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生命歷程重大事件對首次購屋內生性影響之世代間比較
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生命歷程重大事件對首次購屋內生性影響之世代間比較

摘要

由於住宅為昂貴之消費性財貨，具不可移動性且交易成本極高，因此購置住宅為個人重大之消費與投資性決策，並通常與結婚、生育小孩等生命歷程重大事件共同考量。早期相關研究採不連續選擇模型探討，無法考量家戶住宅決策之動態過程。近年來，部分研究以危險模型（Hazard Model）為研究方法，然而僅能檢視生命歷程重大事件之外生影響校果。生命歷程重大事件之中，相關研究認為結婚決策對首次購屋之影響最為明顯。本研究嘗試以『華人家庭動態資料庫，(Panel Study of Family Dynamics, PSFD)』之回溯性資料部分為資料主體，將研究樣本區分為青壯世代、中年世代與老年世代，運用多變量混合比例危險模型（Multivariate Mixed Proportional Hazard model），分別建構各個世代家戶購置住宅與結婚決策之聯合決策模型。

關鍵字：比例危險模型、多變量混合比例危險模型、華人家庭動態資料庫、購置住宅決策、結婚決策

Abstract

The housing tenure choice is among the one of the most important decisions that made by family for consumption and/or investment. However, ignoring the facts of dynamic and correlated process between the tenure choice and other important events in life course, previous studies discussed the issue as a short-tern decision, and were assumed to be independent from other events. Recently, some literatures used hazard model to capture the dynamic process. Unfortunately, they were not; still, take into account the endogeneity between housing decision and life course events. In this project, we would use the retrospective data selected from the pool of Panel Study of Family Dynamics (PSFD), and we would divide the respondents into three groups, including younger, middle-aged and older generation. We would use the multivariate mixed proportional hazard model to construct the joint decision model for each generation. We would focus on the endogenous effect of life course events on housing decision. Also, the comparison between generations would be another interest in this research project. After that, we would apply the model to examine the impacts of housing choice due to the change of family's socio-economic characteristics.

Key Word: Proportional Hazard model; Multivariate Mixed Proportional Hazard model; Panel Study of Family Dynamics; Housing Decision; Marital Decisoin

一、研究動機與目的

住宅為昂貴之消費性財貨，具不可移動性且交易成本極高。一般而言，家戶需經多年工作累積財富之後，才有能力購屋；且必須在家庭狀態與居住地點穩定的情況下，才有購屋的需求；而通常家戶在購屋之前亦會對住宅市場經濟狀況，進行長時間的觀察與評估。因此財富、家庭狀態以及住宅市場經濟狀況，為影響家戶首次購屋之重要因素。其中關於家庭狀態對購置住宅之影響效果，Kendig（1984）以住宅生涯（housing career）的概念進行分析。該研究認為隨著生命週期的演進，家庭狀態發生改變，使得住宅需求產生變化，家戶將進行住宅消費的調整。此一住宅狀態的調整之過程，即為住宅生涯。

相關研究認為住宅生涯的轉變與家戶生命週期的變化有明顯的相關性(Fenjten and Mulder,2002)，而 Clark et al.（2003）更認為家戶生命歷程重大事件之決策如結婚、生育小孩，與住宅生涯之決策，為共同之決策行為。意即家戶在進行結婚或生育小孩決策時，亦同時決定是否購置住宅或進行住宅消費之調整。Mok（2005）分析生命週期各階段，包括離開原生家庭、結婚與生育小孩，對住宅決策之內生影響效果。研究結果發現家戶在決定住宅權屬決策時，將同時選擇進入生命週期之某一階段。該研究認為生命歷程重大事件不僅是影響住宅權屬決策之因素，重大事件本身亦為家戶之重要決策，與住宅權屬決策為聯合決策（joint decision)。

生命歷程重大事件之中，相關研究認為結婚決策對首次購屋之影響最為明顯，包括 Clark et al.（1994）與 Clark and Dieleman（1996）以美國 PSID 之資料所進行分析；Kindig（1984）對澳洲所進行分析；Montgomery（1992）對法國所進行之分析；Feijten and Mulder（2002）與 Mulder and Wangner（2001）分別對荷蘭與德國所進行之分析。由於已婚家戶之穩定性較高，具有高度使命感，上述研究皆發現結婚對首次購置住宅呈正向影響關係。Baxter and McDonald（2005）探討澳洲年輕世代住宅自有率下降之現象，該研究認為其主要原因為初婚年齡延遲，年輕世代延後購置住宅所致。近年來，台灣地區平均結婚年齡逐年上升，是否年輕世代亦會延後購置住宅之行為？若答案是肯定的，表示結婚與首次購置住宅之決策為家戶之聯合決策；反之，分別為獨立之決策

此外，由於不同世代所經歷之時代背景與住宅市場經濟狀況有所不同。早期的台灣社會，基於傳統觀念的影響，可能將結婚視為必盡的義務與責任。因此家戶住宅行為與生命歷程重大事件的關係可能不高。但在歷經工業化與都市化的過程之後，價值觀改變與社會變遷的結果，年輕世代對於物質生活的渴望提昇對生活品質的要求提高。可能唯有當經濟穩定性提升，擁屋的能力提昇時，才會決定結婚。在住宅市場經濟環境方面，台灣近幾十年來經濟快速成長，人民生活逐漸富裕，在民國 50 年時平均國民所得僅為 137 美元；至民國 82 年則突破 10000 美元。此外，由於近年來金融自由化，購置住宅時貸款之成數與房貸利率，都較過去資金緊縮時期優惠許多，此對於年輕世代購置住宅應有正面影響。然而，由於經濟的成長帶動住

宅價格上漲，台灣歷經幾次住宅價格波動，在住宅價格大漲時期，家戶若尚未購置住宅，則其購屋行為將可能延遲。由於各世代所歷經之時代背景與住宅市場經濟狀況不同，家戶購置住宅之決策行為可能有所差異。本研究分別建立青壯世代、中年世代與老年世代之決策模型，藉以探討不同世代購置住宅行為之差異。本研究之研究目的包含下列幾點：

