

Household Income Volatility in Ireland

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Some Objectives

How has household income volatility evolved in Ireland between 2006 and 2016?

Which microeconomic variables are associated with household income volatility?

Compare Farm and Non-Farm households

Identify possible improvements in data infrastructure

Some Determinants

- Changing Employment participation
- Changing Employment – Firm, Industry, Occupation
- Wage rates, self employment incomes
- Changes in the tax-benefit system
- Changes in household composition
- Changes in health status
- General demographic trends
- Macroeconomic

Methodology

The Arc Percentage Change

The Standard Deviation of the Arc Percentage Changes in Household Income

$$I = \sqrt{\text{Variance}[100(E_{it} - E_{it-1})/E_{i\tau}]}$$

where $E_{i\tau} = (E_{it} + E_{it-1})/2$ for each household i with income E_{it} in year t .

$E_{i\tau}$ is the two year longitudinal average of Household i 's income. Household Income changes are bounded above by 200% and below by -200%.

See Cappellari and Jenkins (2014) and Dynan et al (2012)

Data

DATA

Irish Component of the EU- Survey of Income and Living Conditions due to the ISSDA, UCD

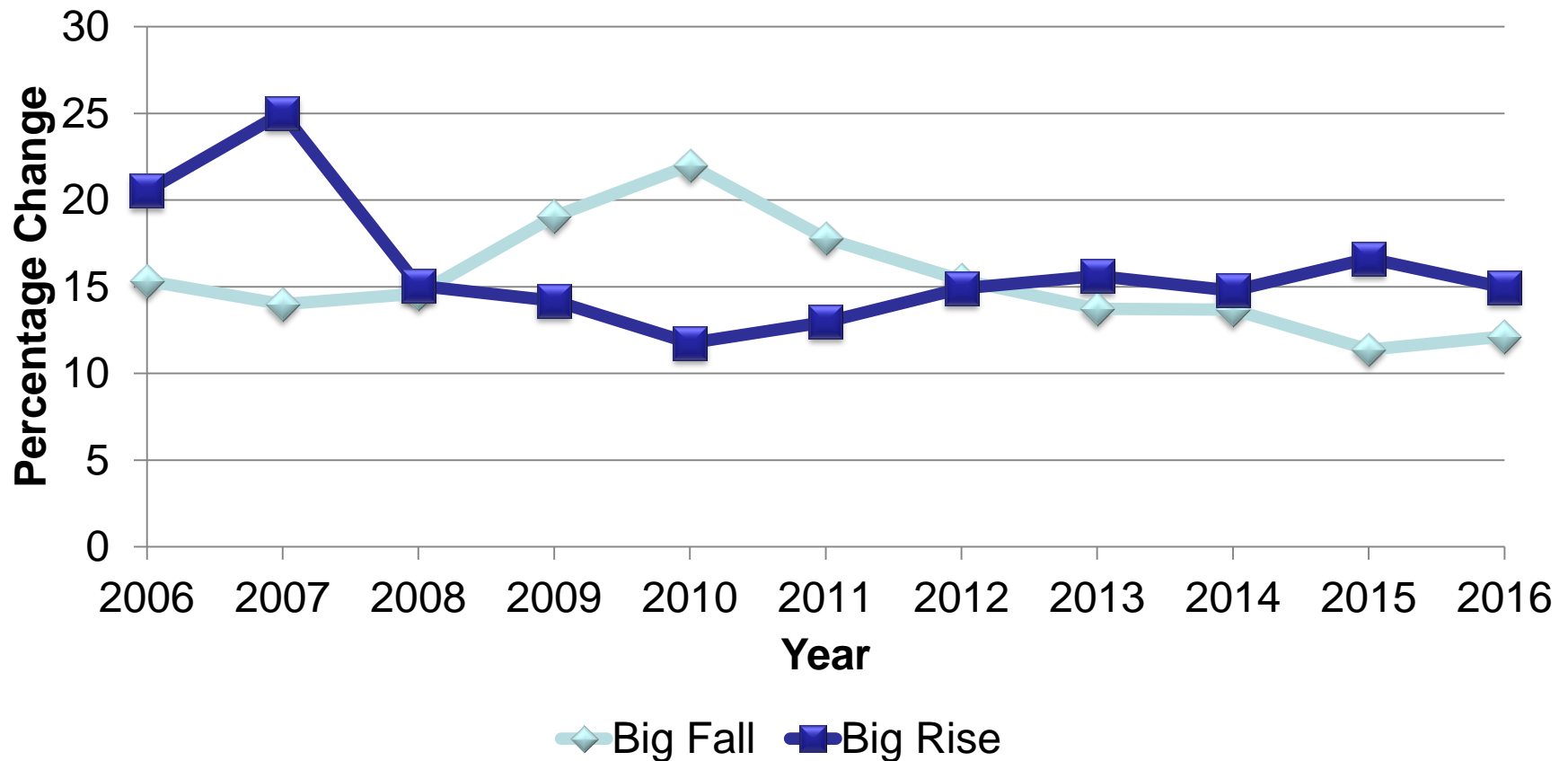
- Household and Individual Level microdata
- Demographic and Economic Variables including Income disaggregated by source
- Unbalanced Panel Component
- Four Year Rotating Panel from 2005 onwards

