THE RELATIONSHIP BETWEEN MANDATORY PENSION SAVING AND PRIVATE SAVING IN MALAYSIA

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THIS DISSERTATION IS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF BACHELOR OF SCIENCE WITH HONOURS

> MATHEMATICS WITH ECONOMICS PROGRAM SCHOOL OF SCIENCE AND TECHNOLOGY UNIVERSITI MALAYSIA SABAH

> > UNIVERSITI MALAYSIA SABAH

APRIL 2007

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I hereby declare that this dissertation contains my original research work. Source of findings reviewed herein have been duly acknowledged.

27 April 2007

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ACKNOWLEDGEMENT

In particular I would like to convey my gratitude and appreciation to my supervisor, Dr. Ho Chong Mun for accepting me to complete this dissertation under his precious supervision, guidance and critical comments. Besides that, I would like to thank both my examiner during Project I, Prof. Dr. Zainodin Haji Jubok and Assoc. Prof. Dr. Amran Ahmed for giving me suggestion and opinion regarding the mistake I have made in Project I. Sincere thanks to the lecturers in the School of Business and Economy, Madam Roslinah Mahmud who taught me extra knowledge in the economy field. I would also like to express my deepest gratitude to my family, especially my parents, who have supported me all the time in every aspect. Last but not least, thank God who support me and accompanied me along my journey in accomplishing this dissertation. Finally, I would also like to acknowledge the excellent support from all my friends who helped and supported me, THANK YOU!



ABSTRACT

The relationship between mandatory pension saving and private saving is a hotly debated issue. In Malaysia, the mandatory pension saving refers to the Employees Provident Fund. This dissertation investigates empirically the relationship between saving through Employees Provident Fund and private saving in Malaysia using the data over the period 1970-2005. A multiple regression model was used and appropriate econometric methods are used in this dissertation to determine the relationship. The main purpose of this dissertation is to determine how far saving through Employees Provident Fund will have affect on the private saving in Malaysia. The final empirical results of the analysis finds a significant negative effect of saving through Employees Provident Fund on private saving, which mean saving through Employees Provident Fund fully offset private saving in the context of Malaysia. The dissertation then suggested that a further studies should be conduct to find if there exits a non-linear relationship between the mandatory pension saving and private saving in Malaysia.



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HUBUNGAN ANTARA SIMPANAN PENCEN MANDATORI DAN SIMPANAN PERIBADI DI MALAYSIA

ABSTRAK

Isu tentang hubungan antara simpanan pencen mandatori dan simpanan peribadi di Malaysia sering dibincangkan. Di Malaysia, simpanan pencen mandatori merujuk kepada Kumpulan Wang Simpanan Pekerja. Disertasi ini membincang tentang hubungan antara simpanan pencen mandatori dan simpanan peribadi di Malaysia dari tahun 1970 sehingga 2005. Model regresi berganda digunakan dalam disertasi ini dan ujian ekonometrik yang sepatut telah dijalankan untuk menentukan hubungan antara simpanan pencen mandatori dan simpanan peribadi di Malaysia. Tujuan utama kajian ini dijalankan adalah untuk melihat sejauh mana simpanan pencen mandatori mempengaruhi simpanan peribadi. Pada akhir kajian dan analisis data, terbukti bahawa simpanan pencen mandatori mempunyai kesan negatif yang bererti terhadap simpanan peribadi dalam konteks Malaysia. Dengan kata lain, simpanan pencen mandatori ofset secara sepenuh simpanan peribadi. Pada akhir disertasi, cadangan dikemukakan bahawa kajian seterusnya harus difokus atas hubungan bukan linear antara simpanan pencen mandatori dan simpanan peribadi.



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LIST OF SYMBOLS

- = equal
- + addition
- subtraction
- ~ estimation
- \sum summation
- < less than
- > more than



CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Malaysia is a small nation with a population of 26.13 million people with per capita gross national income of RM18, 040 in 2005 (Department of Statistic Malaysia, 2005). Malaysia is one of the few strong economies in Southeast Asia, which has strong economic fundamentals and financial stability.

