



## The Reverse Mortgage of Farming Assets as a Viable Option for Rural Welfare\*

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This study evaluates the viability of a new method to improve the farmland pension (FP) in Korea so that useful policy implications can be formulated for providing a feasible option for rural elderly welfare. In order to do this, it conducts an analysis of simulated data on the “farming-asset pension”(FAP) as the reverse mortgage of farming assets as a pilot study. Then, based on the results, this study evaluates its economic feasibility and discusses analytically derived policy directions for post-urbanization welfare improvement especially for the rural elderly. If this new model continues to turn out viable for alleviating the “aging” rural elderly’s poverty in changing rural and policy environments, the handed-over land in the near future can also be systematically divided and integrated for large-scale production. Through this procedural innovation, “aging” rural economies can then be revitalized with the FAP as an integrative system of gradually helping (urban to) rural immigrants settle down (in amenable rural communities) and participate in agribusinesses in this age of “post-urbanization.”

**[Key Words: farmland pension, farming-asset pension, rural elderly welfare, post-urbanization]**

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## I . INTRODUCTION

Over decades since the late 1950s the rural-to-urban migration of baby boomers was a great opportunity to more or less welfare improvement in many developing countries(Giles et al., 2011; Douglas, 2013). More than fifty years later, their overall well-off aged baby boomers in “grown” urban and “left” rural areas now share a problem of retirement. The present problem is that most of them did not devote much of time in preparing their life after retirement even in such rapidly developed countries(Giles et al., 2011; Lee, 2008).

At present, facing the “elderly-boom,” which means the massive retirement of “post-1945” aging baby boomers, such lack of preparedness in both rural and urban areas leads to the common problem of mismatching - which is more problematic in rural areas, though - between their retirees’ eligibility to pension benefits and retirement age especially in many Asian developing countries(Giles et al., 2011). Specifically, for urban areas, this mismatch is between the ages of eligibility and “mandatory” or “pressurized” early retirement. Now many urban elderly boomers have their own more expensive house(s) (than rural houses) but they cannot help retiring or entering phased retirement. This is problematic in terms of the termination of homeowners’ income despite their remaining productivity. Recently, housing price decreases have made this more problematic because of the abrupt decrease in urban elderly baby boomers’ asset in addition to income.

For rural elderly living in their own cheaper houses, in comparison, the mismatch is between the ages of eligibility and “inevitably continued” self-employment without retirement. It is problematic in terms of the continuation of home-and-land owners’ labor despite their willingness to retire and declining productivity. To make matters worse, ceteris paribus, the natural decline in productivity according to the decreasing physical workability of “aging” baby-boomer peasants is inevitable. Of course, this is likely to lead to a decrease in their income as a funding source for sustaining their (minimum) welfare

standards. As income as well as post-retirement options for the rural elderly decrease, the social security of this aging cohort becomes threatened.

In order to amend those rural mismatches the South Korean government has recently implemented the reverse mortgage of farmland(hereafter, farmland pension or FP) for rural areas since 2011, after the implementation of the reverse mortgage of houses(hereafter, housing pension or HP) in 2007. In particular, the farmland policy is intended for improving the welfare for the rural elderly, whose poverty is severer than urban elderly and needs to be understood and analyzed from the viewpoint of the society rather than individuals(Choi, 2010; Lee & Lee, 2010). Although its real implementation was possible especially because rural land prices (were expected to) rise, the launch of the FP suggests that the government has just begun to financially care for aging rural workers while the HP is applicable mostly for urban areas whose house prices and growth rates are much higher (at least until the housing boom prior to 2007).

In line with the FP policy, this article investigates the appropriate method to manage and improve it to “farming-asset pension” (FAP) in Korea so that useful policy implications can be formulated for an integrative approach toward rural-urban pension systems in this age of “post-urbanization.” In order to do this, based on the results of an exploratory analysis of simulated data on the FAP, this study discusses analytically derived policy orientations for rural welfare improvement in the perspective of caring “aging” regional economy and welfare. If the FAP model turns out viable for alleviating the “aging” rural elderly’s poverty, the handed-over land can also be systematically divided and integrated for large-scale production in the near future. Based on this procedural innovation, “aging” rural economies can then be revitalized with the FAP as an integrative system of gradually helping “post-urbanization” (urban to) rural immigrants settle down and participate in agribusinesses.

