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# National Social Protection Fund: The Multi-Pillar Pension Fund

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## **About Social Security Research Centre**

The Social Security Research Centre (SSRC) was established in March 2011 at the Faculty of Economics and Administration (FEA), University of Malaya to initiate and carry out research, teaching and dissemination of evidence-based knowledge in the area of social security, including old age financial protection in order to enhance the understanding of this critical topic to promote economic development and social cohesion in Malaysia.

To support the research in social security in general and old-age financial protection in particular the Employees Provident Fund (EPF) of Malaysia has graciously provided an endowment fund to create the nation's first endowed Chair in Old Age Financial Protection (OAFPC) at University of Malaya. OAFPC has the over-riding objectives to help formulate policies to promote better social security and improve old age financial protection, and to help formulate policies to promote economic growth in an ageing society for consideration by the Government of Malaysia.

The interest in social security and old-age financial protection is ever growing in view of an ageing population. Malaysia is also subjected to rising life expectancy and falling fertility rates, the perceived inadequacy of current social security provisions, coupled with the added fear that simply more expenditure may not be conducive to the development and growth objectives of the society. This calls for innovative policy solutions that may be inspired by international experience based on an empirical grounding in national data and analysis.



## **National Social Protection Fund: The Multi-Pillar Pension Fund**

### **Abstract**

This paper formulates a comprehensive pension fund framework for enhancing system capacity to manage economic and social risks. The National Social Protection Fund (NSPF) attempts to quantify informal sector, incorporated under a unified national protection scheme. The new protection mechanism consists of two sub funds: the National Integral Social Security Fund (NISSF) and the National Education Fund (NEF). NISSF encompasses all economically active Malaysian population, including the informal workforce, whereas the NEF captures the economically inactive young population. Simulation findings indicate that education, health and income redistribution can improve the livelihood of the vulnerable population groups in Malaysia.

Keywords: Malaysia, EPF, Social Security, Social Protection, and Policy Modelling

## 1. Introduction

There is a growing concern among policy makers that the Malaysia's Employees Provident Fund (EPF), just like other provident funds has been facing certain peculiar challenges in meeting the retirement needs of its members. The provident fund is a variant of defined-contribution plan, which by definition is not designed to address longevity, inflation, and survivors' benefit risk (Asher, 2012). EPF satisfies in principle the prudent person rule, addressing the distortions of myopic individual behaviour (Mitchell & Fields, 1995). Notwithstanding, retirement income *per se* does not meet the threshold of insurability, constituting state intervention inevitable at the expense of taxpayers, current contributors, and retirees (Feldstein, 1998).

Furthermore, the current retirement *status quo* of the provident fund members is not economically desirable (Koutronas & Ismail, 2016). Only one third of the active EPF members will have sufficient accumulated savings (Holzmann, 2014), with the account balances of 73.2 percent of fund contributors yield less than RM 50,000 (Asher, 2012). With 70 percent lump sum withdrawal rate, 50 percent participation and absence of a life annuity option, *prima facie*, the actual EPF coverage is substantially lower (Koutronas & Ismail, 2016; Othman, 2010). As a result, most of the EPF members will not have adequate retirement income.

It is a plausible conjecture that EPF needs a paradigm shift in emphasis from retirement-based benefits to social protection forms of support. Such a development is mandatory given the emergence of new risks (demographic factors, labor mobility, climate, technological developments) and new needs (health care, pensions). These conditions require a dynamic provident fund where individual needs are met effectively and efficiently by implementing enhanced welfare benefits closely related to their specific context.

This paper formulates a comprehensive pension fund framework for enhancing system capacity to manage economic and social risks. The National Social Protection Fund (NSPF) attempts to quantify informal sector, incorporated under a unified national protection scheme. The new protection mechanism consists of two sub funds: the National Integral Social Security Fund (NISSF) and the National Education Fund (NEF). NISSF encompasses all economically active Malaysian population, including the informal

workforce, whereas the NEF captures the economically inactive young population.

The remainder of this paper is organized as follows. Section two outlines the Malaysia's Employees Provident Fund (EPF). Section three describes the integrated fund mechanism into a simplified theoretical framework. Section four concentrates on data requirements and the simulation technique used upon the data. The final section concludes.

## **2. Employees Provident Fund (EPF) at a Glance**

EPF is a trust fund (functions as a trustee for its members) established under the EPF Ordinance, 1951. It was amended to the EPF Act in 1991. EPF is a defined contribution plan based on a prescribed rate of contribution by employers and employees, accumulated as savings in a personal account and full withdrawal upon retirement. The scheme is mandatory for those in the formal sector, but it also allows those who are self-employed to contribute towards the fund. This flexibility is aimed at encouraging savings for old age. The rate of contribution is 12 percent and 11 percent for employers and employees, respectively regardless of age of employee (EPF, 2014).

