

## **Introduction**

In this paper, I ask whether home leaving decisions by young adults are affected by economic growth. If privacy is a normal good, as we might expect it to be, theory would predict that more young adults leave home to establish their own households as their income rises. However, house price increases associated with economic growth or tastes for coresidence may exert a counteracting force. I examine whether young adults respond to increased economic opportunities by leaving home either to establish independent households or to invest in higher education.

This paper uses data from the large economic expansion in Ireland during the 1990s to examine how home-leaving decisions of young adults respond to economic growth. This time period coincides with the so-called “Celtic Tiger” in which unemployment fell from almost 15 percent to about 3 percent and annual GDP growth doubled from five to ten percent. Using economic growth that affects Ireland as a whole is not particularly useful for identifying the effects of economic expansion on home-leaving behavior because the effects of time and economic growth are confounded. However, much of the economic expansion in Ireland was driven by foreign direct investment in the form of large factories. These factories opened at different times and in different locations. I use the geographic and time-series variation in factory openings to identify the effect of economic growth on home-leaving decisions.

The question of how people choose their living arrangements is a particularly difficult one to answer because exogenous changes in income are difficult to identify. When we see increases in children’s income associated with leaving home we must ask whether kids increased their income so they could leave home or whether they left home because their income increased. Several studies have shown that greater resources for children increases home-leaving among young adults (Rosenzweig and Wolpin, 1993; Ermisch, 1999; Card and Lemieux, 1997) but Manacorda and Moretti (2006) show that greater parental resources are associated with higher rates of co-residence between children and their parents in Italy. The differences in results may be due to differences in cultural norms between Southern Europe and Northern Europe/North America. However, only Manacorda and Moretti use an exogenous change in income to identify the effects. This paper uses an exogenous source of income variation to determine the direction of causality. It uses an instrumental variable strategy complemented by a difference in difference model. It improves the current literature by using an exogenous source of income variation to identify the impact of an increase in income on coresidence between parents and children in a Northern European cultural environment.

## **Background**

The period between 1990 and 2003 in Ireland saw unprecedented GDP growth and decreases in unemployment leading a 1994 Morgan Stanley report to coin the phrase “Celtic Tiger” comparing Irish economic growth to the earlier growth in the East Asian “tiger” economies. Between 1990 and 2003, average GDP grew by 6.8 percent reaching a high of 11 percent in 1999. Foreign direct investment (FDI) is an important part of the GDP growth story. FDI accounts for 20 percent of GDP and almost 75 percent of GDP growth. Multinational Corporations (MNCs) employ 45 percent of those at work in industry (15 percent of the total workforce). MNC investment is facilitated by the Irish Development Agency (IDA), a government agency with the function to promote international investment in Ireland. It provides training and capital investment grants, and bids for MNC investment. One of the main selling points of investment in Ireland is a 10 percent corporate tax rate accompanied by access to European markets.

## **Empirical Strategy**

I model the decision to leave home as a function of child’s current income, parental permanent income, age, house prices and other demographic controls. Permanent income for parents is appropriate if parents can borrow and lend and current income for kids is appropriate if they face a borrowing constraint. These assumptions seem reasonable.

The income variable for kids is endogenous. Kids may leave home because they have higher income or kids who want to leave home may get higher paying jobs in order to afford to live on their own. Similarly, kids with low incomes may not be able to leave home or they may take lower paying jobs because they don’t mind living with their parents. I use two different but complimentary empirical strategies to identify the effect of income of children on their decision to live with their parents. The first

strategy is to use the number of jobs created by the three main government development bodies (IDA, Enterprise Ireland and Shannon Development) in each region or county in each year as an instrument for the income of children in these regions. Table 1 shows the number of jobs created in each region for the years 1993-2002. These figures are available for all years through 2008.