## II. THE THEORETICAL DEVELOPMENT OF THE “FP” AND ITS BASIC MODEL

Recently, Alonso et al.(2013), Bertocchi et al.(2010), and Melanie(2008) have highlighted reverse mortgage as a viable instrument for pension. Although there are some international differences in the specific plan or institution of mortgage contracts, a new perception of the importance of reverse mortgage as a viable pension plan suggests that existing post-retirement options or plans are overall insecure. In addition, unless an effective measure is provided to prevent longevity-driven funding shortfalls in the coming phase of population ageing, conventional reverse mortgage may become vulnerable to a more serious longevity risk (regardless of urban or rural areas).

Without any pension income, in particular, the income-decreasing and long-lived post-1945 baby boomers' welfare has become more dependent on their own decreasing equity over the world (Bokhari et al., 2013; McConnell, 2012; Chiuri & Jappelli, 2010). In order to address this long-lived cohort whose real estate value has decreased due to the decreasing housing demand according to the largest cohort's aging and retirement (especially after the post-subprime recession), Korea's recent governmental efforts led to the launch of the HP for the urban elderly in 2007. In the same context, the introduction of the FP for the rural elderly was made in 2011.

Facing the start-up massive retirement of baby boomers, a line of previous studies on “farmland reverse mortgage” or simply FP(Cho et al., 2008; Yeo & Cho, 2010; Im & Cho, 2011; Kim et al., 2012) have recently developed from Korea. Over the world it is widely known that copious studies have addressed the mortgage and reverse mortgage of houses, but this line of FP studies are noticeable among them as an academic and policy movement toward ensuring household pension income for the rural elderly. To put it simply, the FP is the reverse mortgage of farmland and is originally developed from the foundational

study, Ha & Cho(1997), which dealt with the framework of the life-time housing model (LTHM).

The LTHM was suggested to integrate the mortgage and reverse mortgage of housing. Before retirement, a worker can secure his or her homeownership through a mortgage loan against financial institutions. After retirement, (s)he can secure his or her pension income through the reverse mortgage of owned housing against them as well. Although the determination of interest rates and repayment methods should differ according to market and institutional characteristics and welfare considerations, this integrative approach shed a light on the coupling of human life and asset cycles over a lifetime.

The FP is developed from the LTHM approach in order to ensure the provision of asset-based income options to the rural elderly over their post-retirement life when regular income could decrease to the level below “minimum living expenses.” Increasing rural immigration in post-urbanization can also be a factor to sustain the level of farmland value(Yeo & Cho, 2010), and this makes more advantage for more stable rural land as a mortgage, compared to more fluctuating urban housing prices. In the past, the out-migration from rural areas simply meant an avoidable decrease in rural land value and labor. At present, however, although a certain level of natural decrease is inevitable, the improvement in land use and zoning systems and the replacement of human labor with productive agricultural machines could also compensate such a decline of labor(Ha et al., 2012).

Such improved productivity and transportation now lead to the more increasing rural land demand by increasing “post-urbanization” rural migrants who want to spend the rest of life in enjoying rural life rather than physically laboring(Cho et al., 2010). Rural land’s trade off with the value of urbanized land (in rural areas) is also a positive factor to such increased demand(Ha et al., 2012). All these trend and circumstances could help innovative researchers and policy developers develop so-called a “lifetime asset model” for rural communities, which is integrative to agribusinesses, if a viable model of managing farming assets in a lifetime pension framework like the LTHM can be successfully designed. In this

regard, this study focuses on analyzing and evaluating such viability as a pilot study.