EPF is structured into two types of accounts, namely, Account I and Account II (see Table 1). Each account is designed to serve the different needs of contributors and conditions under which a certain amount can be withdrawn. Account I constitute 70 percent of members' savings for retirement in accordance to the primary objective of the scheme, i.e., to ensure that members have sufficient cash savings for retirement. Up to 30 percent of the balance in Account I can be transferred for investment purposes. Account II allows a member to withdraw his/her savings once for buying or building a house. This withdrawal is limited to 10 percent of the house price or all savings in Account II. Further withdrawals to reduce or to settle balance of the housing loan is allowed every once a year from the date of the previous withdrawal. Under this account, members will also be allowed to withdraw some money to finance the cost of their children's education. Account II is also intended to help members to pay for their medical expenses of critical illness. This assistance is not limited to the member only, but is extended to member's spouse, children, parents and siblings.

**Table 1: Types of Withdrawal of EPF**

<b>No.</b>	<b>Type</b>	<b>Account</b>	<b>Purpose</b>
1.	Age 55 years withdrawal.	Account 1 Account 2	Members can withdraw all of their savings either in a lump sum or partially for financial support during retirement period.
2.	Incapacitation withdrawal.	Account 1 Account 2	Members can withdraw all of their savings should they become physically or mentally incapacitated to work, having achieved the level of Maximum Medical Rehabilitation (MMI) to work to help and support their living.
3.	Pensionable employees withdrawal and optional retirement withdrawal.	Account 1 Account 2	This withdrawal allows members who are still employed in the Public Service and have been emplaced in the pensionable establishment to withdraw the employee's share of contribution including the dividends accrued after returning the government's share to Retirement Fund. This withdrawal allows the members who opted for early retirement from the Public Service to withdraw the employee's share of contributions, including the dividends accrued for periods where it was compulsory to contribute to EPF while in the Public Service.
4.	Leaving the country withdrawal.	Account 1 Account 2	Withdrawal can be made by Malaysian citizens who have renounced their citizenship in order to migrate to another country OR foreign citizens (members who contribute before 1 August 1998) who have ceased to be employed in this country and wish to return to their country of origin.
5.	Death withdrawal.	Account 1 Account 2	This withdrawal allows member's nominees or administrators or next-of-kin to withdraw the savings in the event of the member's death.
6.	Savings of more than RM1 million withdrawal.	Account 1 Account 2	Members can withdraw their savings if the credit is RM1.05 million as RM1 million is view as adequate to finance their basic retirement needs. Members are eligible to withdraw not less than RM 50,000 which will be taken from Account 2, and if it is insufficient, the balance will be taken from Account 1.
7.	Members' investment withdrawal.	Account 1	Members can invest not more than 30% of their savings in Account 1 in excess of basic savings amount to increase their retirement savings.
8.	Age 50 years withdrawal.	Account 2	Members can withdraw all of their savings in Account 2 upon reaching age of 50 to prepare and plan for their retirement earlier.
9.	Withdrawal to reduce /	Account 2	Members can withdraw their savings in Account 2 to reduce or redeem the housing

No.	Type	Account	Purpose
	redeem housing loan.		loan balance with the financial institution approved by EPF. Withdrawal to reduce or redeem the housing loan balance for a second house is allowed when the first house is sold or disposal of ownership has taken place.
10.	Education withdrawal.	Account 2	Members can withdraw their savings in Account 2 to finance the member's education and their children's education (including step-children and legally adopted children) at an Institution of Higher Learning either locally or abroad.
11.	Withdrawal to purchase a house or to build a house.	Account 2	Members can withdraw their savings in Account 2 to finance the purchase of a house and withdrawal to purchase a second house is allowed after the first house is sold or disposal of ownership of property has taken place. Members can withdraw their savings in Account 2 to finance to build a house and withdrawal to purchase a second house is allowed after the first house is sold or disposal of ownership of property has taken place.
12.	Housing loan monthly instalment withdrawal.	Account 2	Members can withdraw their savings in Account 2 to pay for housing loan monthly instalments taken for the purpose of buying or building a house. This is an addition to the existing withdrawal, which is the withdrawal to reduce or redeem housing loan.
13.	Flexible housing withdrawal.	Account 2	Set aside a part of savings in member's Account 2 to the Flexible Housing Withdrawal Account to enable the member to obtain a higher housing loan amount to purchase or build a house. Member can obtain a higher loan amount since the credit assessment on the net income also takes the EPF contribution into consideration.
14.	Health withdrawal.	Account 2	Members can withdraw their savings in Account 2 to pay for medical expenses incurred for the treatment of critical illnesses and/or to buy medical aid equipment as approved by the EPF Board for oneself or permitted family members.
15.	Hajj withdrawal.	Account 2	Members can withdraw their savings in Account 2 to perform their Hajj effective from January 2013.