Survey of Income and Living Conditions Data

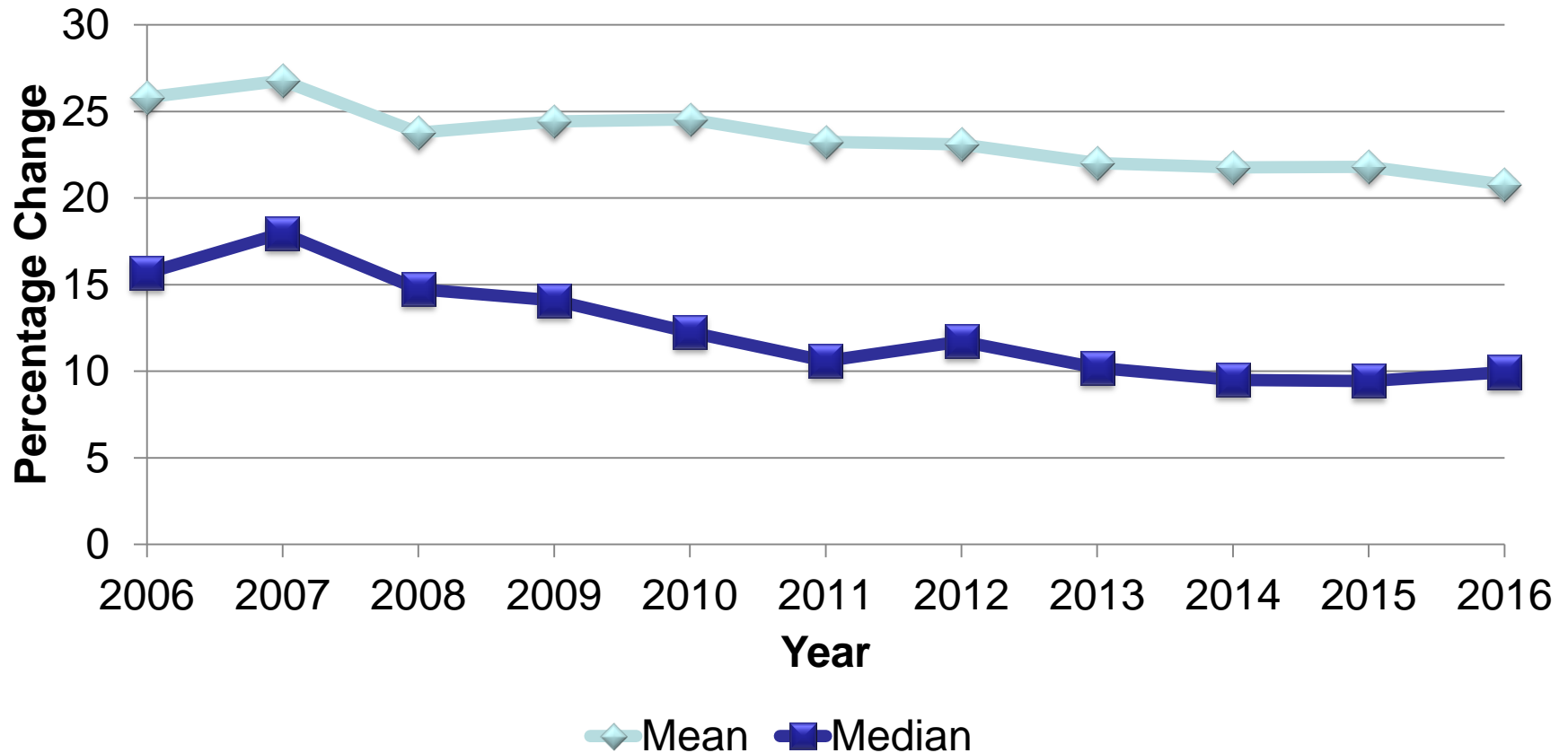
Survey Year	Households with a Lag	Total Sample
2006	3,147	5,836
2007	2,972	5,608
2008	2,870	5,247
2009	2,758	5,183
2010	2,569	4,642
2011	2,439	4,333
2012	2,383	4,592
2013	2,512	4,922
2014	2,434	5,486
2015	3,651	5,452
2016	3,789	5,219