Considering the circumstances above, the Korean government implemented the FP for rural areas since 2011 after the implementation of the housing pension (HP) in 2007. The actuarial model of basic annuity plans for managing the FP, which was developed in Cho et al.(2008), is as follows:

$$PVMIP = UP_0 + \sum_{t=1}^{T(a)} \frac{mip_t \cdot p_{a,t}}{(1+i)^t} = \sum_{t=1}^{T(a)} \frac{\max((OLB_t - L_t)q_{a+t}, 0) \cdot p_{a,t}}{(1+i)^t} = PVEL, \quad (1)$$

where

$PVMIP$  = Present value of total projected mortgage insurance premium

$PVEL$  = Present value of expected losses

$UP_0$  = Up-front mortgage insurance premium at  $t = 0$

$T(a)$  = The number of months left for the borrower living until 100 years old

$mip_t$  = Projected monthly mortgage insurance premium at  $t$ :

$$mip_t = (OLB_{t-1} + PMT) \times m$$

where  $PMT$  = The annuity payment (constant monthly payment);

$m$  = Percent of monthly mortgage insurance premium

$OLB_t$  = Expected outstanding balance at  $t$ :

$$OLB_t = (OLB_{t-1} + PMT + mip_t) (1 + i)$$

$L_t$  = Expected farmland value at  $t$ :

$$L_t = L_0 \times (1 + g)^t$$

$g$  = Average farmland value rising rates

$q_{a+t}$  = The probability of loan termination at age  $a + t$

$p_{a,t}$  = Loan survival probability for the borrower at age  $a$  living until age  $a + t$

$I$  = Interest rates (discount rates).

### III. THE ACTUARIAL MODEL OF THE “FAP”

Although the annuity plan which was formulated in Equation (1) is basic, it has a strong point as an extensible model to reflect variable conditions according to

financial, economic, and demographic changes. Interest rates, land price changes, and survival probabilities can be adjusted by different statistical or probability assumptions and modeling. Based on previous analytical studies on the FP, in this section, this article suggests an extended model of the basic model, which is developable as a basic annuity plan for the FAP.<sup>1)</sup> The FAP liquidates not only farmland but also other farming assets like farmhouses or farming buildings (and the land upon which they are built).

By this simply extensive conceptualization and operationalization, the present study improves the existing “farmland” model, which was analyzed in Yeo & Cho(2010) and Kim et al.(2012), to the “farming-asset” model. In order to derive managerial implications for appropriately liquidating the farmland asset, Yeo & Cho(2010) focused on the economic variable, land price change, and tried to make a long-term forecast of rural land prices. The study compared the estimates of land price by the ARIMA(Autoregressive Integrated Moving Average) model and the actual value of past time-series data, and applied the constraint of the results to the Monte Carlo simulation of the future price of the land whose pension income is adjusted by Equation (1) under different probability assumptions. Its analytical results suggested the stochastic value of land price can be lower than its deterministic value in 20 out of 100 percent, which implied a need for further rigorous analyses and planning of that 20-percent risk.

Focusing on the financial aspect as well as economic considerations, Kim et al.(2012) then did an analysis to predict the risk which the lender bears according to interest rate changes. Kim et al.(2011) found the certificate of deposit(CD) rate is appropriate for building annuity plan to consider the coupling of stable and bearable characteristics of pension benefits (as one of the social security measures) with the rural elderly demand for the more repayable mortgage

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1) After Ha & Cho (1997), two lines of studies have developed. The first one is the HP and the other one is the FP. The discussion of the former was activated by Im and Cho (1999), Cho et al. (2000) and Cho and Ma (2003; 2004; 2007) and lead to the implementation of the HP programme in 2007. The development of the latter is made through the studies that were briefly introduced in Section 2.

premium. Table 1 summarizes the results that were analyzed for the years 2001 to 2010 in Kim et al.(2011). The 91-day CD rate is most stable as for its standard deviation(1.13), which is quite lower than 3-year government bond(GB) and 3-year corporate bond(CB), and its nominal rate is also much lower than the others. Let alone this stable and bearable characteristics, Theil's  $U$  as a statistic to measure the precision of forecasting also shows that only 91-day CD is lower than unity, which suggests a numerically good applicability for the sake of statistical forecasting.