1. 以多變量混合比例危險模型，建構首次購置住宅與結婚之聯合決策模型。藉以探討結婚決策對於首次購置住宅決策之內生性影響效果。
2. 建構各個世代之聯合決策模型，分析並比較不同世代首次購置住宅決策行為之差異。

二、相關文獻回顧

隨著生命週期的演進，家庭狀態發生改變，使得家戶住宅需求產生變化，因此家戶將進行住宅消費的調整。此一住宅狀態的變動過程，即為住宅生涯。Kendig（1984）分析家戶由離開原生家庭至擁屋的過程與其生命週期的關係，並以住宅權屬狀態區分住宅生涯之各階段，將擁屋作為住宅生涯的頂點。相關研究以穩定性（stability）與使命感（commitment），解釋生命歷程重大事件與購置住宅之相關性（Fenjten and Mulder, 2002; Muldr and Wagner, 2001; Fenjten *et al.*, 2003 等）。關於家戶狀態穩定性之操作性定義，多數研究認為已婚且已生育小孩之家戶穩定性最高，其次為已婚夫婦，再其次為同居者，最後則為單身。就住宅狀態穩定性而言，由於購置住宅後換屋之交易成本極高，不利於再次遷移，因此一般認為擁屋之穩定性高於租屋。Mulder and Wagner（2001）認為在家戶狀態具高度穩定性，才會追求住宅狀態之高度穩定性。

此外，Feijten and Mulder（2002）以使命感來解釋生命歷程重大事件與住宅決策之關係，並將使命定義為生命中與另一個人進入長期狀態之決策，且此一穩定狀態不容隨便改變。就生命歷程各重大事件而言，使命感高低程度，由高至低分別為生育小孩、結婚、同居。生育小孩之後需負擔扶養與教育之長期責任與義務，我國民法規定『父母對於未成年子女之扶養義務，不因結婚經撤銷或離婚而受影響』。因此，一般而言生育小孩之使命感最高。此外，未婚者一旦選擇結婚，則男女雙方在法律上以及社會價值觀念上，將各自有必須負擔之責任與義務，且由於婚姻關係的結束通常是痛苦的、成本代價極高，因此，唯有在兩人關係穩定的情形下才會選擇結婚。就住宅生涯而言，擁屋隱含高度使命感之意涵，而租屋則隱含低度使命感。因為一旦購置住宅，遷離該住宅所花費之成本遠較租賃住宅為高。而若以貸款之方式購置住宅，遷離時勢必須與銀行解決權利義務的問題。Fenjten *et al.*（2003）認為進入生命歷程高度使命感程度階段者，在住宅生涯上也需尋求具有高度使命感的住宅狀態。

相關研究認為生命歷程重大事件與購置住宅決策之間具有高度相關性，而其發生時間點之先後，並不能全然反應這些決策的優先順序（Marini and Singer, 1988）。生命歷程重大事件之決策，與家戶住宅生涯之決策，兩者為共同決定之聯合決策行為（Mulder and Wagner, 2001、Feijten and Mulder,2002、Feijten *et al.*, 2003、Mok, 2005 等）。意即家戶在進行結婚或生育小孩決策時，亦會考量購置住宅之決策；反之亦然。生命歷程重大事件會影響擁屋決策，而擁屋亦可能加速生命歷程重大事件的發生。更進一步說，所得穩定性與兩人關係穩定性將對這些決策同時造成影響（Deurloo *et al.*, 1994; Mulder and Wanger,2001）。

近年來，台灣地區與西方先進國家皆發現平均結婚年齡逐年上升，致使首次生育之平均年齡亦隨之上升。Hughes（2005）認為其原因主要有二。其一為現實之經濟狀況讓年輕世代難以達到結婚所需之最低經濟門檻；另一為年輕世代對於結婚所需要之物質要求（material aspiration）提升。該研究認為物質要求之最佳衡量指標為是否擁有自有住宅，並進而探討擁屋對結婚決策之影響。實證結果發現擁屋與結婚決策之間有明顯關係，年輕世代以是否具備負擔自有住宅之能力，評估是否達到結婚所需之經濟門檻。Baxter and McDonald（2005）認為澳洲年輕世代住宅自有率下降之原因，主要與年輕世代初婚時間點延遲，而將購置住宅之行為延後有關。

若已婚家戶擁有自有住宅就社會期待而言是必要的，則擁屋對於男（女）性尋求婚配之好處將相當大。擁有自有住宅之必要性通常隨地方文化與社會規範而有所不同。部分西方國家由於長期習俗傳統與社會價值觀，強化家戶對於擁屋之偏好。因此普遍存在一特定規範，即『結婚需擁要自有住宅，若你目前尚無購置住宅之能力，則需等到你具備該能力，才能有結婚之計畫』（Mulder and Wagner, 2001; Forrest *et al.*, 1999）。此一規範通常存在於高住宅自有率的國家（Mulder, 2006），台灣地區亦可能存在此一現象。

三、研究方法

本研究以雙變量混合比例危險模型，建購置住宅與結婚之聯合決策模型。假設首次購屋之危險函數（$h_b(t_b|X,t_m,v_b)$），由可觀察變數（X）、虛擬變數（$I(t_b<t_m)$）與個人不可觀察之異質性（v_b）所構成，如（1）式所示。其中可觀察變數包括個人所得及財富因素與原生家庭社會經濟因素；$I(t_b<t_m)$為一隨時間而改變之虛擬變數，當 $t_b<t_m$ 表示結婚事件發生，其數值為 1，反之則為 0。首次購屋之危險率代表在 t_b 時間點之前未購屋，在 t_b 時間點購屋之機率。結婚之危險函數（$h_m(t_m|Z,v_m)$），由可觀察變數（Z），包括個人社會經濟背景因素與市場經濟因素；以及不可觀察之異質性（v_m）所構成。結婚之危險率代表在 t_m 時間點之前未結婚，在 t_m 時間點