Results

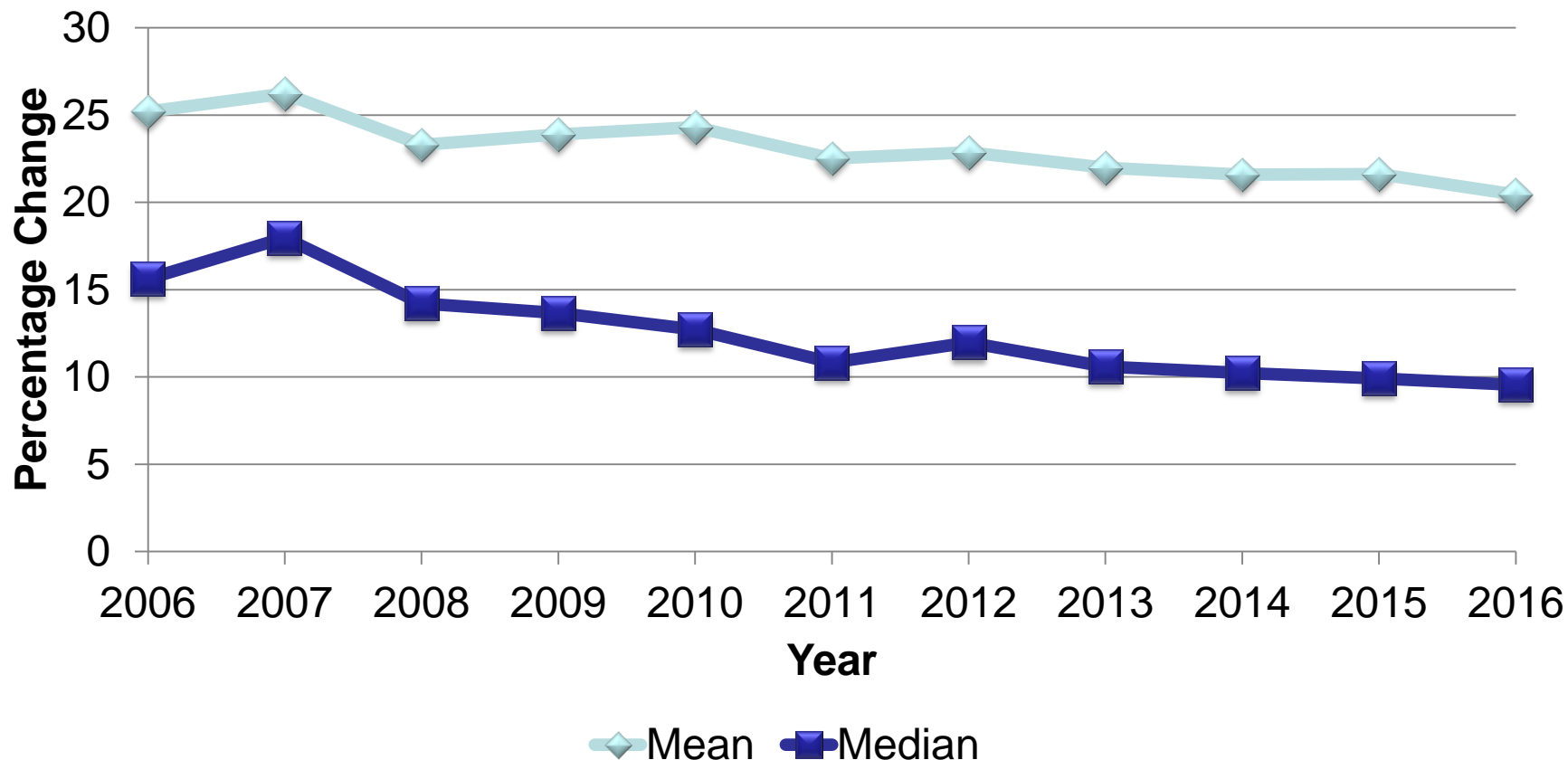
Proportion of Households with Changes in Excess of 25% in Disposable Household Income 2006-2016