Table 1. Average Expected Rate and Stability

	91-Day CD	3-Year GB	3-Year CB
Annual Average Rate (%)	4.78	5.25	6.18
Standard Deviation	1.13	1.30	1.49
Theil's $U$ *	0.98	1.01	1.01

\* Statistically significant in forecasting when less than unity.

Based on the findings in previous studies of the “farmland” pension above, this article proposes an integrative model of “farming-asset” pension(FAP). The farming-asset pension also shares its approach to the coupling of asset and life cycles for welfare improvement with the LTHM. Its difference to the farmland pension is that it is the reverse mortgage of farming assets, not just of farmland. The extension of mortgage to the assets other than farmland is considered regarding the following two reasons. First, it extends the option of pension benefits whose source is limited to farmland. In the case of the HP, a house is a pledge other than land but is applicable mainly to urbanized areas whose house prices are higher. Meanwhile, in the case of the FAP, a house and/or building on, around, or near farmland can be approached as a rural asset. Second, such extension is also expected to help “post-urbanization” rural migrants settle down (by renovating, remodeling, or adaptively reusing such facilities) so that they can actively participate in the large-scale and systematic production of agribusiness

through their experience in urban businesses.

Mathematically, the actuarial model of this FAP is based on Cho et al.(2008) and incorporates a landowner's housing or building with farmland by introducing the term of "depreciated value at time t," denoted by  $D_t$  in the equation below:

$$PVMIP = UP_0 + \sum_{t=1}^{T(a)} \frac{mi p_t \cdot p_{a,t}}{(1+i)^t} = \sum_{t=1}^{T(a)} \frac{\max((OLE_t - L_t - D_t) q_{a+t,0}) \cdot p_{a,t}}{(1+i)^t} = PVEL, \quad (2)$$

where

$D_t$       *Depreciated value of the farm house and/or building at t.*

Based on the basic annuity model of the FAP above, the following section is to deal with the data and its analytical results of the FAP in order to formulate analytically derived policy implications for post-urbanization welfare improvement in Korea and possibly in developing countries.

## IV. DATA AND ANALYSIS

### 1. Data

The primary data source for the farming asset model is from the statistical table provided by the Korea Land and Housing Corporation. The table summarizes the percent change of regional and national land price for the years 1987 to 2012. The original data is constructed quarterly until 2004 and made monthly since January 2005. Kim et al.(2012) selected Gyeongbuk Province whose 57,000 parcels of farmland can be estimated by its empirical data and whose farmland area is the largest among 17 Korean provinces.<sup>2)</sup> The analysis in Kim et al.(2012), however,

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2) As of 2010, Gyeonbuk Province shares 15 percent of the total national farmland, 5.9 percent of regional

had some problem of precision because the quarterly figure was divided by 4, i.e. the number of one-seasonal months.

This study used the most recent “monthly” data of “national” land price changes per se, e.g., for the years 2005 to 2012. Figure 1 shows the time-series percent change of national and Seoul(the capital) land prices. As the values in Table 2 suggest, national land price is also observed to have less risen and its standard deviation is lower than Seoul land. In Table 3, this pattern is also similar while difference between the national and Seoul’s means is smaller and difference between their standard deviation is larger than in Table 2. This suggests housing prices are more variable and responsive to external changes. In addition, comparing Figures 1 and 2, the gap between national average and Seoul’s value is more distinguishable.

Table 2. The Descriptive Statistics of the Changes of National and Seoul Land Prices

Region	Land Price Monthly Percent Change 2005 to 2012	
	National	Seoul
Mean	0.188	0.243
Standard Deviation	0.406	0.598

Table 3. The Descriptive Statistics of the Changes of National and Seoul Housing Prices

Region	Housing Price Monthly Percent Change 2005 to 2012	
	National	Seoul
Mean	0.324	0.340
Standard Deviation	0.473	0.765

production (national average: 2.7 percent), and 23.4 percent of regional workers (national average: 7.0%) (KOSIS 2011). Although Gyeongbuk Province does not represent the whole country, these figures suggest that it can be a model region to which the analytical and practical application of the FAP annuity plan can be made, so that rural welfare and economic implications for other parts of the country are drawn from it.