結婚之機率。如（2）式所示。

$$h_b(t_b|X,t_m,v_b)=\exp(\psi(t_b)+\beta_b^{'}\cdot X+\delta\cdot I(t_m<t_b)+v_b) \quad (1)$$

$$h_m(t_m|Z,v_m)=\exp(\psi(t_m)+\beta_m^{'}\cdot Z+v_m) \quad (2)$$

由（1）式與（2）式，可分別推導出首次購屋機率密度函數（ $f_b(t_b|X,t_m,v_b)$ ）與結婚之機率密度函數（ $f_m(t_m|Z,v_m)$ ）。令 v_b 與 v_m 之機率分配函數為 $G(v_b,v_m)$ ，則在已知 X 與 Z 的情況下，t_b 與 t_m 之聯合分配機率密度函數如（3）式所示。若且為若 v_b 與 v_m 相關，結婚決策對於首次購屋將存在內生性影響（Van den Berg, 1997）。

$$f(t_b,t_c|X,Z)=\int\int f(t_b|X,t_m,v_b)\,f(t_c|Z,v_c)\,dG(v_b,v_c) \quad (3)$$

藉由不可觀察異質性之相關係數（ $\rho_{v_bv_m}$ ），即可分析購屋決策與結婚決策之內生性。目前亦有相當多的研究以此方法分析兩事件之內生性，如 Lillard and Panis（1996、1998）、Ng and Cook（1997）等。若較估結果 $\rho_{v_bv_m}$ 顯著大於零，表示購置住宅決策與結婚決策有正向關係，亦即結婚機率較高的人，則潛在購置住宅機率亦較高；反之，若 $\rho_{v_bv_m}$ 顯著小於零，則表示即結婚機率較高的人，則潛在購置住宅機率亦低。

四、基本資料分析

本研究以「華人家庭動態資料庫，Panel Study of Family Dynamics，簡稱 PSFD」為實證研究資料。該資料庫自 1999 年開始調查，目前已進行第五年計畫。PSFD 第一年計畫訪問對象為台灣地區 1953 年至 1964 年間出生的居民，第二年計畫為 1935 至 1954 年間出生之居民，第五年計畫為 1963 至 1977 年間出生之居民，該資料庫依據內政部戶政司所提供的戶籍資料進行面訪。本研究以已婚租屋家戶為研究對象，探討住宅決策與結婚決策之內生關係，並以經濟戶長第一次正式工作之時間點為該家戶住宅生涯之起點。本研究所需之重要資料-住宅價格指數自 1971 年才開始紀錄，因此本研究所採用的樣本為 1946 至 1975 年間出生之樣本，亦即在 2000 年時為 26 至 55 歲之樣本。基於研究對象之設定，本研究首先將未婚者之樣本刪除，繼而將結婚時已購屋或居住於原生家庭之樣本刪除。此外，本研究實證分析所需之變數資料，未能提供足夠資訊之樣本，例如回答不知道、沒有回答、或遺失等，亦一併刪除。最終本研究之有效樣本共 558 份，其中已購屋樣本共 427 份、未購屋樣本共 131 份。

表 1 為各世代已購屋家戶與未購屋家戶之基本統計量。本研究將經濟戶長年齡為 26-35 歲命名為『青年世代』；36-45 歲命名為『壯年世代』；46-55 歲命名為『中年世代』。中年世代已購屋比例為 87%，尚未購屋比例為 13%；壯年世代已購屋比例為 83%，尚未購屋比例為 17%。至於由於進入住宅生涯後，所觀察到之時間較短，因此該世代已購屋比例僅為 44%，尚未購屋比例為 59%。在生命週期因素方面，本

研究發現各世代結婚平均結婚年齡、第一個小孩出生與第二個小孩出生時之平均年齡，已購屋家戶與未購屋家戶之差異並不大。但已購屋家戶生育第二個小孩的比例，明顯高於未購屋家戶。

在家戶屬性因素方面，已購屋家戶其經濟戶長教育程度明顯高於未購屋家戶。中年世代之已購屋家戶，戶長教育程度大專以上之比例為 23.2%，未購屋家戶僅為 3.1%。壯年世代之已購屋家戶，戶長教育程度大專以上之比例為 34%，未購屋家戶僅為 13.7%。而青年世代經濟戶長教育程度的差異，則較前面兩個世代為小。此外，已購屋家戶配偶教育程度亦明顯高於未購屋家戶，其差異情形與經濟戶長教育程度相似。在原生家庭屬性方面，已購屋家戶父親教育程度雖較未購屋家戶為高，但其差異情形並無經濟戶長教育程度明顯。已購屋家戶父親職業為專門職業技術人員及主管之比例皆高於未購屋家戶，而父親職業為勞動人員之比例則略低於未購屋家戶。至於其他職業項目，已購屋與未購屋家戶則無明顯之差異。在原生家庭十年內是否有資金協助部分，本研究發現青年世代與壯年世代兩個世代，已購屋家戶受資金協助的比例皆高於未購屋家戶。至於中年世代，由於已屬於成熟之家庭階段，因此不論已購屋家戶或未購屋家戶接受資金協助之比例皆不高。此外，壯年世代與中年世代兩個世代，已購屋家戶原生家庭具有家產之比例皆高於未購屋家戶。

表 1　各世代已購屋家戶與未購屋家戶基本資料之統計

變數	26-35 歲（青年世代）		36-45 歲（壯年世代）		46-55 歲（中年世代）	
	已購屋家戶	未購屋家戶	已購屋家戶	未購屋家戶	已購屋家戶	未購屋家戶
經濟戶長年齡(歲)	30.87	31.08	41.13	40.68	50.84	49.90
配偶年齡(歲)	28.92	29.02	38.19	38.27	46.85	45.20
結婚年齡(歲)	27.45	27.23	27.26	26.25	26.38	26.52
第一個小孩出生年齡(歲)	29.08	28.42	28.61	27.97	27.16	27.60
第二個小孩出生年齡(歲)	31.44	30.05	30.47	29.72	29.54	29.81
生育第二個小孩之比例	73%	62%	87%	76%	96%	93%
兄弟姊妹數(人)	3.09	3.13	4.21	4.10	5.53	4.98
首次購屋年齡(歲)	31.08	-	32.97	-	33.68	
結婚至購屋時間(年)	3.62	-	6.20	-	7.30	
經濟戶長教育程度分配：						
國中以下	7.5%	28.8%	35.8%	44.8%	53%	71.9%
高中（職）	45.3%	32.8%	29.6%	41.4%	23.8%	25%
大專以上	46.9%	38.8%	34%	13.7%	23.2%	3.1%
配偶教育程度分配：						
國中以下	11.3%	19.4%	39.1%	58.6%	85.4%	93.1%
高中（職）	50.9%	44.8%	39.1%	37.9%	5.5%	6.9%
大專以上	37.7%	36.8%	21.8%	3.4%	9.1%	-
父親教育程度						
未受正式教育	20.7%	23.8%	39.4%	54.8%	51.8%	79.3%

