Is the Ambition Hypothesis Exist on China's Defense Spending?

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ABSTRACT

Since China conducted the economic reform in 1987, it has advanced a leap in its economy, technology, research, and military capabilities, surpassing many countries globally, even to have matched the United States. This study aims to discover whether there has been an ambition hypothesis in China when the country increased its defense since carrying out the reforms. This study adopts a quantitative analysis method that builds two simultaneous regression structural equation models: economic growth and military equation. The study results then indicate that China's alleged motivation for ambition in determining the defense budget is met, where economic growth and taxes positively affect the military budget. The fulfillment of the hypothesis ambition in China is in stark contrast to the case of the United States, where economic growth and taxes negatively impact the size of the country's military budget. In other words, unlike China, the United States increased its military budget when its economic growth got disrupted. For instance, during the trade war between the United States and China in March 2018, the United States eventually increased its military strength though its economy was hampered.

Keywords: *Ambition Hypothesis, Defense Spending, Military Strength, China United States Rivalry, Trade War*

Sejak melakukan reformasi ekonomi pada tahun 1987, Tiongkok telah mengalami lompatan kapabilitas ekonomi, teknologi, penelitian, dan militer hingga melampaui banyak negara secara global dan bahkan hampir menyamai Amerika Serikat. Tujuan dari penelitian ini lantas adalah untuk mengetahui apakah terdapat hipotesis ambisi di Tiongkok ketika meningkatkan pertahanannya sejak adanya reformasi. Metode penelitian yang digunakan adalah analisis kuantitatif dengan membangun dua model persamaan struktural, yaitu persamaan pertumbuhan ekonomi dan persamaan militer, yang akan diregresi secara simultan. Hasil penelitian menunjukkan bahwa dugaan motivasi ambisi Cina terpenuhi dalam penentuan anggaran pertahanannya, yang mana pertumbuhan ekonomi dan pajak berpengaruh positif terhadap besaran anggaran militer. Pemenuhan hipotesis ambisi di Tiongkok berbanding terbalik dengan kasus Amerika Serikat yang pertumbuhan ekonomi dan pajaknya justru berdampak negatif pada besaran anggaran militernya. Hal ini menunjukkan bahwa Amerika Serikat akan meningkatkan anggaran militernya ketika pertumbuhan ekonominya terganggu. Contohnya, ketika Perang Dagang dengan Tiongkok pada Maret 2018 lalu, Amerika Serikat justru meningkatkan kekuatan militernya walau perekonomiannya sedang terganggu.

Kata kunci: Hipotesis Ambisi, Belanja Pertahanan, Kekuatan Militer, Rivalitas China-Amerika Serikat, Perang Dagang

In determining the amount of the defense budget, the primary motivation of a country is assuring how the budget can eliminate potential external threats. According to classical or traditional thinking, security threats always have an emphasis on the state (Brauch 2011). That is because the actors or perpetrators are states, and states themselves also become the target of threats. Hence, state security is often the first to think about defense, with the central focus on efforts to protect the state. Even though relations between countries are now getting borderless, it is strictly necessary to protect the sovereignty of a country from traditional threats originating from other countries (Aben and Malizard 2017; Collier and Hoeffler 2002).

Realizing that an excessive variation in the threat level will depress the economic growth of a state, defense spending is needed to minimize it. Thus, the defense budget becomes one essential component of states' defense capability (Tellis et al. 2001). Consequently, policymakers use the threat level as the basis for determining the amount of the defense budget. In this regard, various perspectives on threat management can motivate states to increase their defense budget.

When states have an intense desire for power, their foreign policies often consciously reflect the calculation of the costs and benefits of enhancing their international position. In most cases, states will try to change the global system to benefit from changing existing international agreements, such as redrawing the border area with its influence and expanding their territory when the benefits outweigh the costs. Thus it can be said that the state will continue to grow its foreign policy as much as the power it has. Moreover, the motivation of a country's defense from facing threats extends to the ambition to increase state power compared to countries in its strategic environment.

The ambition hypothesis states that military spending of a state directly or indirectly has a positive function of economic growth (Castillo et al. 2001, 51). Economic growth will increase the government's leverage through taxes, state ownership, or resource control. Meanwhile, more excellent resources can raise states' foreign ambitions, leading to an increase in their military spending. Therefore, economic growth, which usually tends to

increase the centralization and power of the government, might raise states' foreign ambitions even higher by increasing their military spending (Castillo et al. 2001).