In light of the figures in Table 2, the lower value than the national average, e.g., 0.15%, was applied to the FAP actuarial model, considering the existing FP model uses the “publicly announced land price” by the government, which is usually much lower than the real transaction price (used for the HP). This lower monthly growth rate also considers the fact that the overall decreasing rate of growth over time, which is categorized into “the S curve”(Kim 2007), and trends of aging and overall recession after the sup-prime mortgage crisis. Of course, such smaller variability, as in the national land price, is also preferred regarding not only statistical stability to minimize the financial risk but also aging rural residents’ demand for a more bearable insurance premium, which can be enlarged according to socioeconomic circumstances or unstable interest rates.

Figure 1. National and Seoul Land Price Changes

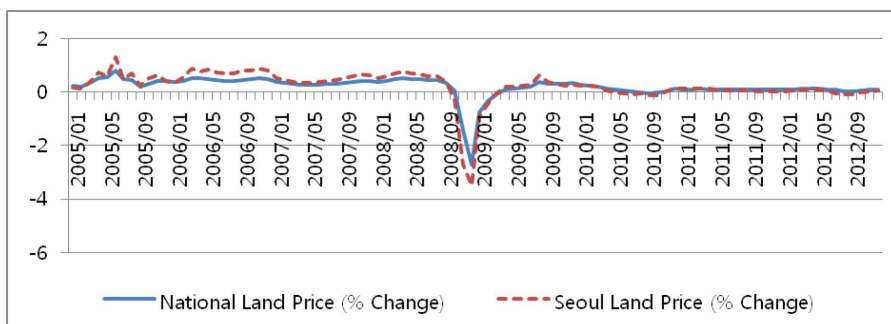


Figure 2. National and Seoul Housing Price Changes

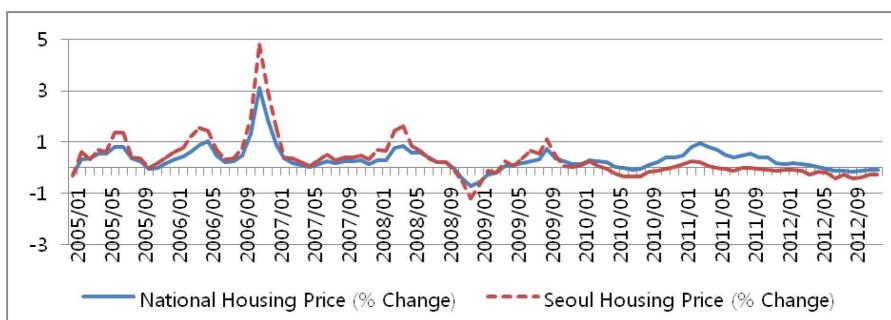
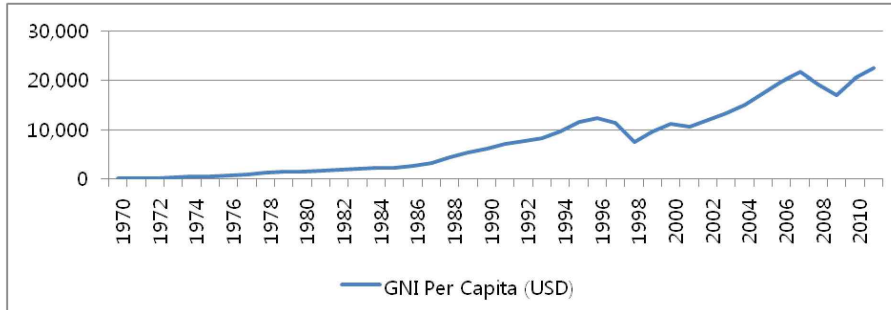


Figure 3. National Per Capita Income Changes (Gross National Income)