Life expectancy in Malaysia had continued to increase from 68.8 years for males and 73.4 years for females in 1991 to 71.8 years for males and 76.2 years for females in 2005. The proportion of those above age 75 is also expected to rise rapidly, particularly among females (Department of Statistic Malaysia, 2005). The elderly share of the total populations which stood at 5.7% in 1991 is estimated to reach 14.5% by the year 2020. This will be reflected in an estimated increase of elderly persons aged 60 and above from 1 million in 1991 to 3 million in 2020 in Peninsular Malaysia (Chan and Da Vanzo, 1996)



1.2 MANDATORY PENSION SAVING PLAN IN MALAYSIA

Social security may be defined as the protection given by society to its members, or various categories of them through a series of public measures, from the economic and social distress that otherwise would be caused by the stoppage or substantial reduction of earning resulting from sickness, maternity, employment injury, unemployment, invalidity, old age and death (Karto, 1986).

The functions of social security is to guarantee people in developing countries an effective attribution to the sustained satisfaction of their basic needs by improving their standard of living which does not conform to an acceptable minimum level. This is the only way to make it possible for those affected to be relieved of the threat to their existence. Social security also has the function of guaranteeing protection against a worsening of their living conditions, which is bought by life contingencies and which cannot be overcome by the individuals themselves (Hauff, 2002)

In Malaysia, social security is in the form of mandatory pension saving plan. The mandatory pension saving had already developed into a significant financial institution, which had wide success in expanding coverage as well as in resource mobilization. In context of Malaysia, the mandatory pension saving plan also known as the Employees Provident Fund.



1.2.1 The Employees Provident Fund

The most important social security scheme in Malaysia is the Employees' Provident Fund scheme (EPF), which is based on the philosophy of individual provision while other schemes incorporate social insurance and community support aspects. The EPF is a publicly mandated fully funded saving plan, also known as the mandatory pension saving plan (defined contribution model) which currently operates under the Employees' Provident Fund Act 1991, amended 1995. All employees irrespective of the size of their employer's business are covered by the scheme and both employees and employers contribute to the EPF at a current rate of 11% and 12% of wages respectively (Caraher, 2000).

Total balances of each EPF member have been divided into 3 accounts, each with specific withdrawal requirements. At present, 60% of contributions are deposited into Account I and cannot be withdrawn until the member reaches age 55. At age 55, members can withdraw their funds either as a single lump sum, part lump sum with balance paid in periodical payments, periodical withdrawal or withdraw the dividend annually leaving the balance within the account. In November 1996, it has been possible for a member aged below 55 years and with a balance in excess of RM55, 000 in Account I to invest up to 20% of their funds in approved unit trusts. A further 30% is deposited in Account II and withdrawals are permitted for the purchase or building of a house, or the payment of a housing loans. The balance of this account, that is total contributions plus compound interest, may be withdrawn at age 50. The final 10% is held in Account III and may only be withdrawn to meet the cost of defined critical medical conditions.



Dividends are calculated on a compound basis and are paid annually. The rate of dividend is determined by the EPF board, subject to approval from the Minister of Finance, under the EPF Act that the dividend cannot less than 2.5%. The real rate of return, that which has exceeded the increase in the consumer price index, has consistently been positive. That is, the rate of dividend has exceeded the rate of inflation for 43 out of its 47 years in existence from 1951 to 1998 (Asher, 1994).

Under the EPF 1991 Act, the EPF can only utilize approved investment. These include Malaysian Government Securities (MGS), debenture loans, money market instruments, equities and property. Investment strategies are determined by both the Investment Department and the Investment and Economic Research Department employing economists, fund managers and investment analysts. The Act stipulates that the EPF is required to invest at least 50% of its annual surplus funds in MGS, provided the total invested in government securities in not less than 70% of the total value of investments. Currently 34% of the EPF's money is required to be invested in Malaysian government securities, reduced from the previous requirement of 70% in 1995.