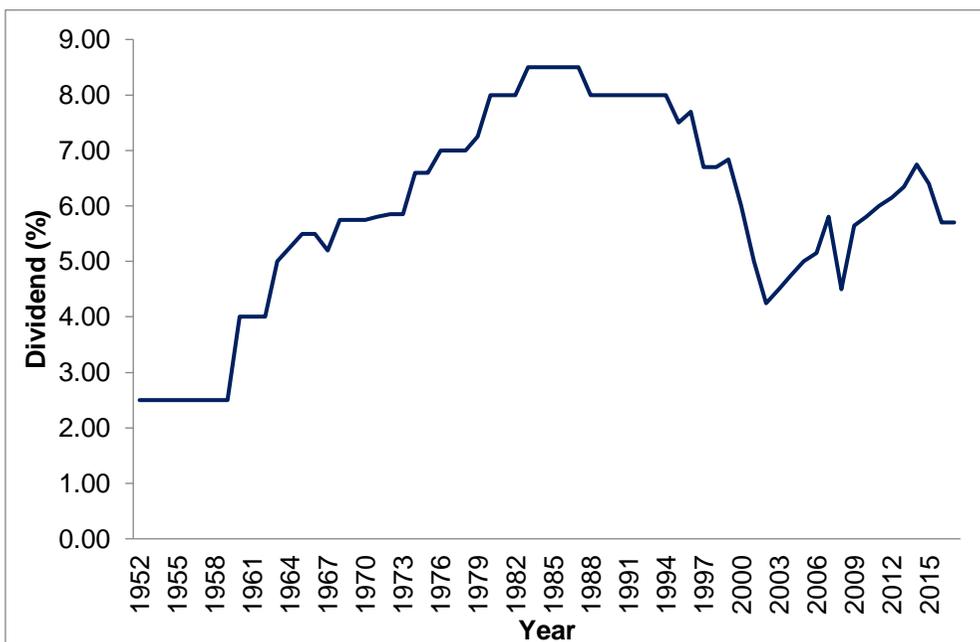
Source: Employees Provident Fund Data (Mansor, et al., 2014)

EPF introduced the Periodical Payment Withdrawal Scheme in 1994 to allow members who have reached retirement age to withdraw their savings periodically (once a month), until all savings are withdrawn. Besides the lump sum withdrawal at retirement, EPF also provides two other schemes. One of the other two options is part lump sum and part periodic payment while the other allows contributors to maintain the principal amount with EPF, withdrawing only the annual dividends.

In July 2000 EPF introduced yet another option, which is the annuity scheme comprising two types of schemes to suit the preference of contributors. The first one is known as the Conventional Annuity Scheme and the other is the *Takaful* Annuity Scheme. These schemes are aimed at providing members an even income stream throughout their retirement years. They are open to contributors between the ages of 16 and 70. Members of EPF may choose to buy one or both the schemes. (Ong, 2001)

EPF have exhibited significant cash flow growth that inconsistently return added value to its members in the form of dividends (see Figure 1). EPF nominal rates have been historically moderate to high, averaging 5.95 percent per annum during the period 1961–2014 (Koutronas & Ismail, 2016). EPF dividends have reached historic low levels during the 1997 Asian financial crisis and the 2008 global financial crisis with 4.25 percent and 4.50 percent, respectively. Since 2015, the fund experienced a dividend rate of 5.70 percent due to domestic economic conditions.

**Figure 1: EPF-Dividend (1952-2017)**



Source: EPF (2017)

In September 2016, the membership of the pension fund reached 14.72 million, of which 6.83 million are active and contributing members. A significant change to age pension eligibility was made by the Malaysian government in 2001 (from 55 to 56), in 2008 (from 56 to 58) and in 2012 (from 58 to 60) (Tey & Hamid, 2014).

### 3. The National Social Protection Fund (NSPF)

The NSPF relies on a defined-benefit scheme with defined-contribution elements where EPF accepts to manage in a principled manner. It remains a savings scheme with personal financing features, such as education, housing down payments and medical care, accompanied though by predetermined mandatory contributions. In the case of additional borrowing, members will use the retirement savings accounts as collateral, subject to strict limitation terms, borrowing at the guaranteed rate. Furthermore, EPF will create a defined-benefit annuity based on accumulated balances in individual accounts that will guarantee the real value of return. The three-to-one pillar scheme will be sustainable and viable as long as the compounded