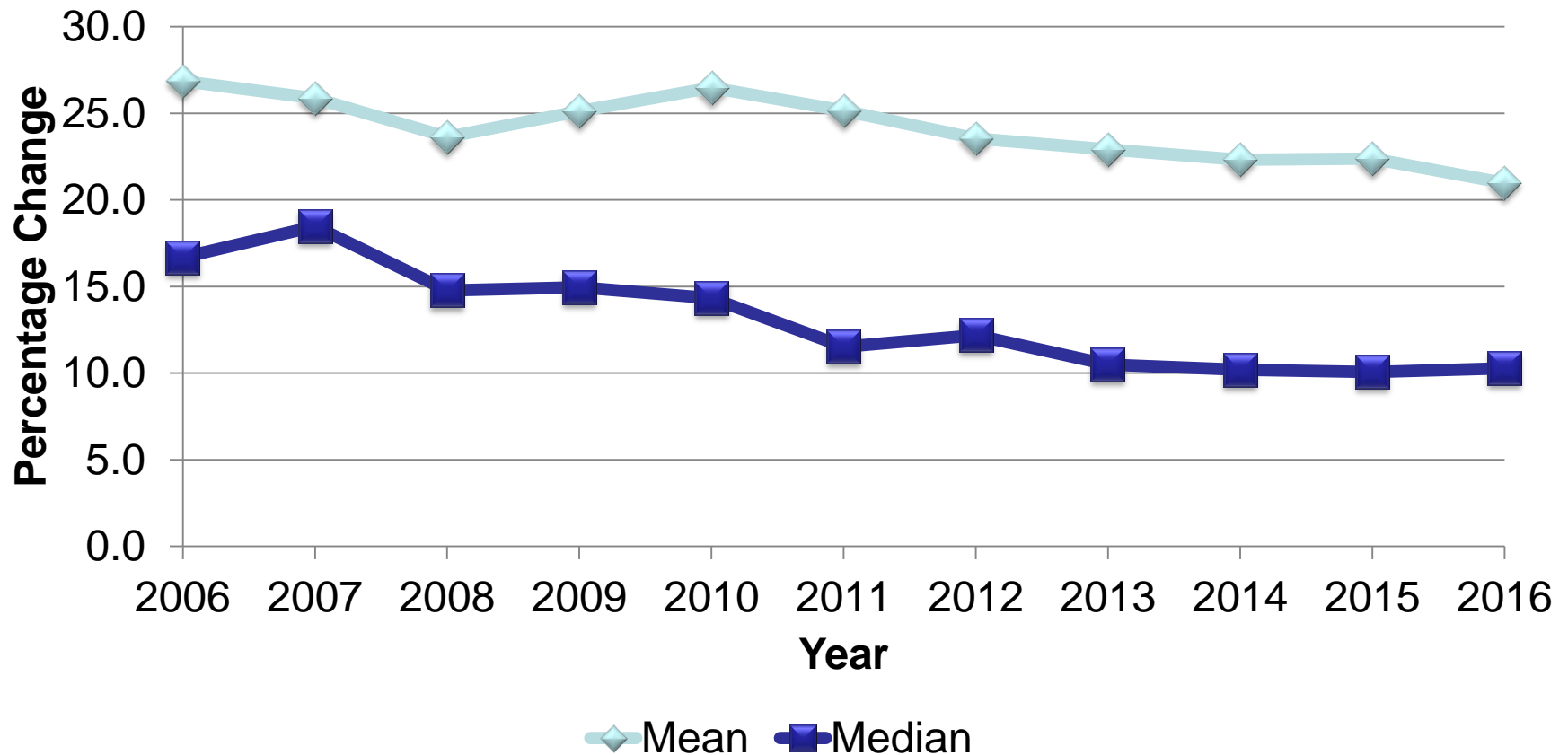
Percentage Changes in Pre-Tax Household Income 2006-2016