However, resulting in a market reduction in the issuing of new MGS, the government allowed the EPF to diversify its range of investments under Section 26(1) of the EPF Act of 1991 as amended (Act A914). The fund is restricted from investing more than 25% of its total funds in equities. As at the end of August 1998, the EPF investment in MGS amounted to approximately 4.7% of its total funds, compared to 73.6% in 1991 (Caraher, 2000).



The Employees' Provident Fund also invests in short term quoted shares and long term quoted shares with assistance of portfolio managers (EPF Financial Statement, 2003). At every year end, the investment cost of short term quoted shares and investments with portfolio managers (other than investments in subsidiaries and associated companies) is adjusted to market value. Long term quoted shares and investments with portfolio managers (other than investments in subsidiaries and associated companies) are stated at cost less allowance for diminution in value of investments.

1.2.2 The Role of Employees Provident Fund

The fund is first and last a trustee for the savings of its members. All money held by the fund for all its members will in the meantime have to be invested and invested only in certain specified ways which means only low risk investments are permitted. In other words, the fund is an important source of investment capital and support for equity market. The fund has made substantial contributions to the stability of capital markets and been invested primarily in long-term federal government securities, therefore has been a major tender to the government for financing the latter's projects. The growth of the fund has thus increased the availability of medium and long-term capital. Therefore the liability structure of EPF positively affects the economy's total asset holding structure, with economic wide advantages. In short, the fund was an important source of financing for the government deficits (Shome, 1981).



The term economic development means that continuing advancement in a board sense. It therefore refers not only the achievement of a sustained rise in the living standards of the people in the country but also clear and long term improvements in its level of education, health, income distribution and poverty reduction among other things. Economic development would therefore very largely involve the building up of the economic sinews of the country such as the needed physical and social infrastructures. For a financing institution, its contribution towards this would be the mobilization of the adequate savings and channeling these savings to finance as much as possible on these needed economic and social infrastructures. In Malaysia, the Employees' Provident Fund has been the major financing institution for economic development due to the characteristics of the savings mobilized by the EPF for its members together with the conditions that are required to be met for their proper investment make EPF a ready and most appropriate source of finance for public sector development expenditures. In short, the EPF continues to play a catalytic role in the nation's socio-economic growth, consistent with its position as a leading savings institution in Malaysia (Lee, 2001).

Besides that, the fund had also been a major source of finance for the private sector development recent years. EPF had engaged in project financing and joint ventures in a significant way. These were to finance major infrastructural projects such as the independent power plants, the Kuala Lumpur International Airport, the Shah Alam Expressway and the Light Rail Transport System. The fund was known to be the biggest financiers of the independent power producers. A substantial part of the financing has been provided via private debt securities or other instrument. The EPF also holds equity in many of the large projects that it lent funds to.



In social development, the fund had providing assistance to the government's policy of widening home ownership. The fund had shown the large contribution of home ownership promotion through opening its withdrawal facilities for acquisition of homes for its members. In the area of investment, the fund has been identified by the government as one of the major agencies to assist in widening the peoples' access to housing, especially for low and medium cost houses. From 1996, the fund took on a more aggressive role in assistance home ownership. It acquired large tracts of land in different locations for development as low and medium cost housing projects. Through EPF subsidiary, Malaysia Building Society Bhd (MBSB) many projects are being developed with the EPF financing on a joint venture basis with some private companies (Lee, 2001).

A less positive characteristic in EPF is the early withdrawals from individual member's account, for housing purpose for example, will take their toll, not only on the final balance but also on the dividend yield. Secondly, the relatively young age at which lump sum withdrawals can be made from the EPF (age 55) casts serious doubt on the ability of the accumulated balance lasting the required length of time. The increasing life expectancy combined with inexperience in individual private investments could leave the elderly vulnerable to an increased risk of poverty. Therefore lump sum payments cannot be relied upon as an efficient means for the provision of income beyond retirement. Last but least, the liberalizing of individual investments on unit trust will therefore introduces the possibility of members inexperienced in investment jeopardizing their savings and thus security of income into old age (Caraher, 2003).



