047	0.3498723	2.37	0.018	0.1431232	1.518086
_hatsq	0.0002284	0.0004646	0.49	0.623	-0.0006845	0.0011413
_cons	27.77638	60.41062	0.46	0.646	-90.92745	146.4802

Ramsey Reset Test

By utilizing the powers of the fitted values of the watch exports, the null hypothesis (H_0) had no omitted variables. Based on the Ramsey test also referred to as the ov test the findings were;

$$F(3, 472) = 19.11$$

$$\text{Prob} > F = 0.0000$$

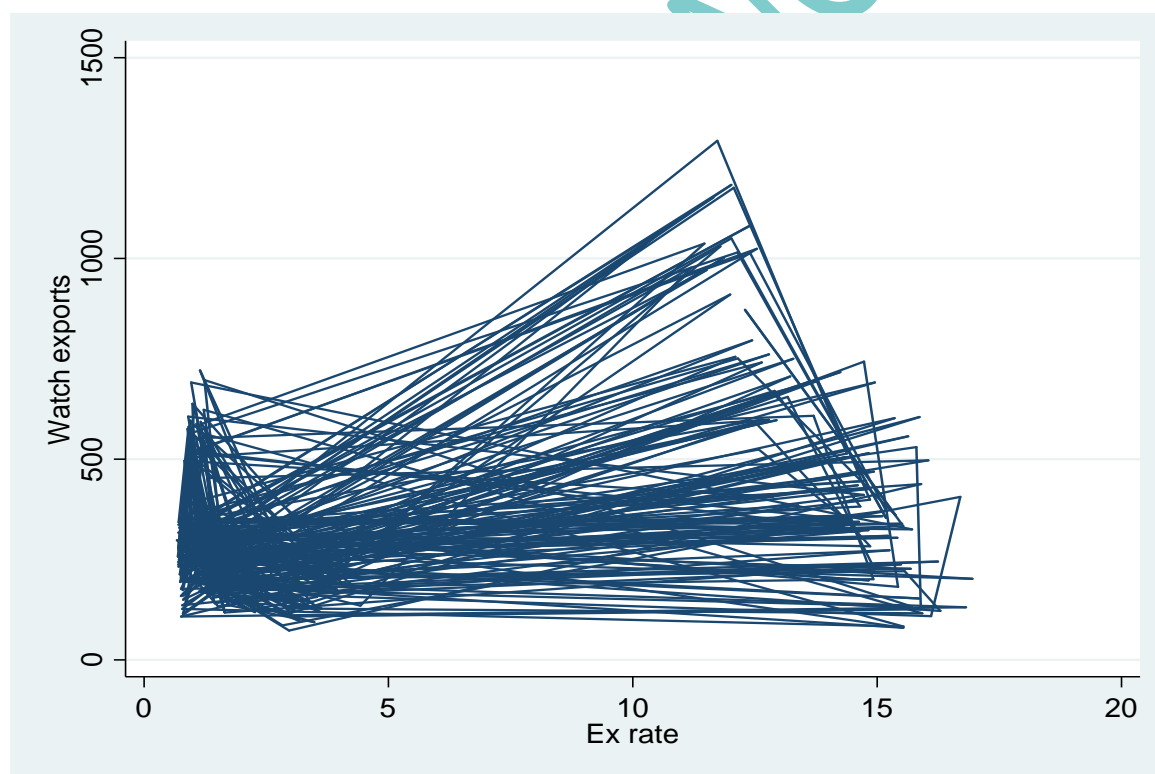


Figure 1: Effect of Exchange Rate on Watch Exports

Reference

Zulfiqar, F., and Thapa, G. B., 2018. Determinants and intensity of adoption of "better cotton" as an innovative cleaner production alternative. *Journal of Cleaner Production*, 172, 3468-3478.

POWERWRITINGS.COM