國小以下	50.6%	53.7%	47.7%	32.9%	32.3%	13.8%
國（初）中	7.66%	4.47%	4.5%	9.0%	4.9%	3.4%
高中以上	22.9%	17.9%	8.4%	3.2%	10.9%	3.4%
父親職業分配：						
專門職業技術人員及主管	17.9%	9.2%	12.6%	6.3%	9.6%	3%
服務業人員	19.4%	20.4%	18.2%	15.6%	11.8%	12.1%
農業人員	25.3%	26.5%	37.1%	35%	53.6%	60.6%
林、漁、牧業人員	4.4%	7.1%	2.5%	3.1%	1.8%	-
勞動人員	32.8%	36.7%	29.5%	45%	23%	24.2%
原生家庭十年內資金協助[1]	24%	12%	20%	6%	6%	5%
原生家庭具有家產	79%	80%	68%	50%	62%	40%
樣本數	53	67	159	32	215	32
（%）	(44%)	(56%)	(83%)	(17%)	(87%)	(13%)

五、初步實證結果

就年齡對首次購置住宅之影響而言，中年世代模型在 25 至 35 歲時購置住宅之機率最高，由賭倍比[2]可得知該世代 25 至 30 歲購置住宅之機率為 20 至 25 歲之 1.58 倍，30 至 35 歲購置住宅之機率為 20 至 25 歲之 1.36 倍。壯年世代模型購置住宅之機率以 30 至 40 歲時之機率最高，其中 35 至 40 歲購置住宅之機率為 20 至 25 歲之 1.64 倍。至於青年世代模型年齡因素影響效果不顯著。其原因主要為該世代家戶獨立住宅生涯歷經時間尚且不長，因此無法分析生命週期因素之影響效果。

在住宅市場經濟面因素方面，住宅價格之影響效果在青年世代模型與壯年世代模型則顯著為負值，但在中年世代模型並不顯著。住宅價格係數值為負值，其意義為住宅價格愈高之地區，由於家戶擁屋之成本提升，因此購置住宅之機率較低。至於該變數在中年世代模型不顯著之原因，可能為中年世代模型家戶住宅生涯之起點為民國六十年代，當時台灣各地區之住宅價格差異並不如民國七十年代與民國八十年代大，因此擁屋成本差異並不大。此外，表 2 顯示貸款利率之係數值皆為負值，顯示貸款利率愈高，家戶擁屋成本將提升，購置住宅之機率將降低。唯該變數僅在青年世代顯著為負值。

在財富因素方面，結婚當時家戶恆常所得在三個模型皆顯著為正值，顯示恆常所得愈高之家戶，購置住宅之機率愈高。在原生家庭社會經濟屬性方面，本研究發現父親職業為專門職業及技術人員與主管時，家戶購置住宅之機率較高，其機率約

[1] 受訪者父母親資金協助與配偶父母親資金協助，係指過去十年來，父母親與配偶父母親給予事業、購屋與其他類項之資助大於十萬元者。

[2]賭倍比（odds ratio）爲解釋變數數值變動一單位時，對於首次購屋機率之邊際影響效果，其計算式爲 exp（β）。

為父親職業為農業人員之家戶兩倍以上。此外，當父親職業為勞動人員時，則該家戶購置住宅之機率將降低。在原生家庭是否有家產之影響效果方面，本研究發現，該變數在壯年世代模型與中年世代模型中顯著為正值。顯示具有家產之原生家庭較可能將其財富移轉或贈與子女，並助其購置住宅。

本研究發現考量結婚決策之內生性影響，則結婚變數的影響效果皆不顯著，此與相關研究採外生變數設定之實證結果有明顯差異。此外，表 3 顯示不論青年世代、壯年世代與中年世代，結婚決策與購住宅決策不可觀察項相關係數（$\rho_{v_m v_b}$）皆顯著大於 0，顯示此兩決策有正向之影響關係。意即結婚機率高者，其購置住宅之機率較高；反之亦然。顯示購置住宅與結婚皆為生命歷程重大決策，兩者可能共同決定。因此本研究認為在探討結婚事件對購置住宅之影響效果時，不能僅以外生變數之設定方式進行分析，需考量兩決策間潛在內生性之影響關係。

表 2　結婚決策對首次購屋影響之內生性決策模型

	青年世代			壯年世代			中年世代		
變數	係數值	顯著水準	賭倍比	係數值	顯著水準	賭倍比	係數值	顯著水準	賭倍比
年齡									
25 歲以下				*	*	1	*	*	1
25-30 歲	*	*	1.00	0.008	0.967	1.01	0.462	0.040	1.58
30-35 歲	0.047	0.792	1.05	0.323	0.070	1.38	0.311	0.062	1.36
35-40 歲	-	-		0.497	0.023	1.64	-0.037	0.867	0.00
40-45 歲	-	-		-	-		-0.033	0.902	0.97
45 歲以上	-	-		-	-		-0.443	0.240	0.64
結婚	-0.129	0.257	0.88	0.331	0.113	1.39	0.213	0.463	1.24
住宅價格	-0.002	0.028	1.00	0.000	.0.0680	1.00	0.000	0.683	1.00
貸款利率	-0.157	0.063	0.86	-0.039	0.220	0.96	-0.007	0.761	0.99
結婚當時家戶恆常所得	0.009	0.023	1.01	0.014	0.058	1.01	0.013	0.020	1.01
父親職業							0.000		
專門職業技術人員	1.065	.0.0064	2.90	0.695	0.028	1.99	0.777	0.001	2.16
服務業人員	0.091	0.797	1.09	0.056	0.804	1.06	0.316	0.093	1.37
農業人員	*	*	1.00	-	*	1.00	*	*	1.00
林、漁、牧業人員	-0.429	0.409	0.65	-0.258	0.591	0.77	-0.381	0.512	0.68
勞動人員	-0.468	0.084	0.63	-0.111	0.529	0.89	-0.340	.0.0734	0.71
是否有家產	0.036	0.639	1.04	0.465	0.039	1.59	0.591	0.030	1.80