There are evident shows that without reforms in investment policies and performance of provident funds, social security systems in Malaysia will not be able to provide adequate replacement rate in a sustainable manner for the current and future retirees. At a broader level, Malaysia would need to better resolve the tension between using these funds to assist in achieving government's economic, political and social objectives on the one hand and their fiduciary responsibilities towards the members of the funds on the other. The investment policies of the fund would also need to be made consistent with the requirements of globalization. This may involve making provision for country and asset risk diversification; and for introducing greater competition in the management of funds. The policymakers may also need to consider minimizing contingent liabilities arising from the guarantees on governmentdirected loans and investments made by the fund authorities (Asher, 2000).

There are several reasons for the under-development of the fund management industry. Firstly, this under-development is due to the capture by the EPF of a sizeable portion of national savings through its forced-savings scheme and the centralized investment of these savings by the EPF. Secondly, restrictions on the entry of foreign fund managers as well as on investments (including investments in overseas assets) have curbed the development of the funds management industry. And finally, the guarantee of bank deposits and the favorable tax treatment of interest income on bank deposits have discouraged investments in money market funds as well as in bond and equity issues (Thillainathan, 2000).



1.3 SAVING IN MALAYSIA

Domestic saving — the sum of saving by households, businesses, and government—is used to finance private and public investment and is a crucial ingredient in raising future living standards. Domestic saving can be divided into three categories: public sector saving, private corporate and household. Public sector saving is the difference between the revenue and the expenditure of public sector enterprises. Private corporate saving broadly consist of the non-distributed profit of companies, which they reinvest. An increase in this form of saving would reduce the dependence of the business sector on outside (both domestic and foreign) funds. Household saving are voluntary and depend on consumption needs and preferences and extent of future returns on current savings. Household saving influenced by institutional factors, such as the presence of banking system, efficient capital market, prudent fiscal and monetary policies, good and transparent governance, a strong legal system and other factors that boost savers' confidence (Dorson, 2005)

Malaysia has been a high saving economy with gross national saving averaging 35.4% of gross domestic product. The reason of high rate saving in Malaysia is result of policy action designed to provide incentives to save and opportunities for these saving to be held in the financial system. The pooling of these saving in the financial system has been a key source of investment financing as well as a driver of the rapid economic development. Saving can be defined as the excess between resources available to economic agents and the current consumption and, when appropriately allocated have been beneficial to developing economies (Calafell and Mexico, 2001)



1.3.1 Saving Policies In Malaysia

There have been four broad policies that have helped encourage saving. Firstly, financial institutions, especially banks were encouraged to spread their branch network in order to improve the access to the financial system. In 1959, commercial banks had a total of 111 branches nationwide, with each branch serving about 70, 000 people. By July 2002, this has increased to 1, 763 branches, bringing down the number of people served per branch to 13, 913 (Bank Negara Malaysia, 2002). Secondly, Bank Negara Malaysia (BNM) has played a vital role in fostering confidence in the financial system by complementing a strong supervisory and regulatory system that ensured that banks were prudentially managed.

Third, BNM was careful to ensure that throughout the development of the financial sector, savers would continue to earn a real rate of return on deposits. This was a conscious policy action designed to encourage the public to move away from holding savings in the form of non-financial assets and transform them into financial form in the banking system. Finally, the government complemented the efforts to develop the financial sector by setting up compulsory saving scheme, the Employees Provident Fund (Calafell and Mexico, 2001)



1.3.2 Private Saving in Malaysia

Private saving in Malaysia have been increased over the years due to rising per capita income, higher age dependency ratio, lower share of agriculture in the economy and continued efforts to deepen the financial system (Mohamed Ariff and Lim, 2001).

