Estimate the Impact of Macroeconomic Variables on Economic Welfare Index

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Abstract: The paper empirically investigates the relationship between macroeconomic variables and economic welfare index using OLS estimation to analyzing panel data from 12 countries for the period between 2006 and 2011 In United states. Economic conditions influence the welfare and social well-being of the society. While the literature indicates a positive relationship between income levels and life satisfaction, it indicates negative relationships between inflation, unemployment and life satisfaction. In this paper we analyze the relationship between main macroeconomic variables of Information technology, inflation, Human Development Index, welfare, oil price. We make use of the standard regression analysis and conclude that our method is sufficient to examine the relations and the stated macro variables are significantly affecting life satisfaction towards expected directions.
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1. Introduction

Since the purpose of economic policy is to increase the welfare of society, the results of this process can be used to predict the consequences of policy. Economic conditions can influence the welfare and social well-being of the society. The recent global crisis not only affected Americans but many others around the world. Loss of jobs, reduced salaries, and cut benefits certainly increased stress on workers. The most affected countries' economic activities started to decrease and their citizens showed signs of unhappiness as in the case of the USA. The Global Happiness Index ranks U.S. 7th in 2009 out of 148 countries. Happy Planet Index, which includes ecological footprint, ranks U.S. 114th in 143 countries while Costa Rica ranks1st. The situation of the U.S is not difficult to understand after the global financial crisis originated in the country and given the consumption of natural resources by Americans. Excluding the ecological footprint, life satisfaction is scored 7.9 which make U.S. 7th country sharing the rank with Sweden and Australia. There are several studies investigating the relationship between economic factor sand life satisfactions. Easterlin (1974), for instance, finds positive relationship between income level and happiness.

The study includes 30 surveys between 1946 and 1970covering 19 countries. But, Oswald (1997) criticizes Easterlin (1974) for measurement issues that asking people about their happiness and satisfaction can not reflect actual happiness. Also data such as suicide figures can not be used for measurement of a society's happiness level because suicide is a mental illness. Oswald observes that "un employed people are very unhappy" and therefore the main reason of unhappiness is unemployment. Moreover, marital status, type of job, being well educated, and earning high income are positively related with happiness. Similarly, Di Tella et al (2003) find positive correlation between favorable macroeconomic variables such as GDP and happiness.

Hayo (2004) investigates Eastern Europe countries and he finds that age, marital status, country, education, employment status, income and religion are important factors on life satisfaction. Furthermore, he finds that people living in rural areas have higher life satisfaction than those who live in cities. According to Hayo, this can be explained by "differences in purchasing power and a slower adjustment of aspiration levels of rural dwellers" This paper is organized as follows. First, the model applied to analyze the impact of macroeconomic variables on economic welfare index.second, empirical results are presented. We conclude the paper with the summary session.

2. Data and methodology
2.1. Data

Our data set includes information about United States from2006 and 2011.Table 1presents definitions of the main variables:

Table 1: definitions of the main variables

Variable	Description
Dependent variable Welfare(IEWB)	IEWB prosperity of the four dimensions that are taking inventory of productive resources (wealth), distribution of income, economic security. Each of the four dimensions of the index coefficient. Coefficients for the different components considered: IEWB1: For each dimension of 0.25isconsidered. IEWB2: the current resource inventory of 0.4to0.1 and 0.25 for the other two dimensions is considered. IEWB3: For the other dimensions of 0.7and 0.1are considered. We will use estimate in IEWB2
Independent variable 　1.　Information technology(IT) 　2.　Inflation(I) 　3.　Human Development Index(HDI) 　4.　Shocks of oil price changes(o)	

2.2. Methodology

To estimate the relationship between macroeconomic variables on economic welfare index, we begin with a fixed-effect dynamic model:

$$IEWB = \beta_1 I + \beta_2 O + \beta_3 IT + \beta_4 H + Ut$$

Table 2: Estimation results

Number of obs = 72	Group variable: id
Number of groups = 12	Obs per group: min = 6
R-sq: within = 0.6056	corr(u_i, Xb) = -0.9274
F(4,56) = 21.50	Prob> F = 0.0000

Table 3. IEWB

IEWB2	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
I	**-.0090704**	.0043305	-2.09	**0.041**	-.0177455 -.0003952
Oil	**.0797143**	.0380674	2.09	**0.041**	.0034561 - .1559726
IT	**2.058773**	.5478111	3.76	**0.000**	.9613757 - 3.156171
H	**3.583986**	1.582567	2.26	**0.027**	.4137233 - 6.754249
cons	**-1.783319**	1.069128	-1.67	**0.101**	-3.92504 - .3584014

Then we have this data:
Random-effects GLS regression, Number of obs = 72
Group variable: id, Number of groups = 12
R-sq: within = 0.4428, Obs per group: min = 6
between = 0.0347, avg = 6.0
overall = 0.1914, max = 6
Random effects u_i ~ Gaussian, Wald chi2(4) = 24.09
corr(u_i, X) = 0 (assumed), Prob> chi2 = 0.0001

Table 4. IEWB 2

IEWB2	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]
I	-.0068915	.0043839	-1.57	0.116	-.0154838 - .0017008
Oil	.1169902	.0479332	2.44	0.015	.023043 - .2109375
IT	1.004782	.3255102	3.09	0.002	.3667937 - 1.64277
H	-.1642369	.4648253	-0.35	0.724	-1.075278 - .746804
cons	.9406811	.3070048	3.06	0.002	.3389627 - 1.542399

3. Empirical results

We present the results of estimating the fixed effects method. First, we consider the probability. Noted that all variables are significant because they are all smaller than 0.05 except for the intercept (for I0 0.04, for OIL0.041, and for the IT0.00 H 0.27) Then we look at the coefficients. Is significantly negatively correlated with both inflation and economic welfare is (0.009)

Most of it is related to H (3.5)

Oil shocks have a positive effect on economic welfare (12:07)

4. Summary and Conclusion

Since the purpose of economic policy is to increase the welfare of society, the results of this process can be used to predict the consequences of policy. The paper empirically investigates the relationship between macroeconomic variables and economic welfare index using OLS estimation to analyzing panel data from 12 countries for the period between 2006 and 2011 In United states. Economic conditions influence the welfare and social well-being of the society. While the literature indicates a positive relationship between income levels and life satisfaction, it indicates negative relationships between inflation, unemployment and life satisfaction. In this paper we analyze the relationship between main macroeconomic variables of Information technology, inflation, Human Development Index, welfare, oil price. We make use of the standard regression analysis and conclude that our method is sufficient to examine the relations and the stated macro variables are significantly affecting life satisfaction towards expected directions.

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