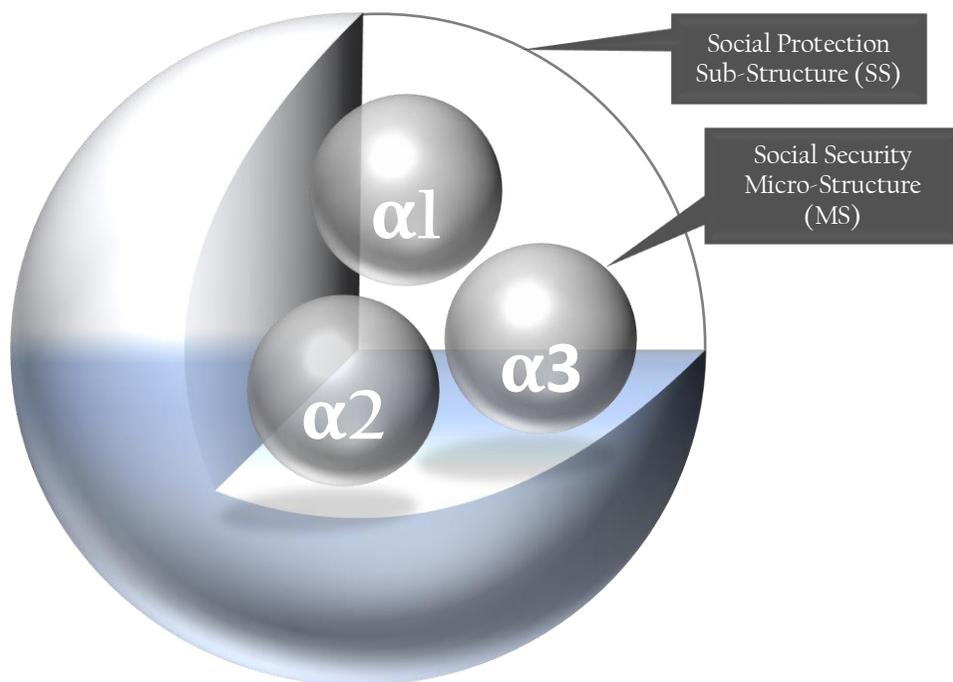
contributions along with the expected retirement amount and the expected return of assets is in perfect alignment.

The new fund mechanism aims to reduce vulnerability and manage the risk of low-income EPF members with regard to basic consumption and social services. The combination of basic needs, such pension, health insurance and education, into a comprehensive fund can eliminate living risk to those individuals who do not fulfill retirement requirements. The fund is designed to transfer resources to groups deemed eligible due to deprivation.

### **3.1 The Social Protection-DNA Model**

The proposed analytical framework evaluates the overall impact of integrated funding. The development of the two national funds follows a right-handed double helix curvature. The Social Protection-DNA model (SP-DNA) examines the impact of the dual funds in reducing poverty within the framework of real-time multidimensionality (Ruiz Estrada, Chandran, & Tahir, 2014) and the *Omnia Mobilis* assumption (Ruiz Estrada, 2011). The NISFF and NEF fund spiral around interconnected to each other. NISFF is a three-pillar fund encompassing three sub funds, namely, the formal employees fund ( $\alpha_1$ ), the informal employees fund ( $\alpha_2$ ), and the unemployed insurance fund ( $\alpha_3$ ). NEF alternatively is a single-pillar fund. In a three-dimensional Euclidean space, each of the fund surface is geometrically bounded by a sphere. (see Figure 2).

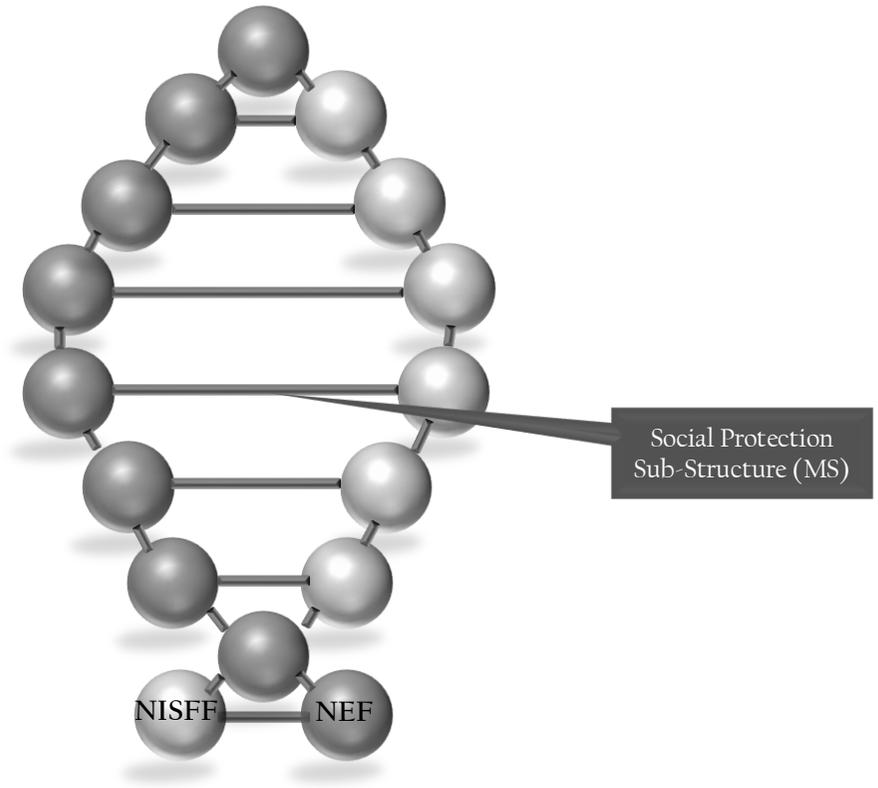
**Figure 2: The National Integral Social Security Fund (NISSF)**