China's motivations in determining the defense budget are fascinating to note, especially after the United States pledged a trade war in March 2018. During the trade war, President Donald Trump issued a "Presidential Memorandum Targeting China's Economic Aggression" and introduced tariffs on steel and aluminum in March 2018 (Kapustina et al. 2020; Zhu et al. 2018). Since then, tensions between the two countries have increased, and China has demonstrated the courage to face the superpower country. A powerful calculated war force undoubtedly supported China's move. In this regard, examining whether China's high economic growth in the past few decades has initiated the alleged military buildup is intriguing.

The rivalry between the United States and China has become the central paradigm of International Relations, creating strategic debates on the actual political dynamics, the military, and the economy of the two countries (Lippert and Perthes 2020). This pioneering revival has been observed since China's economic reforms in 1987. Since the reform, China has conducted a leap in economic, technological, and military research until it outperformed many European countries, even equaling the capabilities of the United States. The rise of China has a remarkable correlation with its international trade policy, which gives a reaction from the United States as the guarantor of the current hegemonic stability (Suharman and Pramono 2021).

Apart from the tremendous economic reform, the Chinese military also undertakes major reforms, spending on defense more than ever, to make the armed forces more powerful and efficient. China aims to be the maritime power that can dominate the central Asia-Pacific region, especially the South China Sea. In the past thirty years, the Chinese government worked to turn its more technologically advanced military force into a top-level power globally. Through budgets soaring high over the past decade, China has become a force leading globally. The United States already senses China as a great power rival, even though its military has not challenged the United States openly (Maizland 2020).

Having interested in the relations between economic growth and defense spending in the case of China, this study analyzes the ambition hypothesis in that country to test whether it is met or not. This study aims to discover whether China has had great ambition to improve its defense since implementing the economic reforms. As a comparison, this study also analyzes the fulfillment of the ambition hypothesis in the United States.

Military Spending and the Ambition Hypothesis

Military expenditure is a difficult-to-understand variable because of its complexity in terms of the various influencing factors (Gerace 2002). Different expert opinions explain why a country increases its defense spending. However, when narrowed down, Castillo et al. (2001) find that the various opinions can be summarized into three groups of hypotheses. Those three hypotheses are the fear hypothesis, the legitimacy hypothesis, and last but not least, the ambition hypothesis, which becomes the focus of this study.

The first group of opinions that explain why countries increase their defense expenditure, according to the classification by Castillo et al. (2001), is the fear hypothesis. The central premise of this hypothesis is that a country's defense spending is determined by its security level. This hypothesis assumes that states are concerned and will increase their military spending in response to the threat. The greater the level of external threat perceived by policymakers, the greater the defense expenditure of a government will be. Meanwhile, the second hypothesis, the legitimacy hypothesis, assumes that governments use their international policies to divert their domestic problems (Castillo et al. 2001). When governments feel they have the potential to lose their legitimacy, they will pursue an expansionary foreign policy and increase defense spending. Thus, the state will use an aggressive international approach with a high increase in its military spending to divert its domestic problems.

The ambition hypothesis is the third hypothesis that tries to answer why countries spend more on their defense budget. This hypothesis explains that a country's ambition to increase military spending correlates to its economic growth because the government aims to

influence the international world by increasing its defense spending (Castillo et al. 2001). The greater the financial wealth of a country, the greater its defense spending. The ambition hypothesis has five assumptions, three of which are similar to the fear hypothesis's assumptions. First, the state is the most important political unit in the international system, yet the system has no central authority to resolve problems firmly among the members. In practice, this will deter the country's strong political will to keep the peace or change its behavior to protect itself from aggressive neighboring countries. Second, there is uncertainty about pressure from countries. As a result, policymakers will find it difficult to know whether other countries have good intentions. Third, all countries are always prepared with various military capabilities to prevent conflicts with their neighboring countries (Castillo et al. 2001).