1.25-35歲模型顯著水準為0.000；35-45歲顯著水準為0.0000；45-55歲顯著水準為0.0000。

2.註記*及**者，分別表示在顯著水準 0.1 及 0.05 時，參數呈現顯著效果。

3.＊為類別資料之比較基準組。

4.25-35 歲模型已購屋樣本 53 筆，未購屋樣本 67 筆；；35-45 歲模型已購屋樣本 159 筆，未購屋樣本 32 筆；45-55 歲模型已購屋樣本 215 筆，未購屋樣本 37 筆。

表 3　不可觀察項變異數相關係數表

	青年世代		壯年世代		中年世代	
	係數值	標準差	係數值	標準差	係數值	標準差
σ_{v_b}	1.796	0.252	1.786	0.254	1.779	0.253
σ_{v_m}	3.948	0.443	4.201	0.480	4.209	0.477
$\rho_{v_m v_b}$	0.448	0.029	0.462	0.030	0.457	0.030

六、結論與建議

本研究發現考量結婚決策之內生性影響，則結婚變數的影響效果皆不顯著，且不論任何世代結婚決策與購住宅決策不可觀察項相關係數（$\rho_{v_m v_b}$）皆顯著大於 0，顯示此兩決策有正向之影響關係。此一結果顯示購置住宅與結婚皆為生命歷程重大決策，兩者可能共同決定。因此本研究建議相關研究在探討結婚事件對購置住宅之影響效果時，不能僅以外生變數之設定方式進行分析，需考量兩決策間潛在內生性之影響關係。

七、參考文獻

1. Boehm, T. P. and A. M. Scholttmann (2004). The dynamics of race, income, and homeownership, ***Journal of Urban Economics***, 55:113-130.
2. Bourassa, S.C. (1995).A model of housing tenure Choice in Australia, ***Journal of Urban Economics***, 37:161-175.
3. Bourassa, S.C. (2000).Ethnicity, endogeneity and housing tenure choice, ***Journal of Real Estate Finance and Economics***, 20(3):323-341.
4. Clark, W. A. V., M. C. Deurloo, and F. M. Dieleman (1994). Tenure Changes in the Context of Micro-level Family and Macro-level Economic Shifts, ***Urban Studies***, 31(1):137-154.
5. Clark, W. A. V., M. C. Deurloo, and F. M. Dieleman (1997). Entry to home-ownership in Germany: Some comparisons with the united States, ***Urban Studies***, 34(1):7-19.
6. Clark, W. A. V., M. C. Deurloo, and F. M. Dieleman (2003). Housing careers in the United States, 1968-93: Modelling the sequecing of housing states, ***Urban Studies***, 40(1):143-160.
7. Dieleman, F. M., W.A.V. Clark and M. C. Deurloo (1994). Tenure choice:cross-sectional and longitudinal analyses, ***Journal of Housing and the Built Environment***, 9: 229-246.
8. Di Salvo, P. and J. Ermisch (1997). Analysis of the dynamics of housing tenure choice in Britain, ***Journal of Urban Economics***, 42:1-17.
9. Ermisch, J. and P. Di Salvo (1996). Surprises and housing tenure decisions in great Britain, ***Journal of Housing Economics***, 5:247-273.
10. Haurin, D.R., P.H. Hendershott and D. Kim (1994). Housing decision of American youth, ***Journal of Urban Economics***, 35:28-45.
11. Heckman, J. J. and B. Singer(1984). A method for minimizing the impact of distributional assumptions in econometric models for duration data, ***Econometrica,*** 52:271-320.

12. Heckman, J. J. and B. Singer(1985). “Social science duration analysis”, ***Longitudinal analysis of labor market data*****:** 39-111.
13. Henretta, J. C. (1987). Family transitions, housing market context, and first home purchase by young married households, ***Social Forces***, 66(2):520-536.
14. Lancaster, D.(1990). ***The econometric analysis of transition data.***
15. Lillard, L. A. (1993). Simultaneous equations for hazard: Marital duration and timing of fertility, ***Journal of econometrics***, 59:189-217.
16. Lillard, L. A. and C. W. A. Panis (1998). Panel attrition from PSID, ***Journal of Human Resources***, 33:437-457.
17. Mok, D. K. (2003). Accounting for taste in housing decisions: endogenous life cycle stages, Working paper.
18. Mulder and Wanger（1998）.First-time home-ownership in the family life course: a west German-Dutch comparison, ***Urban Studies***, 35(4):687-713.
19. Panis, C. W. A. and L. A. Lillard (1994). Helth inputs and child mortality: Malaysia, ***Journal of Health Economics***, 13:455-489.
20. Pickles, A. and R. Davies(1985). The longitudinal analysis of housing careers, ***Journal of Regional Science***, 25(1): 85-101.
21. Van den Berg, G. J. (1997). Assosiation measures for durations in bivariate hazard rate models, ***Journal of econometrics***, 79:221-245.
22. Van den Berg , G..J. (2001), Duration models: specification, identification, and multiple durations, ***Handbook of Econometrics, Volume V***.

出席國際會議報告

- 會議名稱：亞洲不動產協會暨美國不動產及都市經濟學會聯合國際會議（Asian Real Estate Association and American Real Estate and Urban Economics Association, 2009 Joint International Conference）
- 會議時間：July 11~14, 2009
- 會議地點：美國洛杉磯 ucla

一、出席會議經過

亞洲不動產協會（AsRES）及美國不動產暨都市經濟協會（AREUEA）之聯合國際會議，自 1998 年於台北之亞洲不動產年會中協商完成，1999 年於夏威夷首度舉行。本次 2009 年之聯合國際會議由 Prof. Robert H. Edelstein 主辦，於美國洛杉磯加州大學洛杉磯分校舉行（University of California at Los Angeles Campus, UCLA）。此次台灣之與會者約有 20 餘人，除筆者之外，上包括張金鶚教授（政大）、林祖嘉教授（政大）、陳彥仲教授（成大）、陳明吉教授（中山）及多位國內學術界人士。於會場發表約十餘篇論文，並擔任部分場次之評論人。是亞洲不動產協會中，與會人士最多的團體。此對於提升台灣學術發展，促進學術國際交流有明顯的助益。