**Source:** Authors' Elaboration

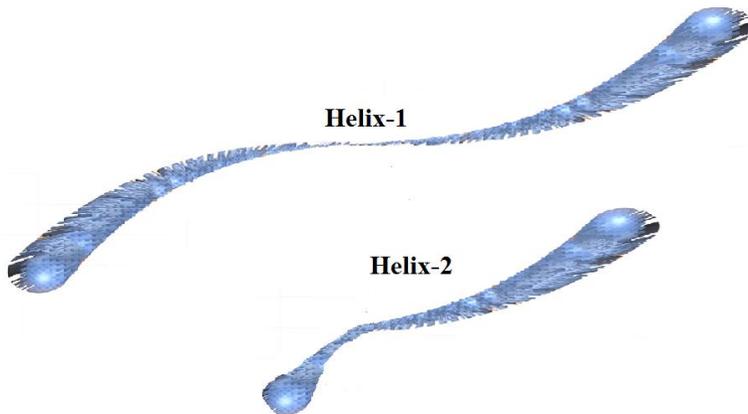
The movement of the integrated fund and the three sub funds on helix-1 trajectory is perpendicular to the social security microstructure (MS) and the single social protection sub-structures (SS), respectively. The sub fund trajectories change when their single social protection sub-structures angular with different angle against their single social protection structures. The establishment of the sub funds is not perpendicular to their single social protection structures. Accumulated contributions cause the sub funds' orbital motion in the direction of their single social protection structures. So, the sub funds drift on the helix-1 trajectory. In parallel, the single-pillar fund drifts on the helix-2 trajectory. NISFF and NEF interact in the social protection substructure area. (see Figure 3 and Figure 4).

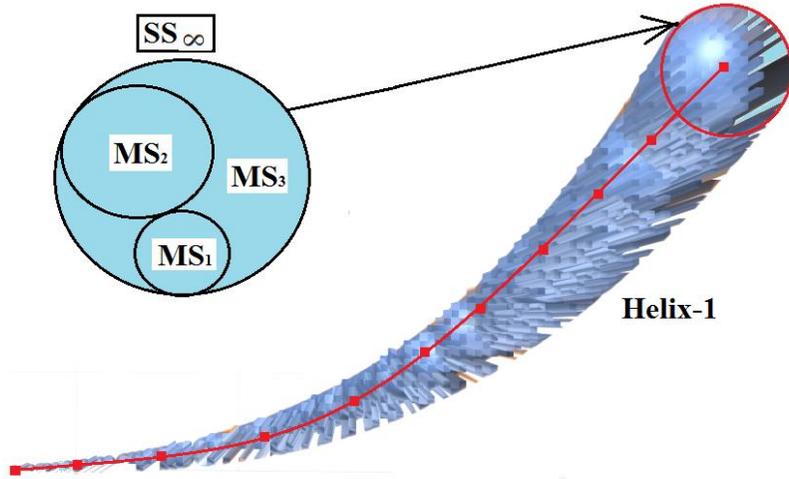
**Figure 3: The Social Protection Helix**



Source: Authors' Elaboration

**Figure 4: The Social Security Micro-Structures (MS), the Social Security Sub-Structures (SS), Social Protection Helix for Malaysia**





Source: Authors' Elaboration

The volume formula of a sphere is given by

$$V = \int_0^{2\pi} \int_0^{\pi} \int_0^r r^2 \sin \theta \, dr \, d\theta \, d\varphi \approx \frac{4}{3} \pi r_i^3 \quad (1)$$