## 2. Considering aging mathematically

### 1) Estimating Monthly Loan Survival Probability

The table of mortality rates which is released by the National Statistical Office of Korea is used for estimating the monthly loan survival probability. In estimating monthly loan survival probability, 20% is considered as other loan termination reasons except for in the case of death.<sup>3)</sup> The information is based on the number of survivors per 100,000 people in each age group in the mortality table to estimate the loan survival probability. It can be calculated through the following equation(Cha & Jung, 2008).

$$L_{x,t} = (S_{x,t} / S_{x,0})^{1+m} \quad (3)$$

$L_{x,t}$  = loan survival probability at  $t$

$S_{x,t}$  = the number of survivors since age  $x$  until  $t$

$x$  = eligible age for FP = 65

$t$  = years after the borrower joins with FP

$m$  = loan termination probability except for in the case of death = 0.2

3) Cha & Jung (2008) considered 30% as other loan termination reasons except for in the case of death as Home Equity Conversion Model (HECM) for the housing reverse mortgage in the U.S does.

The monthly loan survival probability when the borrower joins the FAP is set to be 1. The entry loan termination probability is set to be 0. At each age after the borrower joins the FAP at the age of 65, the monthly loan survival probability is calculated as the number of survivors per 100,000 people at each year ( $t$ ) is divided by the number of survivors per 100,000 people at the year when the borrower newly joins the FAP (0). Considering other reasons except for in the case of death, 1.2 times is applied to consider the loan termination probability.

## 2) Estimating Loan Termination Probability

The monthly loan termination probability is calculated by the following equation that calculates the estimated annual loan survival probability using Equation (3).

$$D_t = L_{x,t} - L_{x,t+1} \quad (4)$$

As in Equation (4), the monthly loan termination probability at the age of 65 is the value that the loan survival probability at the age of 66 is subtracted from that at the age of 65.

## 3) The Basic Factors Applied to the Model

In order to estimate the monthly payment ( $PMT$ ), basic variables in Table 4 are applied to the actuarial model and the trial-and-error method is used to find out whether  $PMT$  meets the condition that  $PVEL$  equals to  $PVMIP$  or minimizing the value that  $PVEL < PVMIP$ .

Table 4. Basic Variables Applied to the Actuarial Model

Factors	Definition
Up-front Mortgage Insurance Premium	2% of farmland value
Monthly Mortgage Insurance Premium	$(OLB_{t-1} + PMT) \times 0.5\% / 12$
Monthly Interest Rate	6.78% (Interest rate for the certificate of deposit 4.78% + 200-basis-point spread) /12
Monthly Farmland Price Change (%Δ)	2.87% / 12
Monthly Loan Termination Probability	Loan survival probability at $t -$ Loan survival probability at $t+1$
Monthly Loan Survival Probability	(Loan survival probability) <sup>1,2</sup>

As an up-front insurance premium, 2 percent of the farmland value is applied and 0.5 percent divided by 12 (months of outstanding balance as monthly insurance premium) as the usual HECM does. The average CD interest rate (annually 4.78 percent) as the most stable interest rate is applied, based on the past data of CD, GB, and CB rates, and 200 basis points as spreads was applied in consideration of minimum hedges against declining real land prices or rising interest rates and the use of the “publicly announced land price.” To calculate the loan survival and termination probabilities, the values of the Complete Life Table in the National Statistical Office of Korea are applied per se.

#### 4) Depreciation Method

The depreciation method to be used in estimating the future asset price is the straight line method. This method is most fundamental and widely used in the Modified Accelerated Cost Recovery System, the present tax depreciation system in the United States. Under the assumption of no critical difference between American and Korean rural houses' natural and physical durability, the criteria of the straight line method is also applied to this study. In simulation, the depreciated value of the property at the end of the mortgage contract is set 0. The entry value of the property is set USD 20,000(approximately equivalent to 20,000,000 in Korean won, depending on the exchange rate).