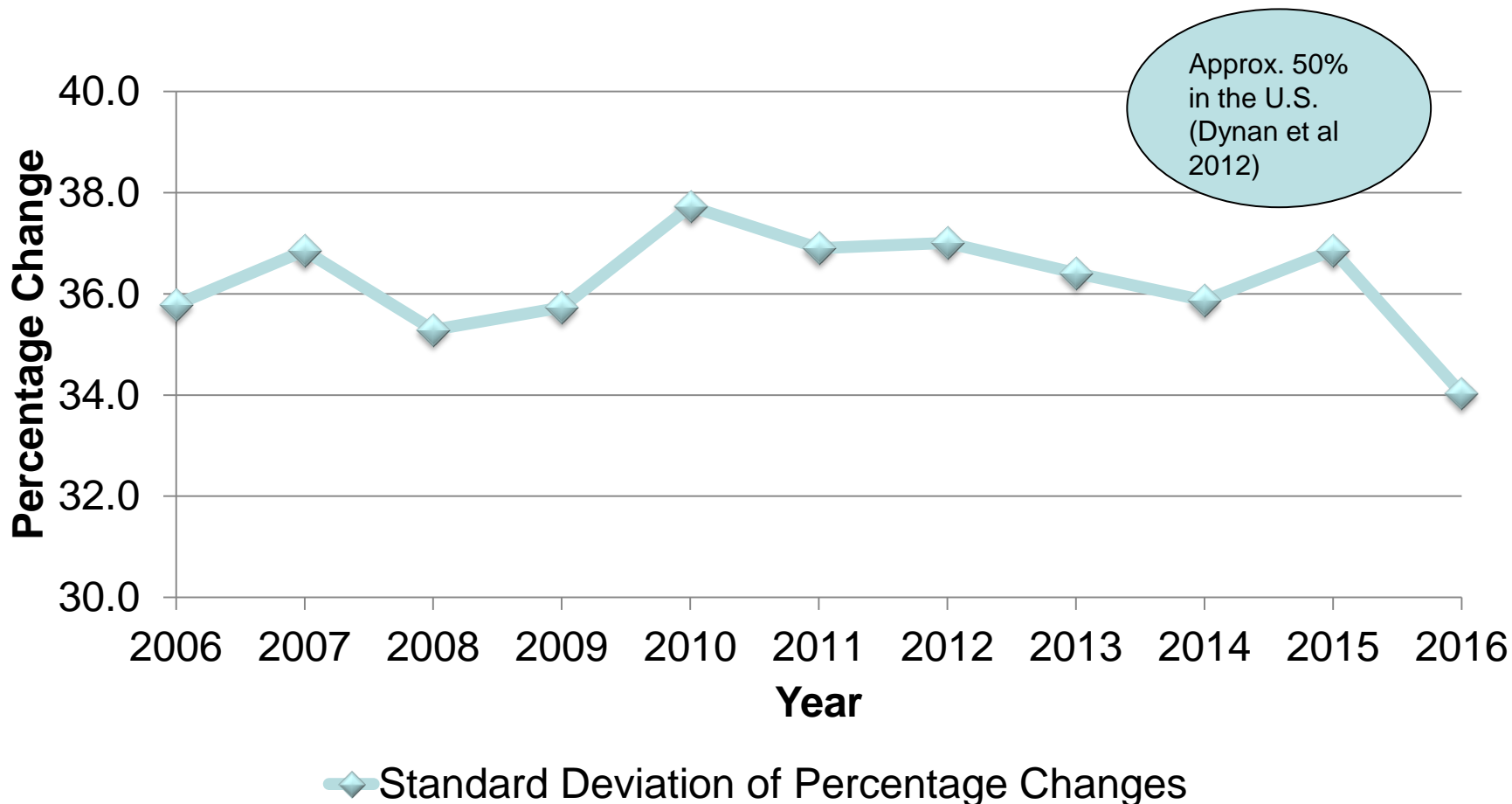
Percentage Changes in Disposable Household Income 2006-2016