	1993	1995	1997	1999	2001	2002	Change 01-02	% Change 01-02	% Change 93-02
Dublin	58,484	64,111	76,812	92,475	102,591	99,001	-3,590	-3.5	69.2
Mid East	16,956	20,176	25,108	26,758	29,480	29,643	163	0.6	74.8
Mid West	23,515	25,808	28,065	32,360	32,469	29,882	-2,587	-8.0	27.0
South West	33,141	34,047	36,230	40,124	45,811	44,885	-926	-2.0	35.4
South East	24,683	24,977	27,151	27,920	28,436	28,656	220	0.8	16.0,
West	18,793	20,962	24,176	26,520	29,231	27,594	-1,637	-5.6	46.8
Midlands	10,955	11,666	12,488	1,743	12,775	12,610	-165	-1.3	15.1
Border	30,875	33,352	33,746	33,944	32,663	31,436	-1,227	-3.8	1.8
<b>All Regions</b>	<b>217,402</b>	<b>235,099</b>	<b>263,776</b>	<b>292,844</b>	<b>313,456</b>	<b>303,707</b>	<b>-9,749</b>	<b>-3.1</b>	<b>39.7</b>

Table 1. Trends in permanent full-time employment, Forfas Employment Survey 2002.

In order to be a valid instrument the number of jobs created in each region by the development authorities has to be correlated with the income of the kids but uncorrelated with other unobserved factors affecting coresidence decisions between parents and children. Because the location of these jobs is largely determined in consultation with the development agencies, the companies are not free to choose any location. The government bids for these companies by proposing one site along with numerous grants and incentives to invest. The companies then chose to invest in one location. In most cases the alternative locations were in other EU countries because most of the MNCs involved in these decisions were looking for a European base of operations or a manufacturing facility in Europe to take advantage of the single market. Two of the biggest reasons that firms would choose Ireland over other locations are its extremely low corporate tax rate during this period and the many grants and subsidies offered by the government to attract multinational investment. These factors make job increases a valid instruments for income of kids.

A potential worry is that the new jobs may not only affect the income of the kid but also the permanent income of parents. There are several factors that ameliorate this problem. First, it is the permanent income of parents that enters the estimating equation which is likely to be more stable than current income, particularly for parents between 40 and 60. This proposition can be examined with Living in Ireland Survey data. Second, Census data shows that sectors in which the largest numbers of jobs were created were electronics and chemical manufacturing and professional services. Census data also shows that the manufacturing sectors are dominated by younger workers (83 percent of employees in electronics manufacturing are under the age of 45 in 1996, the corresponding percent for chemicals manufacturing is 73 percent). Professional services are mainly slightly older workers. I examine whether parents in the sample experienced large changes in income, particularly focusing on those in professional services.

The second strategy uses specific factory openings, in particular large factory openings, in a difference in difference model. Here I examine whether the change in the probability of an individual leaving home between time  $t$  and time  $t+1$  differs between counties or regions that experienced a large employment shock during the period and counties or regions that did not. This strategy uses data specifically from the IDA on the timing or investments of large MNCs. Table 2 (Sweeny, 1999) shows

some examples of the investments made. Investments were made in all regions of the country, not all were in Dublin.

Company Name	Location	Number of Jobs
3Comm	Dublin	775
Ascend Communications	Dublin	580
Bard	Galway	500
Boston Scientific Corp.	Galway	1000
Citibank	Dublin	1300
Dell	Limerick	3000
DSC Communications	Louth	475
Eastman Kodak	Limerick	400
Gateway 2000 Ltd.	Dublin	1200
Guidant Corporation	Tipperary	518
Hertz	Dublin	600
HP	Kildare	1000
IBM	Dublin	2850
Kostal	Cork	850
Oracle Corp.	Dublin	400
Seagate Technology	Cork	1000
Shinko Microelectronics	Dublin	440
Sitel TMS	Dublin	400
Xerox	Louth	1450

Table 2. Companies investing through IDA, location and jobs created.

#### Data

I use data from the Living in Ireland Survey, the Irish version of the European Community Household Panel Survey which contains about 14,000 individuals and runs from 1994-2001. The Living in Ireland Survey is a household panel survey containing detailed and self-reported information on both parents and children before and after the child leaves the parental home. There is attrition in the survey, particularly among families with young adult split-offs. There are steps I can take to ameliorate the attrition problem. Even for young adults who are not followed to their new residence in the survey, I know that when they are no longer living with their parents and I know their age, education at the last survey, and employment status at the last survey. I use a difference-in-difference model to see if areas that have experience large shocks in employment opportunities have more or younger home-leavers than areas that do not experience these shocks. I also use lagged information on all home leavers. Different results using all home-leavers and just those who are followed allow me to check the robustness of results. Sample weights in the survey account for differential attrition and allow for weighting up to national population. I run analyses weighted and un-weighted to see if the results are sensitive to weighting.