## V. DISCUSSION ON THE ANALYTICAL RESULTS

The payoffs value is estimated using the Newton-Raphson method for the entry year of 65, 75, and 85. Considering the average value of rural housing as specified in the Census of Agriculture, Forestry, and Fishery 2010, the entry price of housing and/or building is set USD 20,000 and the entry price of farmland is set USD 100,000. The land price change itself is simulated using the Monte Carlo under the assumption of the “truncated” normal distribution, where the values of the random variable are constrained to be positive and  $0.005 \times 10^{-4}$  as a threshold upper bound at the right end over the average, based on the integrative estimation of the ARIMA model and Monte Carlo simulation in Yeo & Cho (2010).

The estimation results are summarized in Table 5. As discussed in Kim et al.(2012), the results show different *PMT* values according to interest rates and entry ages. This level of *PMT* values are above, for example, 65-year-old person’s rental income of land per 100 m<sup>2</sup> but below his or her earned income from laboring according to Kim et al.(2012). Considering Kim et al.’s(2012) results represents the payoffs for the FP model under the almost same condition, the results in Table 5 strongly support the rationale of liquidating not only farmland but also other farming assets like farmhouses or farming buildings (and the land upon which they are built) need to be considered. Most important, the payoff values for the ages of 75 and 85 exceed Korea’s per-household-member minimum living expenses, e.g. 570 US dollars.

Table 5. Payoffs Value of the PMT for the Entry Ages of 65, 75, and 85  
(200–Basis–Point Spread)

Entry Age	65	75	85
Monthly Annuity Payment (USD)	279.591	585.285	765*

\* This solution is still variable under the iteration of 10,000 while the others are the converged values.

Methodologically, it should be noted that the payoff values of the land price and the expected outstanding balance can change according to different assumptions or constraints. Since the “break-even” point can be changed by introducing different rates of interest, land price change, depreciation, the optimal point for benefiting both the rural elderly and financial institutions in charge should be reached by more rigorous modeling with well-specified constraints. Therefore, in order to develop the FAP model toward the comprehensive pension system of farming assets that can contribute to improving rural welfare where “post-urbanization” workers have just begun to return, it can be said that this constraint problem needs to be solved in order to manage the FP and FAP efficiently and effectively.

## **VI. CONCLUSION AND A PATH TOWARD THE FAP MANAGEMENT SYSTEMS**

Farmhouses and/or farming buildings can be an additional hedge against real land value decreases and/or rising interest rates, and this study has tested and evaluated how this additional hedge can extend the viable options to the post-1945 baby boomers to become “aging” rural elderly soon. The results support the viability of FAP options as a pension instrument for the rural elderly. Among the FP, FAP, HP, or other conventional reverse mortgages, in addition, it is more advantageous to the FAP that the producing capacity of farming buildings as well as farmland can be sustained or increased even after its hand-over to rural migrants or large-scale producers. In this sense, the exploratory analysis of FAP payoffs in this study is expected to be the first step to consider such an advantage as a potential source for improving not only rural elderly welfare but also rural economy through the “extensible” FAP model. In the case of sales per square meter in further modeling, for example, an owner can voluntarily decide to

continue working on (some of) his or her farmland even while (s)he receives pension incomes. Hence, forgone productivity does not necessarily need to be considered in an individual perspective. Forgone productivity, however, should be considered in the model that productivity at a “regional” level can still increase by the comprehensive and large-scale management policy.

A realistic program in line with such a policy can include systematically divide and re-integrate handed-over farmland in this so-called “farming-asset pension” perspective, upgrading the GIS-based integrative farmland management system (that the authors have developed for the FP in 2010 before the launch of the FP: see Appendix) to an up-to-date comprehensive farming asset management system. So as to develop the FAP model as a cornerstone toward the comprehensive pension system of farming assets that can contribute to improving the welfare of the rural regions where “post-urbanization” immigration has just begun, thus, the constraint problems revealed in this article need to be solved for managing the FP and FAP efficiently and effectively and eventually for restructuring old-fashioned rural land management and for revitalizing stagnant rural economy as well. The realistic and detailed method to encourage post-urban rural immigrants to form the cooperative or unionized agribusiness and neighborhood communities in amenable rural communities should also be considered. In this regard, handed-over farmland and houses (with land around it) needs to be comprehensively developed in full consideration of the relationship with nearby existing communities and naturally-given sustainable amenities as well.

