

## Law Enforcement on Time to Doing Business and Economic Welfare

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### Abstract

Time is an asset of a company and household. Saving time is a profit to company and brings welfare to household and individual. Time to doing business must be regulated in law in order to produce optimum benefit for welfare. This study aims to investigate the impact of time to doing business on economic welfare. The data used in this study came from the World Development Indicators of the World Bank in 2020 that covered 176 countries during 2005 to 2017. The dependent variable is the welfare variable, that is GDP per capita (PPP, current international, in US\$). The independent variable is the time to doing business that includes time to prepare and pay taxes (hours), time required to start a business, male (days), and time required to register property (days). Another independent variable is the infrastructure variable that is access to electricity (% of population). The data were analyzed employing a random effects regression model for panel data. The results of the study show that the three time variables which are the time to prepare and pay taxes, time required to start a business, and time required to register property, have negative effects on economic welfare, while access has a positive effect. These results imply that policy makers should issue law and regulation so that time to doing business can be speeded up for the sake of economic welfare.

**Keywords:** Welfare, Time to doing business, Panel data, Random effect, Law.

JEL: K42, O12, P16

### Introduction

Time is an asset. An entrepreneur in a low-income economy spent 50% per capita income to launch a company, compare to only 4.2% per capita income in high-income economy (World Bank, 2020b). Time to construct, produce, and inventory has important implications in determining asset price and quantity dynamic in general equilibrium model (Chen 2016).

The longer the time needed to produce, the greater the resources needed in a business. Time to building captures the delay in the transformation of new investment into productive capital. Time to producing captures the delay in capital productive transformation into output. Both delays increase the risk of a business. In a given incomplete factor market, an appropriate time path of flows of variables must be built up in determining asset stock. Time is a resource that must be taken into account

(Barney 1986).

Sustainability of a business is linked with how easy company's asset can be substituted or imitated. Imitability is associated with the characteristics of asset accumulation process, time compression diseconomies, asset mass efficiencies, inter-connectedness, asset erosion, and causal ambiguity (Dierickx et al. 1989). Therefore, time is an asset that must be considered in a business.

From microeconomic perspectives, the World Bank published variables that measure time as an asset, The World Bank Group's Doing Business Indicators. The variable is called the ease of doing business index (DBI). DBI is an index created by Simeon Djankov (Djankov et al. 2002). In addition, DBI is a reference and benchmark in investment climate reformation. DBI also presents data on regulation on time to starting up a business from 85 countries. This involves the number of procedure, time, and official cost that have to be borne by a business before it operates legitimately. The main finding is countries with worse entry regulation have higher corruption rate and larger unofficial economies. Countries with more democratic and concise government have lighter business start-up regulation. The essence of the paper is that time is an asset. To make time is a profitable asset government needs to issue laws and regulation that value time is an asset. Government must make regulations that cut and shorten a business management start-up. Legal products on business doing freedom must be aimed to improve welfare (World Bank 2020a and 2020b).

Hanusch (2011) discussed the role of DBI in welfare improvement. He proposed that an improvement in DBI allows a government to optimize economic growth. The components of DBI are in agreement with the cost and the most potential components to fostering economic growth. Economic growth is a measurement of welfare. Is time to doing business associated with economic welfare? This research aims to study the impacts of time to doing business on economic welfare in the world.

## Data and Methods

### Data

The data in this study came from the World Development Indicators of the World Bank.<sup>1</sup> The data covered 176 countries during 2005 until 2017. Therefore, there were 2,288 observations in the analysis.

The dependent variable in the analysis is the welfare variable, that is GDP per capita (PPP, current international, in US\$). Purchasing power parity (PPP) is often used to measure economic welfare (World Bank 2015a). PPP is often used to calculate GDP and GDP per capita across countries. Although GDP per capita is often criticized as an incomplete statistics of economic well-being, it is still a main indicator of economic performance of individual country (Schreyer and Koechlin 2002; World Bank 1998). GDP PPP is the gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States (World Bank 2015). In this study, GDP PPP data are in constant 2011 international dollars.

<sup>1</sup> <https://databank.worldbank.org/source/world-development-indicators>. Accessed April 2020.

The independent variable is the time to doing business that includes time to prepare and pay taxes (hours), time required to start a business, male (days), and time required to register property (days). Another independent variable is the infrastructure variable that is access to electricity (% of population). Time to prepare and pay taxes is the time, in hours per year, it takes to prepare, file, and pay (or withhold) three major types of taxes: the corporate income tax, the value added or sales tax, and labor taxes, including payroll taxes and social security contributions.