In contrast to the fear hypothesis, the ambition hypothesis believes that countries' strength is shown through foreign policy and defense spending in absolute terms, not relative. Therefore, the ambition hypothesis has two additional assumptions which differ from the fear hypothesis. Those two assumptions are that the pursuit of increasing economic and military strength is the highest goal of the state and that a country's wealth shapes its foreign policy objectives. Here power is assumed to be the material capability of the state. Hence, the ambition hypothesis further assumes that the greater a country's economic capacity, the greater its foreign policy ambition (Castillo et al. 2001). Meanwhile, the other assumptions of the fear hypothesis that diverge from the ambition hypothesis are that the state has enough offensive weapons to harm other countries and that the state's foreign policy is not based on increasing power but on the motivation to survive. Military spending, therefore, is a function of a country's insecurity. The higher the level of threat to a country's security, the higher its defense spending (Castillo et al. 2001; Nurhasanah 2010).

Through the assumptions mentioned above, the behavior of countries can now be mapped. Anarchy in the international environment, where there is a holder of a dominant force, will always be followed by the self-help principles. This condition forces the state to protect its interests. Since the state's economy and military sectors run under a system of anarchy with a greater

desire for the state to dominate by pursuing more power, countries will seek opportunities to maximize their relative economic and military strength. Nonetheless, the problem is that when a country improves its position in front of its neighbors, its neighbors will feel threatened (Castillo et al. 2001).

States must increase their relative strength or power without protection from a higher authority and knowing the certainty of pressure on neighboring countries. In an anarchical system, governments will be jealous of each other against the balance of control of the members and spy on other countries through the international system for their economic and military capabilities. Countries with high financial wealth and large militaries will always look more threatening. As a result, governments that feel threatened will increase their defense spending, showing the fulfillment of the fear hypothesis assumption. The country that feels threatened by its neighbors will determine a more significant proportion of the defense budget from national budgets than more affluent countries that are more confident in the security (Castillo et al. 2001).

Referring to the assumptions of the ambition hypothesis, we can now understand why a country's strength is calculated relatively through its foreign policy and defense spending. Policymakers decide on security policies at the appropriate level by estimating the threat level of other countries. Policymakers then determine applicable security policies by assessing the level of threats faced by other countries (Walt 1987). Rich countries with more resources usually share a fair proportion of their budgets. A country with absolute power or a huge desire for power will set a higher portion of its development's foreign policy and military spending. That is why the ambition hypothesis argues that high economic growth would increase the government's desire to dig taxes and excessive control resources through an increase in its military budget (Castillo et al. 2001).

The assumptions and premises of the ambition hypothesis are in contrast to the legitimation hypothesis, which explains that government will adopt an expansive foreign policy by increasing the military expenditure when there is a decreasing domestic legitimation in the country (Simmel 2010; Castillo et al. 2001; Snyder

1991). Regimes undergoing that kind of situation see expansion as an instrument to divert attention from their internal depravity and prolong the legitimacy of their government. The expansion policy can be realized through a sizeable military development, diplomacy based on coercion, and territorial expansion. According to the legitimacy hypothesis, economic growth impacts military spending only if it increases the government's legitimacy level. Nevertheless, the legitimacy hypothesis believes that when there is an opinion that economic growth tends to increase legitimacy, it is more likely to be implemented by increasing social services. Hence, economic growth usually will negatively affect military spending. Furthermore, the legitimation hypothesis presumes that at the domestic level, variations in policymaking describe variations in social and economic structures and domestic politics. Meanwhile, at the international level, the state's reaction is adjusted to the external situation (Jervis 2017).

Methods to Prove the Ambition Hypothesis

In order to test the ambition hypothesis in China's increasing defense spending, this study uses quantitative methods. As is known, most economic models have a simultaneous nature that has interdependencies between economic activities (Zimmermannová 2020). Meanwhile, the interdependence between the variables is often neglected in a single equation. Hence, in this study, the tests to prove the ambition hypothesis is carried out by using simultaneous modeling. Moreover, unlike the single-equation models, the adoption of the simultaneous equation models makes this study possible to pay attention to additional information provided by other equations in the system.