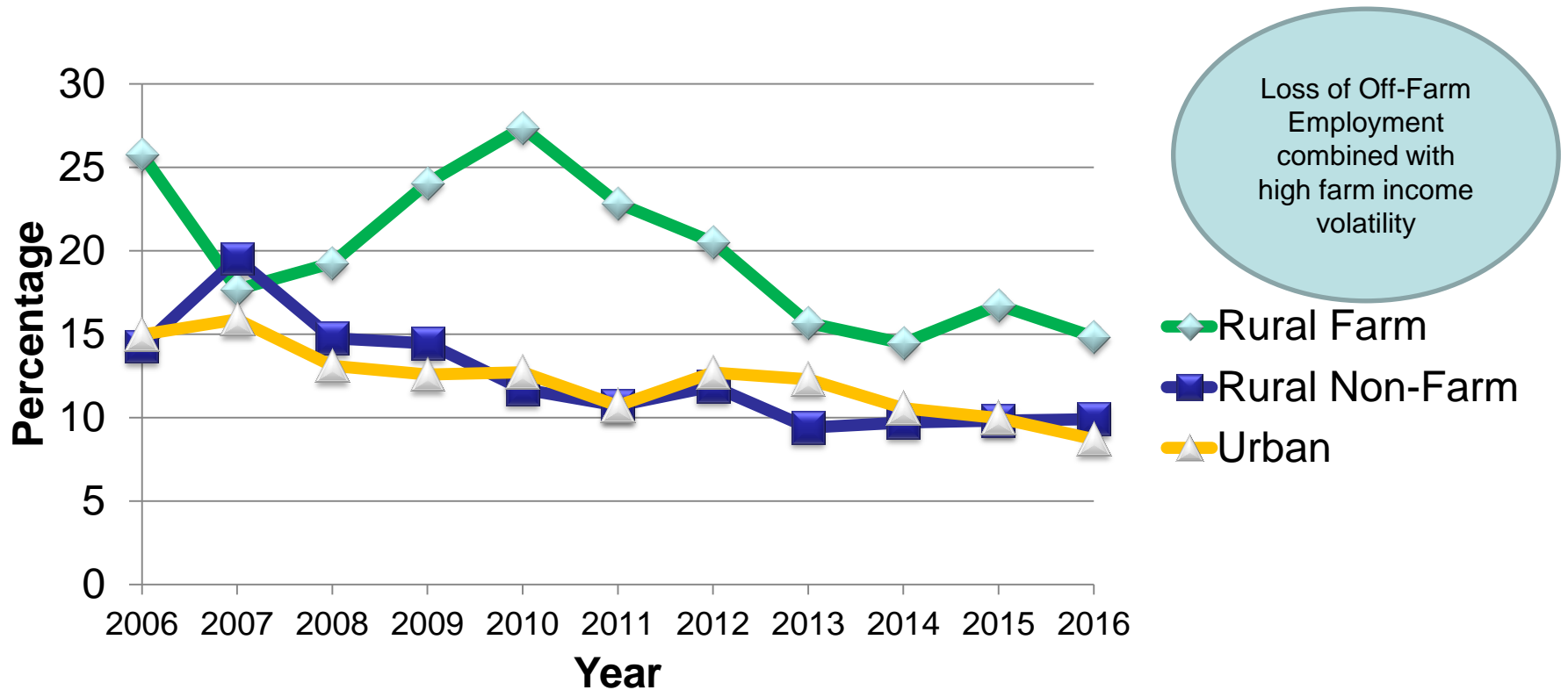
Percentage Changes in Pre-Tax Household Income 2006-2016 [Excluding Households headed by Students and Retired]



Standard Deviation of Percentage Changes in Household Income 2006-2016



Median Absolute Percentage Change in Disposable Income [Farm, Non-Farm Rural and Urban]



Source: Teagasc National Farm Survey

Econometric Results

Dep. Variable: Per Cent Change in Gross Household Income (Bounded Zero to 200)	(1)	(2)
Previous Years' Gross Income (10,000s)	-0.256*** (-3.75)	-2.236*** (-12.04)
Previous Years' Gross Income Squared (10,000s)		0.121*** (11.82)
Rural (0,1)	0.706* (1.76)	0.545 (1.37)
Number of Household Members	-0.456*** (-2.81)	
Farm Household (0,1)	4.290*** (6.07)	4.582*** (6.49)
Married (0,1)	-0.589 (-1.42)	0.514 (1.23)
Widowed (0,1)	-1.072* (-1.68)	-0.749 (-1.16)
Divorced or Separated (0,1)	1.753** (2.18)	1.758** (2.18)
Share of HH Members Aged 65 or More	-0.0681*** (-12.47)	-0.0794*** (-13.88)
Share of HH Members Female		-0.0169*** (-2.60)
Share of HH Members Unemployed		0.0837*** (7.39)
Share of HH Members in School		-0.0702*** (-7.15)
Share of HH Members Not Yet in School		-0.0556*** (-3.52)
2007	-0.138 (-0.23)	-0.0498 (-0.08)
2008	-0.443 (-0.67)	-0.432 (-0.65)
2009	-0.520 (-0.74)	-0.532 (-0.76)
2010	-1.407* (-1.89)	-1.840** (-2.47)
2011	-1.656** (-2.11)	-2.109*** (-2.69)
2012	-0.782 (-1.00)	-1.303* (-1.67)
2013	-2.151*** (-2.81)	-2.728*** (-3.58)
2014	-2.709*** (-3.47)	-2.794*** (-3.58)
2015	-2.354*** (-3.41)	-2.319*** (-3.35)
2016	-2.772*** (-4.18)	-2.625*** (-3.96)
Constant	27.73*** (38.14)	32.52*** (35.76)