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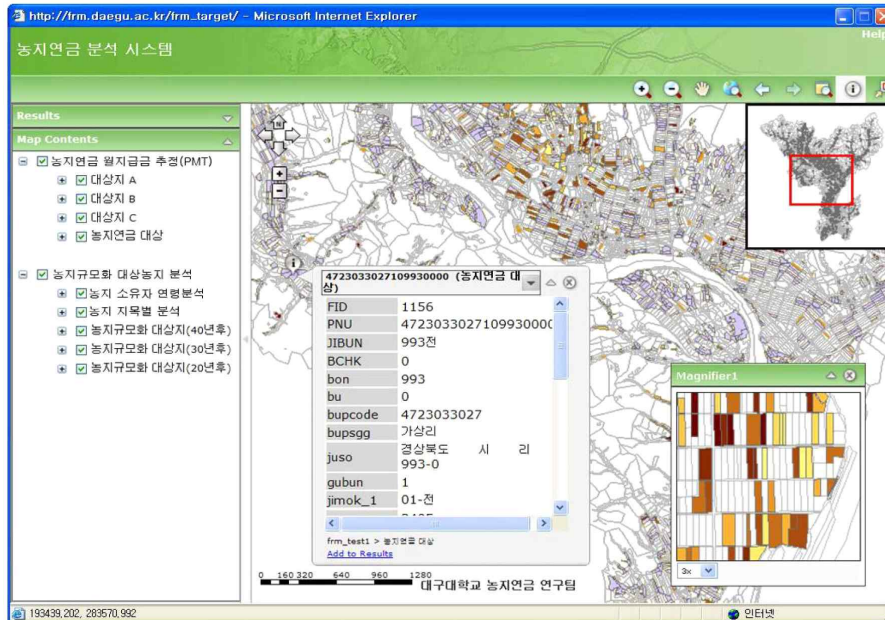
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## APPENDIX



GIS-Based Integrative Farmland Management System  
(A parcel-scale case in Gyeongbuk, Korea) [<http://frm.daegu.ac.kr>]

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## 농촌후생증진을 위한 농가자산연금의 타당성분석과 관리방안

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본 연구는 농촌복지향상의 관점에서 농지연금(FP) 개선의 실질적 옵션(viable option) 마련 가능성을 타진하기 위한 토대연구로서, 이론적·정책적으로 새롭게 개발한 농가자산연금(FAP)의 타당성을 기술통계와 몬테카를로 시뮬레이션 분석결과를 토대로 평가하였다. 기술통계와 시뮬레이션 결과는 연금의 대상에 농가자산이 포함될 때 농가의 지급금을 효과적으로 증가시킬 수 있을 뿐만 아니라 (정책적) 금융기관은 추가적 헤지(hedge)를 통한 운용의 안정성 증기를 동시에 충족시킬 수 있는 것으로 평가되었다. 이러한 농가자산연금의 보완성은 단순한 농촌노인의 복지향상을 넘어 농촌복지(rural welfare)에의 포괄적인 경제적·정책적 의미를 지닐 것으로 보인다. 무엇보다 현재 증가중인 귀농수요와 역도시화(post-urbanization)에 따라 귀속된 농지를 체계적인 교합·분합화하고 확보된 농가시설지 및 대지 등을 쾌적성(amenities)을 고려하여 개발함으로써 농업·농촌의 지속가능한 발전을 달성할 수 있을 것이다. 향후 농가금융·복지의 “생애자산모델”(lifetime asset model)의 기반으로 농가자산연금의 현실적 운용방안을 지속적으로 연구한다면, 영농규모화 현실화와 농촌산업경영(agribusiness)을 토대로 농촌경제 활성화의 중요한 전기를 마련할 수 있을 것으로 기대된다.

[주제어: 농지연금, 농가자산연금, 농촌노인복지, 역도시화]

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