Variables on time to doing business were obtained from 'Doing Business Index (DBI), published by the World Bank (World Bank 2020b) that collected and analyzed quantitative data comprehensively and compared regulation environments across economies over time. From a number of DBI variables, this study used time required to start a business, male (days), time required to register property (days), and time required to register property (days). Time required to start a business is the number of calendar days needed to complete the procedures to legally operate a business. If a procedure can be speeded up at additional cost, the fastest procedure, independent of cost, is chosen. Time required to register property is the number of calendar days needed for businesses to secure rights to property.

## Methods

The data in this study were analyzed using the random effects regression model for panel data. The model can be written as follows (Greene, W.H. 2008).

$$Y_{it} = \beta_i X_{it} + \alpha + u_{it} + \varepsilon_{it}$$

$Y_{it}$  is the dependent variable,  $i$  is the entity, and  $t$  is the time.  $X_{it}$  is the independent variable,  $\beta_i$  is the coefficient of independent variable,  $u_{it}$  is the between entity error, and  $\varepsilon_{it}$  is the within-entity error. The data were processed using Stata 16 (Stata Corp LLC.1985–2019) to estimate the parameters in the model.

## Results

The summary statistics (number of observations ( $n$ ), mean, standard deviation, minimum, and maximum value) of variables in the model are presented in Table 1. It can be seen that the economic welfare, access time to electricity, and time to doing business vary greatly across countries and times. The GDP per capita (PPP, current international US\$) ranged from 528.97 to 229,216.5. Access to electricity (% of population) varied between 1.83% and 100% (universal). Time to prepare and pay taxes (hours) differed from 0 to 2,600. Time required to start a business, male (days) ranged from 0.5 to 697. Time required to register property (days) varied between 0 and 956.

**Table 1:** Summary Statistics (number of observations (*n*), mean, standard deviation, minimum, and maximum value) of Variables in the Model

Variable	<i>n</i>	Mean	Standard deviation	Minimum	Maximum
GDP per capita, PPP (current international US\$)	2,288	18,649.67	22,033.65	528.97	229,216.5
Access to electricity (% of population)	2,288	79.29124	29.43894	1.83	100
Time to prepare and pay taxes (hours)	2,288	269.0771	228.8892	0	2,600
Time required to start a business, male (days)	2,288	32.87368	50.96704	0.5	697
Time required to register property (days)	2,288	56.93649	67.95524	0	956

Source: World Bank (2020). (Authors' calculation).

The results of random effects regression model for panel data are displayed in Table 2. It can be seen that all independent variables in the model, i.e. access to electricity and time to doing business, are statistically and significantly associated with the economic welfare. In addition, access to electricity has a positive effect on economic welfare, while time to doing business has a negative impact on economic welfare.

Time to prepare and pay taxes was significant at the 0.01 significance level. Other things being the same, an increase of one hour in time to prepare and pay taxes will reduce the GDP per capita (PPP, current international US\$) by 3.32. In this study, the time to prepare and pay taxes was the third strongest factor of GDP per capita (PPP, current international US\$).

Time required to start a business (male, days) was significant at the 0.05 significance level. After controlling for the effects of other factors, an increase of one male day in time required to start a business will reduce the GDP per capita (PPP, current international US\$) by 8.73. In this study, the timerequired to start a business (male, days) was the fourth strongest factor of GDP per capita (PPP, current international US\$).

Time required to register property (days) was significant at the less than 0.001 significance level. Ceteris paribus, an increase of one day in time required to register property will reduce the GDP per capita (PPP, current international US\$) by 10.66. In this study, the timerequired to register property (days) was the second strongest factor of GDP per capita (PPP, current international US\$).

Access to electricity (% of population) was significant at the less than 0.001 significance level. Other things being the same, an increase of one percent in access to electricity will increase the GDP per capita (PPP, current international US\$) by 96.14. In this study, access to electricity (% of population) was the strongest factor of GDP per capita (PPP, current international US\$).

**Table 2:** Coefficient, Standard Error, Test Statistic z, and P-value of the random effects model of the effects of time to doing business on economic welfare

Variable	Coefficient	Standard Error	z	P-value
Access to electricity (% of population)	96.13593	18.20765	5.28	<0.001
Time to prepare and pay taxes (hours)	-3.317229	1.202999	-2.76	0.006
Time required to start a business, male (days)	-8.729561	3.939248	-2.22	0.027
Time required to register property (days)	-10.66287	2.986651	-3.57	<0.001
Constant	12813.6	2068.814	6.19	<0.001

Source: World Bank (2020). (Authors' calculation).

The results of this study imply the importance of enforcing law on time to doing business and access to electricity in order to promote economic welfare. The government should improve and enforce the law to doing business so that the time do doing business in countries will be more efficient, speeded up, and to improve access to electricity among population for the sake of economic welfare.

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