$r_i$  reflects the radial distance of a point from a fixed origin;  $\theta$  depicts the polar angle measured from a fixed zenith direction; and  $\varphi$  represents the azimuth angle of its orthogonal projection on a reference plane that passes through the origin and is orthogonal to the zenith, measured from a fixed reference direction on that plane. In the helix-1 setting, the radial distance  $r_i$  is equivalent to sub funds' annual growth rate:

$$r_i^{h_1} = \frac{\partial a_i(t)}{\partial t} \quad (2)$$

The radial distances  $r_{i_{\alpha_1}}^{h_1}$ ,  $r_{i_{\alpha_2}}^{h_1}$ , and  $r_{i_{\alpha_3}}^{h_1}$  of sub funds are given by

$$r_{i_{\alpha_1}}^{h_1} = \frac{\partial a_1(t)}{\partial t} \quad (3)$$

$$r_{i_{\alpha_2}}^{h_1} = \frac{\partial a_2(t)}{\partial t} \quad (4)$$



#### 4. Application of the Social Protection DNA Model (SP-DNA) in Malaysia

The multi-dimension setting enables the SP-DNA model to be tested in real-world setting. The interacted Euclidean space facilitates the visualization of real time changes in each fund component. Change in the determination of the past, present, and future assumes the existence of a subjective and temporally extended point of view over reality, from which reality can be described. We perform a serial of simulations by using the Social Protection DNA Simulator in the case of Malaysia. The primary objective is to evaluate the possibility of implementing the National Social Protection Fund (NSPF) in Malaysia. Numerical data necessary for the SP-DNA model retrieved from international and national organizations, namely, Asian Development Bank, International Labour Organization, World Bank, International Monetary Fund, World Health Organization and Employees Provident Fund.

The NISFF and NEF funds depend on their accumulated contribution rates. In the NISFF, the accumulated contribution rate  $e_1$  stands for the formal employees fund  $\alpha_1$ ; the accumulated contribution rate  $e_2$  stands for the informal employees fund  $\alpha_2$ ; and the accumulated contribution rate  $e_3$  stands for the unemployed insurance fund  $\alpha_3$ . Similarly, the accumulated contribution rate  $e_4$  stands for the NEF. The numerical computation of the aforementioned parameters requires to take into account (i) the Malaysian population size; (ii) the unemployment rate; (iii) formal-employees-to-total workforce rate; and (iv) non-formal-employees-to-total-workforce rate.

Funds are subject to minimum funding requirements in order for funds to deliver benefits. The amount of the minimum required contribution for the funds depends on whether the value of plan assets equals or exceeds the plan's funding target for the plan year. If the plan's assets are less than the funding target, the minimum required contribution for the year is equal to the plan's target normal cost plus the amortization of the funding shortfall. If the plan's assets equal or exceed the funding target, the minimum required contribution is the target normal cost, which is reduced by the plan assets in excess of the funding target. Plan assets must be reduced by any credit balance, if applicable. In the case of NISFF, the Minimum Social Protection Fund ( $\lambda$ ) shows a single equation under the uses of  $e_1$ ,  $e_2$ , and  $e_3$ :

$$MSPF = \lambda = 600x_1 + 150x_2 + 100x_3 = 0 \quad (13)$$

Simulation findings show that the minimum monthly contributions per capita for the formal employees fund  $\alpha_1$  amount to RM 600, for the informal employees fund  $\alpha_2$  amount to RM 150, and for the unemployed insurance fund  $\alpha_3$  amount to RM 100. Differentiate expression (13) will give us the maximum values of the social security micro-structures (MS) for Malaysia:

$$\frac{\partial \lambda_t}{\partial x_1} = 600 + 150x_2 + 100x_3 = 0 \quad (14)$$

$$\frac{\partial \lambda_t}{\partial x_2} = 600x_1 + 150 + 100x_3 = 0 \quad (15)$$

$$\frac{\partial \lambda_t}{\partial x_3} = 600x_1 + 150x_2 + 100 = 0 \quad (16)$$

The second differentiation of the expressions (14), (15) and (16) build the final social protection sub-structure (SS) in Helix-1:

$$MMS_1 = \sum \frac{\partial^2 \alpha_t}{\partial^2 x_1} = 0 + 150 + 100 = 0 \quad (17)$$

$$MMS_2 = \sum \frac{\partial^2 \alpha_t}{\partial^2 x_2} = 600 + 0 + 100 = 0 \quad (18)$$

$$MMS_3 = \sum \frac{\partial^2 \alpha_t}{\partial^2 x_3} = 600 + 150 + 0 = 0 \quad (19)$$

Forming the matrix representation of the expressions (17), (18) and (19), we obtain a social protection sub-structure (SS) final result equal to 18,000,000.

$$SS = \begin{bmatrix} 0 & 150 & 100 \\ 600 & 0 & 100 \\ 600 & 150 & 0 \end{bmatrix} \quad (20)$$