In a system of simultaneous equations, each equation helps explain one variable defined in the model. There are two types of variables used in this equation model. The first is the endogenous variables, whose value is determined in the system of equations, and the second is the exogenous or predetermined variables, whose values are not defined directly in the system. Variables whose values are entirely determined outside the scheme also belong to the exogenous variables. In a system of simultaneous equations, it is necessary to form a new model called a structural model

because its shape is determined based on the theoretical basis. A structural model contains endogenous variables on the left and, if simultaneous, includes both endogenous and predetermined variables on the right. It is necessary to look at the properties of the equations properties and their derivations to solve equations. The reduce form equation is an equation that describes each endogenous variable solely as a function of the predetermined variables in the model (Gujarati 2003; Johnston and DiNardo 1997).

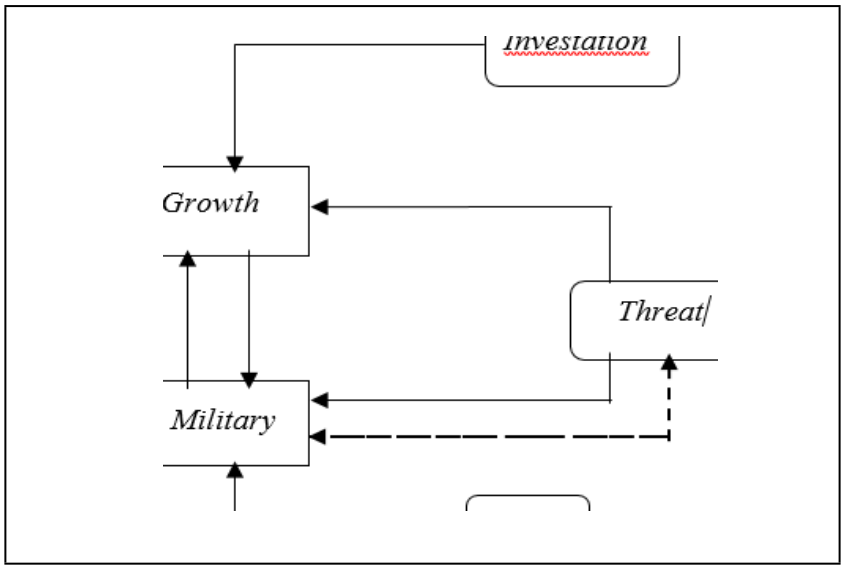
This study uses economic growth and military spending models to test the ambition hypothesis. The economic growth model explains the relationship between military spending and the Harrod-Domar growth rate frameworks. This model is modified with the Aizenman and Glick model (Aizenman and Glick 2003 & 2006; Araujo Junior and Shikida 2008). There is an assumption that, rationally, there is a non-linear behavior of the relationship between military size and economic growth that influences policymakers in determining more efficient policies (Pieroni 2009). Meanwhile, the military expenditure model was modified by including tax variables in the model. The modification is done because, in many cases, when perceptions of ambition increase, it causes policymakers to collect more taxes and allocate an additional share of revenue to the defense sector.

Given the circumstances, there are three considerations that this study takes into account when forming the growth-defense econometric equation to test the ambition hypothesis. The first is the direct relationship between economic growth and the military size of a country. This relationship occurs because of the stimulus that military spending provides on development through demand and the spin-off effect of resource mobilization and modernization effects. The second consideration is the endogeneity of military spending in the estimation process. The critical thing to note here is to see how dynamic contexts influence each other. Last but not least, because this study aims to specialize in military budget analysis, labor and investment are assumed to be exogenous variables in the equation model.

In testing the ambition hypothesis in China, this study focuses on data from 1989 to 2008, with 20 observation periods. This

period happened long before the United States started a trade war with China in 2018 (Kapustina et al. 2020). The selection of the period is made to prove that China has behaved accordingly to the ambition hypothesis in determining its defense budget without concerning the United States. The following figure below (Fig.1) illustrates the relationship between variables, which will build a simultaneous model. These results are also going to be compared with the motivation of the United States in determining its defense budget. The data source used in this study is gathered from the World Development Indicators (WDI), which technically is a collection of the World Bank's leading development indicators (The World Bank 2021).