大會議程子題包括了：總體經濟與不動產預測、住宅市場、住宅可負擔性與權屬選擇、都市形成與成長之決定因素、都市政策議題等，共計 36 個場次。筆者所發表之論文被安排於『住宅市場』之議題場次。該篇論文是國科會研究計劃（97-2410-H-041-002-）之部分成果。論文重點在於探討台灣租屋家戶之住宅決策行為。詳言之，當租屋家戶之住宅決策之探討，相關研究多著重分析影響家戶由租屋至擁屋之因素。然而，對於租屋家戶而言，其住宅決策除了購置住宅或維持租屋狀態之外，亦有選擇回到原生家庭與父母共同居住。本研究引用華人家庭動態資料庫（Panel Study of

Family Dynamics，簡稱 PSFD）所調查之回溯資料（retrospective data），將影響住宅決策之因素，區分爲生命歷程之重要事件、住宅市場經濟因素、家戶社會經濟屬性等三大類。大會安排本篇論文之評論者爲 Gary Painter 副教授（U. of Southern California, USA）。他對本文之研究架構及推論過程並無意見，僅就資料之抽樣可能造成偏誤及現象之解析，提供了補充意見，作爲本文後續修改之參考。

二、與會心得

近幾年的亞洲不動產（AsRES）年會會議，因與美國不動產暨都市經濟協會（AREUEA）共同舉辦學術研討會。結合了國際學術友人共同參與，促使年會的論文素質，能維持於一定的水準。年復一年的激勵，對台灣都市經濟及不動產學界的研究產生了明顯提升作用，也建立了良好的國際學術合作管道。此由近年來，國內學術界人士與國際學術友人聯合著作發表文章的數量增加，可以得見。吾人認爲此一現象將會是未來，至少是短期內，國內部分學者尋求國際學術交流的重要模式之一。

The housing decisions of renters in Taiwan

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Taiwan

Abstract

Previous studies analyze housing tenure choice mostly focus on the transition from renting to owning a house. However, except the decision of renting or buying a house, some renters might decide to return to the parental home, and this proportion is 22 percent in Taiwan. We apply the competing risks model to analyze the multiple housing decisions for renters, including the decision of remain staying in rental status, buying a house and returning to the parental home. Our empirical data comes from Panel Study of Family Dynamics in Taiwan. Major factors that affect the housing decision include life course events, housing market conditions and social-economic characteristics. Our empirical results indicate that marital age has mostly significant negative effect on returning to parental home, and positive effect on buying a house. Permanent income has mostly significant positive effect on buying a house, and negative effect on returning to parental home. Besides, we also find mortgage rate and the housing price have significant effect on buying a house; however, the effect on returning to the parental home is not significant.

Keyword: competing risks model; housing tenure choice; Panel Study of Housing Dynamics

1. Introduction

Attaining homeownership is among the one of the important decisions for households, especially for young families. The decision is very much important because it is significantly related to other important decisions in life time, such as marriage, job searching, and property investments, etc. Most studies of housing tenure choice focus on the transition from renting to owning (Clark *et al.*, 1994; Di Salvo and Ermisch,1997) or first-time house buying (Feijten *et al.*, 2003). However, except the decision of renting or buying a house, some renters might decide to return to the parental home.

There are many financial advantages to co-residence. When parents and children live together, they can pool resources and take advantage of specialization, economies of scale, and semi-public goods. On the other hand, children living at home can also generate costs for both parents and children. The children may not have as much freedom of choice over how to spend their financial gain. Parents who are in “empty nest” stage have greater happiness with their marriage, and older children are thought to restrict their parents’ privacy. Since co-residence reduces privacy and could generate friction, those with higher incomes should be less concerned with economies of scale and more likely to maintain separate living.（DaVanzo and Goldscheider , 1990; Aquilino, 1991; Goldscheider *et al.*,1999）。

The likelihood that young adults in the U.S. return home for more than for months increased from 22% to about 40% between the 1920s and the 1980s (Goldscheider and Goldscheide, 1994). Many of those leaving home for temporary conditions such as schooling or service in the military probably hoped to return. There is a strong connection between returning home and the route taken out of the home. Goldscheider *et al*.(1999) finds marriage has the lowest probability of a return among all the routes out of home because it represents a commitment to an adult role, and the rate of returning home in the U.S. is 8%. In contrast, from the data of “Panel Study of Family Dynamics”, we find the likelihood that married-renters return home is 23% in Taiwan; it is much higher than U.S. When we analyze the housing decision of renters in Taiwan, we should consider the choice of returning home to be an alternative.

In literatures, the housing tenure choice is mostly dealt as a static decision, under the assumptions of independent and no timely related process. These studies mostly apply conventional discrete choice model such as logit and probit model. Since the late 1980s, some studies have applied the duration (or hazard) model to analyze the housing tenure choice from the dynamic point of view. (Clark et al.,1994; Dieleman et al., 1994) Because the housing decision is made over time, the duration model is more natural and suitable than static model. (Heckman,1984). We apply the competing risks model to analyze the multiple housing decisions for renters, including the decision of remain staying in rental status, buying a house and returning to the parental home.

2.The Observation of Taiwan Families and the Decision Process

In this section, we briefly describe the phenomena of first time house buying and returning to the parental home in a Taiwanese family with head of household aged 35-55 in the year of 2000, the time that our empirical data was collected. Our empirical data was sampled from sources of the ***Panel Study of Family Dynamics*** (***PSFD***) [1]. The PSFD project was preceded by an individual family questionnaire survey stated in 1999, which traced the same interviewers every year under the conduct of Academia Sinica, Taiwan. The observation cases for this paper were sampled from the data sources released in 1999 (data code: RI1999) and 2000 (RI2000). We use the retrospective data set of PSFD, and select the respondents who are renters when they were married. The final effective sample size is 325 of married-renters. Until 2003, there are 14% of them remaining in rental housing, 23% had returned to the parental home, and 63% had bought a house.