Dep. Variable: Per Cent Change in Gross Household Income (Bounded Zero to 200)	(3)
Previous Years Income (10,000s)	-2.269*** (-12.15)
Previous Years Income Squared (10,000s)	0.122*** (11.94)
Rural (0,1)	0.538 (1.36)
Farm Household (0,1)	4.920*** (6.93)
Married	0.387 (0.93)
Widowed	-0.657 (-1.02)
Divorced or separated	1.823** (2.26)
Share of HH Members Aged 65 or More	-0.0770*** (-13.41)
Share of HH Members Female	-0.0110* (-1.66)
Share of HH Members Unemployed	0.0779*** (6.81)
Share of HH Members in School	-0.0703*** (-7.18)
Share of HH Members Not Yet in School	-0.0570*** (-3.62)
Manufacturing Employment (0,1)	-0.497 (-0.97)
Construction Employment (0,1)	3.693*** (6.30)
Retail, Hotel or Restaurant Employment (0,1)	0.654 (1.07)
Financial or Business Employment (0,1)	2.055*** (3.27)
Health, Education, Public Sector (0,1)	0.221 (0.43)
Other Employment (0,1)	-1.741*** (-2.79)
2007	-0.0200 (-0.03)
2008	-0.418 (-0.63)
2009	-0.508 (-0.73)
2010	-1.818** (-2.44)
2011	-2.073*** (-2.65)
2012	-1.242 (-1.59)
2013	-2.696*** (-3.54)
2014	-2.594*** (-3.26)
2015	-2.112*** (-2.98)
2016	-2.413*** (-3.55)

Conclusion

Household Income volatility appears to be declining from very high levels since 2010

Growth of insecure employment is not reflected in annual income volatility statistics

Employment volatilities could be analysed with QNHS data but a growing case for Quarterly household income data

Farm households face higher income volatility than non-farm households and limited access to risk management tools

Construction, Finance and Business employment associated with higher income volatility – influences career decisions

Non-Linear relationship between initial household income and volatility - volatility highest at the bottom and top of the distribution

Thank you for listening
Comments and questions are very welcome

Additional Reading

Cappellari, L., & Jenkins, S. P. (2014). Earnings and labour market volatility in Britain, with a transatlantic comparison. *Labour Economics*, 30, 201-211.

Dynan, K., Elmendorf, D., & Sichel, D. (2012). The evolution of HH income volatility. *The BE Journal of Economic Analysis & Policy*, 12(2).

Modena, F., Rondinelli, C., & Sabatini, F. (2014). Economic insecurity and fertility intentions: the case of Italy. *Review of Income and Wealth*, 60(S1), S233-S255.

Sologon, D. M., & O'Donoghue, C. (2014). Shaping earnings insecurity: Labor market policy and institutional factors. *Review of Income and Wealth*, 60(S1).

Savage, M., Callan, T., Nolan, B., & Colgan, B. (2018). The Great Recession, Austerity and Inequality: Lessons from Ireland. *Review of Income and Wealth*.

Appendix

Disposable income

The components of disposable Household income are gross Household income *less*:

- Employer's social insurance contributions
- Regular inter-Household cash transfer paid
- Tax on income and social insurance contributions
- Tax deducted at source from individual private pension plans

Gross income

The components of gross Household income are:

Direct Income:

Employee income

Gross employee cash or near cash income

Gross non-cash employee income

Employer's social insurance contributions

Gross cash benefits or losses from self-employment

Other direct income:

Value of goods produced for own consumption

Pension from individual private plans

Income from rental of property or land

Regular inter-Household cash transfers received

Interests, dividends, profit from capital investments in unincorporated business

Income received by people aged under 16