Figure 1
Relationship between Variables



Source: self processed

The Models and Results of the Ambition Hypothesis Testing

The relationship between economic growth and defense is complicated, and there are various suggestions on the answer (Gentilucci 2021; Azam 2020; Lee and Won 2019; Kennedy 2017; Aziz and Asadullah 2017). Nonetheless, this study built an economic growth equation that incorporates the military budget into the model. In testing the ambition hypothesis for a country, economic and military growth models will be used, where the model and the regression results are presented in the following explanation.

Economic Growth Equation

Through the framework of the Harrod-Domar, starting with building the traditional production function of Cobb Douglas, comprising labor, capital, and technology. Technology (A) is attached to labor (L) and capital (K). In addition, it is assumed that there is a different technology that is not linked to both (T), through which the military will develop (Deger and Smith 1983 & 1985; Deger 1985).

The equation formed is based on the following relationship:

$$Y = F(A.K , A.L , T)$$

(1)

Y is output, K and L are capital input and labor input, and T is the quantity of technology. The growth rate of output, g, is given by the equation:

$$\frac{\Delta Y}{Y} = (A.L.F_1 / Y)\frac{\Delta L}{L} + (A.K.F_2 / Y)\frac{\Delta K}{K} + (T.F_3 / Y)\frac{\Delta T}{T}$$

(2)

If:

$$a_1 = (A.L.F_1 / Y)\ a_2 = (A.K.F_2 / Y)\ a_4 = (A.Q.F_3 / Y)\ a_5 = (T.F_4 / Y)$$

Then the growth rate of output, *g*, is given by the equation:

$$g = a_1\left(\frac{\Delta L}{L}\right) + a_2\left(\frac{\Delta K}{K}\right) + a_3\left(\frac{\Delta T}{T}\right) \quad (3)$$

The labor input growth rate (△L/L) is not included in the model because it is assumed that it has a slight variation every year. Meanwhile, to higher the growth of the capital stock, if depreciation is proportionally taken by, then it can be established:

$$\left(\frac{\Delta K}{K}\right) = I - \left(\frac{\delta K}{K}\right) = \left(\frac{I}{Y}\right).\left(\frac{Y}{K}\right) - \delta = i.v - \delta \quad (4)$$

Developments must include military technology to capture the endogeneity of military spending. Military technology dramatically influences the probability of success in warfare (Glaser and Kaufmann 1998).

In terms of modernization and resource mobilization involving the share of military spending in output, m. Thus, the military technology equation can be formed as follows:

$$\left(\frac{\Delta T}{T}\right) = a_5 + a_6 m \quad (5)$$

To enter the threat (*h*) into the model, adopted from a model Aizenman and Glick (2003 & 2006) and Araujo Junior and Shikida (2008). The model begins with the following conjecture: "The impact of military spending on growth is a non-linear function of the effective military threat from other countries and other

external forces." The assumption can be expressed as follows: "Threats without military spending on security will reduce growth, military spending without threats will reduce growth when the existence of military spending by the magnitude of the threat will increase growth" (Aizenman and Glick 2003). The direct effects of military spending and external threats to growth are adverse when the interaction effect is positive. The threat model is then shown in the following equation:

$$g = z_1 m + z_2 (m)(h) + z_3 h_{-1} \qquad (6)$$

Military Equation

The military equation model can be written as follows:

$$m = d_0 + d_1 V + u_4 \qquad (7)$$

V are exogenous variables that direct military spending to capture the above phenomena.

The exogenous variable *V* can be determined by the assumption that it is a country with ambitions to have a strong military in its regional area. As to further see the fulfillment of the ambition hypothesis, the determination of the military budget is influenced by the economic factor through the variables of economic growth (g) and tax revenue (t). The greater the capability of a country's economy, the more the economy will move towards full equilibrium. Hence, economic growth tends to be less variable, affecting tax revenues. Meanwhile, a dummy variable was added to the model to distinguish the situation before the 1998 monetary crisis and after. Subsequently, the military equation is:

$$m = \delta_0 - \delta_1 g - \delta_2 t + \delta_3 D + u_2 \qquad (8)$$

To insert the threat variable, Araujo Junior & Shikida (2008)

established simultaneous equations based on the model Aizenman and Glick (2003 & 2006) for their alleged simultaneity between variables, which are shown in the following equation :

$g = z_1 m + z_2 (m \times h) + z_3 h$ where $z_1 < 0$, $z_3 < 0$, $z_2 > 0$

$mil = z_5 + z_6 . h + \varepsilon_2$

(9)