Among the major East Asian economies, Malaysia's saving rate is second only to Singapore. The high saving have helped the Malaysia economy to expand rapidly without having to rely excessively on foreign borrowing for investment, thereby avoiding the risk of inflationary pressure building up through the monetization of the deficit (Chew and Wong, 2002)

1.4 SCOPE OF STUDY

The research is based on the data in Malaysia over the period January 1970 through December 2005. Data source of the gross savings through Employees Provident Fund can be obtained from the annual report of Employees Provident Fund. The else data such as the gross national saving, gross national product and mid-year population can be obtained from the Malaysia Annual Economic Report, Bank Negara Malaysia Annual Report and Yearbook of Department of Statistic of Malaysia.



1.5 OBJECTIVE OF STUDY

- To study the relationship between saving through Employees Provident Fund and private saving in the context of Malaysia.
- To determine how far saving through Employees Provident Fund will have affect on the private saving in Malaysia. Test will be conducted to find out whether saving through Employees Provident Fund fully offset private saving in Malaysia or not.



CHAPTER 2

LITERATURE REVIEW

2.1 OVERVIEW

Pension policies affect household saving is a hotly debated issue in pension literature. The effect of pension saving on voluntary household savings remains ambiguous, both theoretically and empirically. According to Karunarathne and Abeysinghe (2005), there are many factors that affect the household saving but in particular the design of the pension program matter the most. The structure of pension programs varies according to the source of funding and method of benefit calculation.

Most economists analyze household saving behavior using the life-cycle model of consumer behavior. The life-cycle model begins with the basic assumption that most individuals are not myopic but rather take their expected lifetimes into account when deciding how much out of current income to save and how much to spend. The life-cycle model assumes that individuals seek to avoid large fluctuations in their standard of living over the course of their lifetimes. The model further takes as given that individuals' incomes tend to follow a predictable pattern over the course of their lifetimes.



REFERENCE

- Asher, M. G., 1994. Social Security in Malaysia and Singapore: Practices, Issues and Reform Directions. Institute of Strategic and International Studies, Kuala Lumpur.
- Asher, M. G., 2000. Social Security Reform Imperatives: The Southeast Asian Case. International Social Security Review 51, 3-30.
- Baharumshah, A. Z., Thanoon, M. A. and Rashid, S., 2003. Saving Dynamics in the Asian countries. *Juornal of Asian Economics* 13, 827-845.
- Beiliu, J. and Reisen, H., 1997. Do Funded Pension Contribute to Higher Aggregate Savings? A Cross-Country Analysis. Retrieved 15 February 2007 gemini.econ.umd.edu/cgibin/conference/download.cgi?db_name=ACE2005&pap er_id=137
- Calafell, J. G. and Mexico, B. D., 2001. Improving the Allocation of Domestic Saving for Economic Development: Conclusion and Policy Lessons. Retrieved 18 February 2007 from www.banxico.org.mx/tipo/publicaciones/seminarios/Policy.pdf
- Caraher, K., 2000. Issues in Income Provision for the Elderly in Malaysia. The Year 2000 International Research Conference on Social Security, 25-27 September 2000, Helsinki, Finland.



- Caraher, K., 2003. There is more to a decent income in lengthening old age than individual savings: A discussion of income security for old age in Singapore and Malaysia. 4th International Research Conference on Social Security, 5-7 May 2003, Antwerp, Geneva.
- Chan, A. and Da Vanzo, J., 1996. Ethnic Differences in Parents' Co-residence with Adult Children in Peninsular Malaysia. *Journal of Cross-Cultural Gerontology* 11, 29-59.
- Chew, K. and Wong C., 2002. Explaining growth: Malaysia. Retrieved 15 February fromwww.gdnet.org/pdf/draft_country_studies/MalaysiaCountryStudy14Jun02_w _amendmts.pdf
- Department of Statistic Malaysia, 2005. *Key Statistic: Department of Statistic Malaysia.* Retrieved 2 September 2006 from www.statistics.gov.my/english/frameset keystats.php
- Disney, R., 2005. Household Saving Rates and the Design of Social Security Programmes: Evidence from a Country Panel. Retrieved 15 February 2007 fromwww.csef.it/seminarpdf/Disney%20social%20security%20&%20saving.pdf
- Dorson, P., 2005. Mobilizing Domestic Resources for Development. Retrieved 18 February 2007 from www.unescap.org/pdd/publications/themestudy2005/ch2.pdf