It is shown in Table 1 that, for remaining in rental housing samples, the marriage age is 27.53 years old, and 28.67 for having first child. For returning home samples, the age of marriage is 25.91 years old, first-child born is 27.9, and the age of returning home is 28.19. For buying hosing samples, the age of marriage is 28.3 years old, first-child born is 29.5, and the age of first-time house buying is around 33. As shown in Figure 1, the average age of marriage for returning home samples is earlier than

[1] For detail information, please refer to http://psfd.sinica.edu.tw.

rental housing and buying housing samples. This implies that those who get married in young adult might have lower ability to live independently. It can also be seen from Table 1 that the homeowners have a higher education attainment than renters and returning homers. The average income of home owners is also higher than others. That conforms to the findings in literatures that higher educated people are more likely to earn higher income, which results in a higher housing affordability. (Clark *et al.*,1994; Di Salvo *et al.*, 1997). And, the homeowners' spouses and fathers have relatively higher education level than the renters and returning homers. This provides indirect evidence and implies that first time house buying could be a joint decision between families.

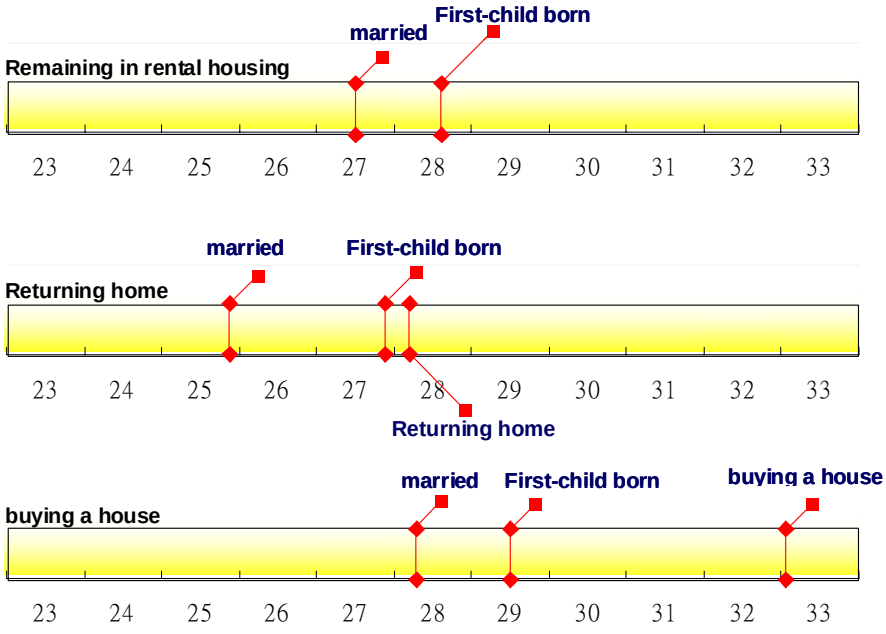

Fig.1 Important life time decisions

Table 1: Descriptive statistics of staying in rental status, returning to the parental home and buying a house.

Variable	Staying in rental status	Returning home	Buying a house

Age at marriage of householder	27.53	25.91	28.30
Age of first-child birth	28.67	27.90	29.51
Age of home buying	-	-	33.08
Age of returning to parental home		28.19	
Number of siblings	4.69	4.62	4.74
Household income (NT$1,000/month)	80.7	66.6	90.7
Distribution of education level (household heads) :			
Under middle school	50.0%	45.8%	40.1%
High school	30.7%	30.4%	26.3%
College and higher	19.3%	23.8%	33.6%
Distribution of education level (spouses) :			
Under middle school	63.3%	58.6%	50.1%
High school	28.3%	28.1%	33.7%
College and higher	8.3%	13.3%	16.2%
Distribution of education level (fathers of household heads)：			
Under elementary school	86.30%	81.30%	81.10%
Middle school	6.8%	10.7%	9.1%
High school and higher	6.8%	8.0%	9.8%
Percentage of financial support from parents[2]	8%	13%	12%
Sample size	47(14%)	75(23%)	203(63%)

Source：「***Panel Study of Family Dynamics***」RI1999, RI2000, RI2003.

3. The competing risks model

To depict the probability of remaining in rental housing, returning to the parental home and buying a house, we applied the competing risks model, which had been well developed to predict the occurrence of each events. Previous studies use the static model such as logit or probit model to analyze the housing decision of renters. However, the "state probabilities" may reflect decisions made earlier in person's life, in housing market conditions and personal circumstances which may differ substantially from contemporary ones. Since the late 1980s, some studies have applied the duration (or hazard) model to analyze the housing tenure choice from the dynamic point of view. (Clark et al.,1994; Dieleman et al., 1994). Let $f(t)$ represents the probability of event occurs (state transition). The hazard function is rate

[2] Samples for his (her) parents supported with grants of more than NT$10,000 for the past 10 years.

of event occurs given by exponential in the form of

$$h(t)=\frac{f(t)}{S(t)}=\lim_{\Delta t\to 0}\frac{P_r\left(t<T<t+\Delta t\middle|T>t\right)}{\Delta t},\forall t\geq 0 \qquad (1)$$

$$h(t|x)=\psi(t)\cdot\exp(\beta^{'}\cdot x) \qquad (2)$$

Where, $\psi(t)$ are the functions of baseline hazard rate without any effects of explanatory variables, representing the impact of duration dependence. x are the explanatory variables, and β are the coefficients representing the effect on events occurs. In general cases, as the normal type, the rate is small in the very beginning, and increases over time.

Renters may remain in rental status(R), return to parental home (H), or buying a house to become homeowner (B). In a three-state model, it is possible to exit a state into either one of the two other states. Each of the destination specific hazards is specified as a proportional (sub-) hazard. The destination specific hazard for returning home is:

$$h_H(t|x)=\psi_H(t)\cdot\exp(\beta_H^{'}\cdot x)$$

The destination specific hazard rate for buying a house is specified in the following way:

$$h_B(t|x)=\psi_B(t)\cdot\exp(\beta_B^{'}\cdot x)$$

The hazard rate is the sum of two cause-specific hazard rates. Let $h_k(t|x)$ represents the overall hazard rate $k\in(B,H)$. The likelihood function is:

$$\begin{aligned}L&=1_{[t<c]}h_k(t|x)\times S(t|x)\\&=1_{[t<c]}h_k(t|x)\times\{\exp[-\sum_{j=B,H}\int_0^t h_j(u|x)du]\}\end{aligned} \qquad (6.7)$$

$$LL=1_{[t<c]}\log h_k(t|x)-\sum_{j=B,H}\int_0^t h_j(u|x)du \qquad (6\text{-}8)$$

Where $1_{[t<c]}$ is the indicator variable. If the k event occurs, the value would be equal to 1, The likelihood function would contains $h_k(t|x)$, and we would use the information of $f_k(t|x)$（$h_k(t|x)\times S(t|x)=f_k(t|x)$）. If no event occur, it represents the data is censored. The value of indicator variable would be equal to 0, and we would use the information of $S(t|x)$ to construct the likelihood function.