Inserting expression (20) into (21), we estimate the Helix-1 basic coefficient  $H_1$ :

$$H_1 = 1 - \sqrt{\frac{1}{\log SS}} \quad (21)$$

which is 0.63. Then, we calculate the minimum social protection fund  $\lambda$  in equation (13):

$$MSPF = \lambda = 600 \times 0.63 + 150 \times 0.63 + 100 \times 0.63 = 535.50 \quad (22)$$

The above results suggest that the minimum monthly average fund requirements for the social protection fund amount to RM 535.50, contributions paid by approximately 18 million members. Similarly, the social security micro-structure maximum values  $MS_1$ ,  $MS_2$  and  $MS_3$  are RM 757.50, RM 591.00 and RM 572.50, respectively:

$$MS_1 = \frac{\partial \lambda_t}{\partial x_1} = 600 + 150 \times 0.63 + 100 \times 0.63 = 757.50 \quad (23)$$

$$MS_2 = \frac{\partial \lambda_t}{\partial x_2} = 600 \times 0.63 + 150 + 100 \times 0.63 = 591.00 \quad (24)$$

$$MS_3 = \frac{\partial \lambda_t}{\partial x_3} = 600 \times 0.63 + 150 \times 0.63 + 100 = 572.50 \quad (25)$$

Then, we obtain the social protection sub-structure (SS) for Helix-1:

$$SS_t = \frac{\sum_{i=1}^3 MS_i}{3} = 640.00 \quad (26)$$

and inflection critical point

$$\sigma = \frac{MS_1}{MS_2} \times \frac{MS_1}{MS_3} \times 100\% = 170.00 \quad (27)$$

Expression (27) indicates the minimum contributions of RM 170 are required to paid by the active Malaysian workforce (between 18 years and 60 years old) illustrates the NSPF sustainability benchmark of attaining its medium- and long-term objectives.

The Minimum Education Fund (Đ) is a single equation that evaluate how much Malaysian parents must pay each month in the future for the high school education of each child (see Expression 28). The equation depends on two variables, namely, the minimum education monthly spending ( $\beta_1$ ) and the minimum salary monthly ( $\beta_2$ ), both expressed in real terms:

$$MEF = Đ = \beta_1 y_1 + \beta_2 y_2 = 0 \quad (28)$$

with values 100 and 150, respectively. Differentiate expression (28) with respect to  $y_1$  and  $y_2$

$$\frac{\partial Đ_t}{\partial y_1} = 100 + 150 y_2 = 0 \quad (29)$$

$$\frac{\partial Đ_t}{\partial y_2} = 100 y_1 + 150 = 0 \quad (30)$$

The second differentiation of the expressions (29) and (30) build the final social protection sub-structure (SS) in Helix-2:

$$MS_1 = \sum \frac{\partial^2 \beta_t}{\partial^2 y_1} = 0 + 150 = 0 \quad (31)$$

$$MS_2 = \sum \frac{\partial^2 \beta_t}{\partial^2 y_2} = 100 + 0 = 0 \quad (32)$$

Forming the matrix representation of the expressions (31) and (32), we obtain a social protection sub-structure (SS) final result equal to 15,000.

$$SS = \begin{bmatrix} 0 & 150 \\ 100 & 0 \end{bmatrix} \quad (33)$$

Inserting expression (33) into (34), we estimate the Helix-2 basic coefficient  $H_2$ :

$$H_2 = 1 - \sqrt{\frac{1}{\log SS}} \quad (34)$$

which is 0.51. Then, we calculate the minimum social protection fund  $SS_T$  in equation (35):

$$SS_T = 100 + (150 \times 0.51) + (100 \times 0.51) + 150 = 188.75 \quad (35)$$

The above results suggest that the minimum monthly average fund requirements for the social protection fund amount to RM 188.75, contributions paid by approximately 18 million members. The national social protection fund (NSPF) is given by the following formula:

$$NSPF = \left\{ 1 + \left[ \sqrt{(H_1)^2 \times (H_2)^2 \times 100\%} \right] \times Y \right\} \times (1 - R) \quad (36)$$

where Y represents the collectable contribution years and R represents the risk rate. Holzmann (2014) found that only one third of EPF members with active positive balances have sufficient accumulated savings at retirement, with 73.2% with balances less than RM 50,000 (Asher, 2012). The aforementioned connotations imply that there is approximately a probability of 73 percent of the Malaysian active population that is either no longer able or not willing to pay – in partial or in full – their contributions. Then, the calculation of the expression (36) is

$$\begin{aligned} NSPF_{no\ evasion} &= \left\{ 1 + \left[ \sqrt{(1 + 0.63)^2 \times (1 + 0.51)^2 \times 100\%} \right] \times (1) \right\} \\ &= 3.22 \end{aligned} \quad (37)$$

$$\begin{aligned} NSPF_{evasion} &= \left\{ 1 + \left[ \sqrt{(1 + 0.63)^2 \times (1 + 0.51)^2 \times 100\%} \right] \times (1) \right\} \times (1 - 0.73) \\ &\approx 0.87 \end{aligned} \quad (38)$$

The optimal value of the NSPF is RM 3.22 billion on average in real terms<sup>1</sup>. The significant reduction of the NSFP value due to contribution evasion amount to RM 0.87 billion per year, which is translated for the Malaysian government an annual injection of additional funds RM 2.35 billion.