- Eisen, R., 2000. (Partial) Privatization Social Security: The Chilean Model A Lesson to Follow. Retrieved 20 February 2007 from www.ifk-cfs.de/papers/00_13.pdf
- Employees' Provident Fund, 2003. EPF Financial Statement for the year ended 31 December 2003. Retrieved 30 August 2006 from www.kwsp.gov.my
- Engelhardt, G. V. and Kumar, A., 2006. Pension and Household Saving. Retrieved 16 February 2007 from www.tiaa-crefinstitute.org/research/grants/engelhardt.pdf
- Feldstein, M., 1996. Social Security and Saving: New Time Series Evidence. National Tax Journal 49, 151-164.
- Granville, B. and Mallick, S., 2002. Does Capital Market Reform Boost Savings? Evidence from the UK Pension Reform. Retrieved 18 February 2007 from www.tcf.or.jp/data/20021203-04_Brigitte_Granville_-Sushanta_Mallick.pdf
- Halcousis, D., 2005. Understanding Econometrics. Thomson South-Western, United States.
- Hauff, M. V., 2002. The Relevance of Social Security for Economic Development. In: Efried Adam, Michael von Hauff and Marei John (eds.), Social Security in the Southeast and East Asia. Friedrich Ebert Stiftung, Singapore.



- Ismail, B. M., 2007. Unimodality Test for Global Optimization of Single Variable Function Using Statistical Method. Malaysian Journal of Mathematical Sciences 1(2): 1-11
- Karto, D. 1986. Social Security in Malaysia. ASEAN Economic Bulletin 3 (1), 70-89.
- Karunarathne, W. and Abeysinghe, T., 2005. Does Mandatory Pension Savings Crowd Out Private Savings? The Experience of Sri Lanka. *Journal of Asian Economics* 16, 830-846.
- Lee, H. L., 2001. Financial Security in Old Age Wither the EPF of Malaysia?. Pelanduk Publications (M) Sdn. Bhd, Pulau Pinang.
- Muradoglu, G. and Taskin, G., 1996. Difference in Household Savings Behavior: Evidence from Industrial and Developing Countries. *The Developing Economies* 34, 138-153.
- Ramanathan, R., 2002. Introductory Econometrics with Applications. Harcourt College Publisher, London.
- Serres, A. D. and Pelgrin, F., 2003. The Decline in Private Saving Rates in the 1990s in OECD countries: How Much Can Explained by Non- Wealth Determinants? OEDC Economic Studies 36, 118-152.



- Shome, P. and Saito K.S., 1981. Social Security Institutions and Capital Creation: Singapore, the Philippines, Malaysia, India and Sri Lanka. Sritua Arief Associates, Kuala Lumpur.
- Thillainathan, R., 2000. The Employees' Provident Fund of Malaysia: Asset Allocation, Investment Strategy and Governance Issues Revisited. Workshop of Employees Provident Fund on Pension Fund Management, 14-15 August 2000, Kuala Lumpur.
- Turner, J. A., 1997. Economic Analysis of Mandatory Defined Contribution Pension Systems. Retrieved 20 February 2007 from www.issa.int/pdf/jeru98/theme2/2-2b.pdf
- Vogelvang, B., 2005. Econometric Theory and Applications with Eview. Prentice Hall. London.