By adopting and modifying the Economic Growth and Military equation above, then the simultaneous equation can be formed as follows:

(a) $\alpha_0 - \alpha_1 . m + \alpha_2 . m_{-1} . h_{-1} - \alpha_3 . h + \alpha_4 . i + u_1$

(b) $m = \delta_0 + \delta_1 . h - \delta_2 g - \delta_3 t + \delta_4 D + u_2$

(10)

Alternatively, the model for calculating the economic growth and military function in the equation to prove the ambition hypothesis can be seen in the following table:

Table 1
Structural Equations in Simultaneous System Model

Function	**Equation**
Economic Growth	$growth = \alpha_0 + \alpha_1 mily + \alpha_2 (mily_{-1} \times threat_{-1}) + \alpha_3 threat + \alpha_4 . invy + u_1$
Military	$mily = \delta_0 + \delta_1 threat + \delta_2 growth + \delta_3 taxy + \delta_4 dum + u_2$

Source: data processing

Description:

growth=economic growth, mily=the ratio of the defense budget to national income, threati=threat index, invy=ratio of investment to federal income, growth=economic growth, taxy=tax ratio to national income, dum=variable dummy before and after the crisis monetary 1998.

The reduce form equation can be written in an implicit form as follows:

(a) $F(growth) = F(threat, taxy, (mily_{-1}.threat_{-1})\ invy, dum)$

(b) $F(mily) = F(threat, taxy, (mily_{-1}.sni_{-1})\ invy, dum)$

(11)

The model consists of 2 structural equations with two endogenous variables in the model (m = 2), the total exogenous variable (K) is 5, with the number of exogenous variables in one equation (k), each totaling 3, where both equations have categories overidentified. The method used to regress the above equations is to use a two-step least square.

Results

The test results for China can be seen in the final regression results (second stage) of the following defense spending:

military = -7.9343 + 0.4600. threat + 0.1893. growth + 0.3732. taxes + 0.4870. dummy

R^2 = 0.88 Prob F = 0.000 001

(12)

The test results for the United States can be seen in the final regression results (second stage) of the following defense expenditures:

military = 1.9645 + 1.6587. threat - 0.25145.growth - 0.4929 , tax - 0.0969. dummy

$R^2 = 0.75$ Prob F = 0.00018

(13)

We can compare the results from the significance level of the regression test results, which can be seen in the following table:

Table 2
Significance of Variable

Variable	China	United States
Constant	*- significant*	*insignificant*
Threat	*+ significant*	*+ significant*
Growth	*+ significant*	*- significant*
Tax	*+ significant*	*- significant*
Dummy	*+ significant*	*insignificant*

Source: data processing

From the table above, the military spending model that shows the motivation for ambition is met by China. Furthermore, the model also provides us evidence that there was a high level of determination in China's case, which is 88%.

Conclusion

As initially suspected from various phenomena recently, this study finds that China has ambitions to strengthen its defense by increasing its military budget. Moreover, the study results show that growth and taxes have a positive and significant effect on the military budget in China. Those findings align with the ambition hypothesis' premises on how economic growth positively affects the increase of a country's military budget.

Economic growth leads the state to increase tax extraction, which will be used to improve the military budget excessively to increase control of resources at home and its strategic environment in the international realm. Consequently, economic growth leads to an

increase in the state's power, thus increasing its foreign ambitions even higher than its defense spending. Since the 1987 reformation, China has continued to expand its military strength, as seen from the 20 observations from 1989 to 2008. During that period, this study finds that China showed an ambitious motivation to improve its defense.

In contrast to China's case, this study finds that in the United States, taxes and economic growth negatively affect the increase of the country's military budget. In other words, the United States increased its military power when its economic growth looks disrupted. This finding is quite fascinating to note because, as a rich country with more resources, the United States supposedly shares the proportion of its budget more fairly. Moreover, since the beginning of World War II, the United States has become a superpower country that is the center of power globally. However, the non-fulfillment of the hypothesis ambition in the United States also happened recently when the country waged a trade war with China. Nonetheless, regarding the trade war, the decision is based on the confidence of the two countries in their military strength, followed by the increase in their defense budget.

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