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<sup>1</sup> Authors do not take into account interest and inflation rates, *ceteris paribus*.

## **5. Concluding Remarks**

In view of the complex and diverse challenges provident systems are experiencing, it would be appropriate to engage various forms of normative action that correspond to the EPF's needs and objectives. Study findings undoubtedly provide insightful connotations in this respect, justifying a series of specific policy initiatives. The switch-status of EPF fund from a pension vehicle to an integrated multi-pillar funds with assistance features can help the vulnerable Malaysian populations groups in the short run. Furthermore, additional mandatory contributions will greatly affect retirement finances and it can therefore be expected to affect savings significantly and prevent poverty in old age. Household lifecycle disposable low-income will be increased by the amount of pension payments received after retirement.

Finally, the financial sustainability of NSFP requires additional per capita monthly contributions amount to RM 415.00. The inclusion of the foreign workforce – 1.5 million workers – is mandatory. Poverty reduction requires the transformation of the informal sector of Malaysia into a sustainable formal sector: a poverty annual cut by 35 percent can lead to a minimum monthly pension of RM 2500.00.

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His research, which has been published extensively in journals such as Journal of Policy Modeling, Disasters, Quality and Quantity, Singapore Economic Review, Panoeconomicus, Contemporary Economics, Defense and Peace Economics, Procedia Computer Sciences, Malaysian Journal of Economic Studies, Malaysian Journal of Science, and books, that revolves around policy-oriented topics relevant for worldwide long-term development, including policy modeling, natural disasters evaluation, war and border conflicts, social security, and food security issues.

### **EVANGELOS KOUTRONAS**

Evangelos Koutronas is a junior research fellow at the Social Security Research Centre (SSRC), University of Malaya. He holds a PhD in Economics with concentration in Social Security from University of Malaya. His research interests span a wide range of topics, including social security, economics of terrorism, natural disasters, war game theory, mathematical economic modelling, and labor economics.

He specializes in business, financial and economic analysis. He has an overall 10-year working experience with significant exposure to a wide variety of business fields. He graduated with Bachelor of Science as well as his first Master in Business Administration with concentration in Finance from University of La Verne, California and his second Master in Economics with concentration in Financial Economics and International Trade & Economics from West Virginia University, both in United States. Throughout his

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### **DONGHYUN PARK**

Donghyun PARK is currently Principal Economist at the Economics and Research Department (ERD) of the Asian Development Bank (ADB), which he joined in April 2007. Prior to joining ADB, he was a tenured Associate Professor of Economics at Nanyang Technological University in Singapore. He has a Ph.D. in economics from UCLA, and his main research fields are international finance, international trade, and development economics. His research, which has been published extensively in journals and books, revolves around policy-oriented topics relevant for Asia's long-term development, including the middle-income trap, service sector development, and financial sector development. He plays a leading role in the production of Asian Development Outlook, ADB's flagship annual publication.

### **NORMA MANSOR**

Norma Mansor is the Director of SSRC, a position she holds since 2013. She is a professor at the Department of Administrative Studies and Politics, Faculty of Economics and Administration, University of Malaya where she served as the Dean from April 2004 to June 2009. She was appointed as Secretary of the National Economic Advisory Council in Prime Minister's Department from July 2009 to May 2011. She was a Ragnar Nurkse Visiting Professor at Tallinn University of Technology, Estonia in 2015. Prior to these appointments, she has served as advisor and consultant to various government bodies and private organizations which include The National Institute Of Public Administration (INTAN), Sarawak Economic Development Corporation (SEDC), Federal Agricultural Marketing Authority (FAMA), The United Nations Development Programme (UNDP), World Bank, International Labor Organization (ILO), Organisation for Economic Co-operation and Development (OECD) and the European Union (EU).

Her research interest includes public policy, governance and social protection. She has written extensively in books and scholarly journals. She sits as Editor in Chief of Institutions and Economics Journal, Member of Editorial Advisory Board of Public Management and Money and guest editor to several academic journals.

## **Recent Publications**

- No. 2014-1 :** Social Security: Challenges and Issues
- No. 2014-2 :** Social Security in Malaysia: Stock-take on Players, Available Products and Databases
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