The following tables show some summary statistics about the age distribution of the each wave of the sample as well as the age distribution of movers.

Wave	Sample	Mean Age	Quartiles of Age		
			25%	Median	75%
Wave 2 (1995)	Entire sample	33.32	15.55	29.19	49.66
	All movers	25.56	21.84	24.31	27.60
Wave 3 (1996)	Entire sample	33.82	15.99	29.67	50.32
	All movers	26.38	21.73	24.64	28.27
Wave 4 (1997)	Entire sample	34.03	16.11	29.97	50.53
	All movers	26.14	22.28	24.68	27.85
Wave 5 (1998)	Entire sample	34.59	16.34	30.83	51.36

	All movers	26.61	22.25	24.82	28.57
Wave 6 (1999)	Entire sample	35.22	16.61	31.87	52.24
	All movers	26.62	21.87	25.15	28.77
Wave 7 (2000)	Entire sample	35.78	17.43	33.07	52.84
	All movers	26.94	22.28	25.33	29.31
Wave 8 (2001)	Entire sample	36.44	17.99	32.72	53.78
	All movers	26.85	22.19	24.84	28.99

Table 3. Age of sample and movers in each survey, all movers and interviewed movers.

Movers are, as we would expect, younger on average and younger at each quartile than the entire sample. Because of the age distribution of movers, I include individuals between 18-30 in my sample. Table 4 shows the number of individuals in each age range in each year and the number of movers, and movers who are interviewed after the move in each age range in each year.

Age 18-30	Number	Number Moved	Number Moved and Interviewed
Wave 1 (1994)	2884		
Wave 2 (1995)	2721	362	130
Wave 3 (1996)	2383	292	100
Wave 4 (1997)	2177	236	90
Wave 5 (1998)	1908	236	71
Wave 6 (1999)	1587	174	22
Wave 7 (2000)	2343	149	21
Wave 8 (2001)	1919	237	54

Table 4. Number in age range in sample, among movers and among interviewed movers.

Table 4 shows that the number of movers who are interviewed is considerably smaller than the number who move. This is the problem with attrition in the survey that I discussed earlier. The sample weights are designed to help this problem and I will also run the analysis with all movers both using lags and in a diff-in-diff framework to see if my results are highly sensitive to this attrition.

		Wave t +1								
		Border	Dublin	Mid-east	Mid-lands	Mid-west	South-east	South-west	West	Total
Wave t	Border	<b>80%</b>	<b>7%</b>	0%	2%	2%	0%	2%	7%	100%
	Dublin	0%	<b>85%</b>	12%	1%	0%	0%	1%	1%	100%
	Mid-east	5%	<b>19%</b>	<b>73%</b>	2%	0%	0%	0%	2%	100%
	Mid-lands	0%	<b>24%</b>	12%	<b>57%</b>	2%	0%	5%	0%	100%
	Midwest	0%	<b>15%</b>	2%	2%	<b>75%</b>	3%	3%	0%	100%
	Southeast	4%	<b>15%</b>	4%	0%	5%	<b>65%</b>	4%	4%	100%
	Southwest	0%	<b>13%</b>	2%	1%	0%	1%	<b>80%</b>	2%	100%
	West	6%	<b>17%</b>	0%	0%	3%	0%	3%	<b>72%</b>	100%
	Total	9%	<b>29%</b>	13%	6%	10%	8%	17%	7%	100%

Table 5. Origin and destination of interviewed movers, all waves.

Table 3 shows the origin and destination of interviewed movers combining all waves. It shows the movers in each region in t as a percent of the movers from their region in wave t. In other words, the top right hand corner tells us that 80 percent of movers from the border region in wave t still live in the border region in wave t+1. We can see that most movers stay in their region of origin with large inflows to the Dublin area as well.