4. Tentative findings

We use statistical software aML (multi-process multilevel modeling) to estimate the coefficients of competing risks model. The hazard rate represents the conditional probability of events occur. If the estimated coefficient is positive, it represents the explanatory variable has positive effect on returning to the parental home or house buying.

Table 2 shows the coefficients of competing risks model. We find the marital age has a strong positive effect on buying a house and negative effect on returning home. From the table 2, it shows that those who are married lower than 22 have significant positive effect on the probability of returning home, and those who are married higher than 35 have significant negative effect on returning and positive effect on buying a house. It implies those who are getting married at young age might have less financial ability for independent living, and they would have higher likelihood of returning to parental home, and lower likelihood of buying a house. The education level and family income also have the similar effect. Those with highly education level and highly family income would be less likely to return to parental home, and more likely to buy a house.

Generally speaking, households with better education imply a higher salary income. Thus they could maintain separate living are and less concerned with scale economies of co-residence with parents, and more likely to become homeowners. Similarly, we use the education level of household's father as the proxy variable to represent the parents' wealth to discuss the assistance given between generations. Two dummy variables were also used to represent the parents' social-economic status. As seen from Table 2, those with highly educated parents are more likely to become homeowners.

Previous studies of western country show young adults will be more likely to return home after a marriage ends. However, Table 2 show divorce event has no significant effect on returning home. Contrary to the western country, due to the traditional concept of marriage in Taiwan, parents might regard divorce as unsuccessful stage in life career, and might not fully support and receive their children to come back. We also found that the housing price and mortgage rate have significant negative effects

on buying a house. Attaining homeownership would be more difficult in the areas of high housing costs. However, the effect on returning to the parental home is not significant.

Table 2. The estimated results of competing risks model

	Return to parents			To be owner		
Variables	Coef.	Significant level	Odds ratio	Coef.	Significant level	Odds ratio
Education level of householder						
Under middle school	0.005	0.982	1.01	-0.325**	0.042	0.72
High school[a]	-	-	1.00	-	-	1.00
College	0.0112	0.585	1.01	0.559**	0.004	1.75
Graduate	-0.113*	0.073	0.89	0.089*	0.089	1.09
Household income	-0.005**	0.041	0.99	0.006**	0.015	1.01
Housing price	0.042	0.123	1.04	-0.056*	0.083	0.95
Mortgage rate	0.056	0.153	1.05	-0.061**	0.036	0.94
First-child born	-0.105	0.726	0.90	0.017	0.956	1.02
Divorce	-0.173	-0.723	0.84	-0.697**	0.043	2.01
Education level of father						
Under middle school	-0.028	0.891	0.97	0.125	0.687	1.13
High school[a]	-	-	1.00	-	-	1.00
College	-0.217*	0.093	0.80	0.408**	0.049	1.50
Financial support	0.017	0.432	1.02	0.190	0.332	1.21
Age of first-time marriage						
< 22	0.862**	0.022	2.37	-0.510	0.173	0.60
22-25	0.440*	0.094	1.55	-0.094	0.898	0.91
25-30[a]	-	-	1.00	-	-	1.00
30-35	-0.188	0.491	0.83	0.025*	0.060	1.03
35+	-1.188**	0.047	0.30	0.388*	0.096	1.47

1. *P<0.1; **P<0.05.
2. [a] Reference category for analysis

5. Conclusion

We apply the competing risks model to analyze the multiple housing decisions for renters, including the decision of remain staying in rental status, buying a house and returning to the parental home. Our empirical results indicate that marital age has mostly significant negative effect on returning to parental home, and positive effect on buying a house. Permanent income has mostly significant positive effect on buying a house, and negative effect on returning to parental home. Besides, we also find mortgage rate and the housing price have significant effect on buying a house; however, the effect on returning to the parental home is not significant.

References

1. Aquilino, W. (1991). Family Structure and Home-leaving: a Further Specification of the Relationship, ***Journal of Marriage and the Family***, 53:405-419.
2. Clark, W. A. V., M. C. Deurloo, and F. M. Dieleman (1994). Tenure Changes in the Context of Micro-level Family and Macro-level Economic Shifts, ***Urban Studies***, 31(1):137-154.
3. Da Vanzo , J. and F. K. Goldsheider (1990). Coming Home Again: Returns to the Nest in Young Adulthood, ***Population Studies***, 44:241-255.
4. Di Salvo, P. and J. Ermisch (1997). Analysis of the Dynamics of Housing Tenure Choice in Britain, ***Journal of Urban Economics***, 42:1-17.
5. Ermisch, J.(1999). Prices, Parents, and Young people's Household Formation, ***Journal of Urban Economics***, 45: 47–71.
6. Feijten, P., C. H. Mulder and P. Baizan(2003). Age Differentiation in the Effect of Household Situation on First-time Homeownership, ***Journal of Housing and the Built Environment***, 18: 233-255.
7. Goldsheider, F. K. and C. Goldsheider (1998). The Effects of Childhood Family Structure on Leaving and Returning Home, ***Journal of Marriage and the Family***, 60:745-756.
8. Goldsheider, F. K., C. Goldsheider, P. ST. Clair and J. Hodges (1999). Changes in Returning Home in the United States, ***Social Forces***, 78(2):695-728.
9. Lancaster, T. (1979). Econometric methods for the Duration of Unemployment, ***Econometrica***, 52(4):939-956.
10. Lancaster, T. (1990). ***The Econometric Analysis of Transition Data,*** Econometric Society Monographs, No: 17.