

# Friday the 13<sup>th</sup> The Empirics of Bad Luck



**JAN FIDRMUC**  
**JUAN DE DIOS TENA**

# Introduction



- Superstitions have important influence on (some) peoples' actions
- Certain events/actions thought to have important effects
  - Black cat crossing one's path; breaking a mirror; walking under a ladder; spilling salt; etc
  - Four-leaf clover; horse-shoe; rabbit foot; shooting star; etc.
  - Astrology
- People often adjust their behavior and/or attribute certain outcomes to such occurrences

# Introduction (cont'd)



- Lucky and unlucky numbers and days
- 13 considered unlucky in European culture (Triskaidekaphobia); 7 lucky number
  - Different beliefs in other cultures: 4/8 in Asia
- Origins: 12 *perfect* number, 13 one too many
  - 12 months, 12 hours, 12 deities of Olympus, 12 tribes of Israel, 12 Apostles of Jesus, 12 successors of Muhammad, 12 signs of the Zodiac, 12 years of the Buddhist cycle
- Friday unlucky day; Friday the 13<sup>th</sup> particularly unlucky
  - Jesus crucified on Friday; sailors believed it unlucky to start a voyage on Friday

# Introduction (cont'd)



- **This can have important behavioral implications**
  - Airlines and hotels avoid using 13 in row/flight/floor/room numbers
  - In the UK, house at #13 sells for £6,500 less on average than other houses in the same street
  - 28% of UK streets do not have number 13
  - US: 2.2% penalty for houses ending with 4 (2.5% premium if ending with 8) in areas with high immigrant share
  - Vietnam: 12% more children born in auspicious years
- **People avoid important decisions on unlucky days**
  - Buying/selling house, starting journeys or new undertakings, getting married
- **\$800-900mn in lost business on F13 in the US**

# This Paper



- Effect of being born on the 13<sup>th</sup> and on Friday the 13<sup>th</sup> on employment, wages, and marriage
- Important outcomes, unlikely to be affected by short-term behavioral adjustments
  - Cf accidents, investments, etc
- Potential mechanism at work
  1. Inauspicious days cause back luck
  2. People born on an unlucky day different in terms of confidence, attitudes to risk, etc.
  3. People born on an unlucky day subject to discrimination (positive or negative) by others

# Data

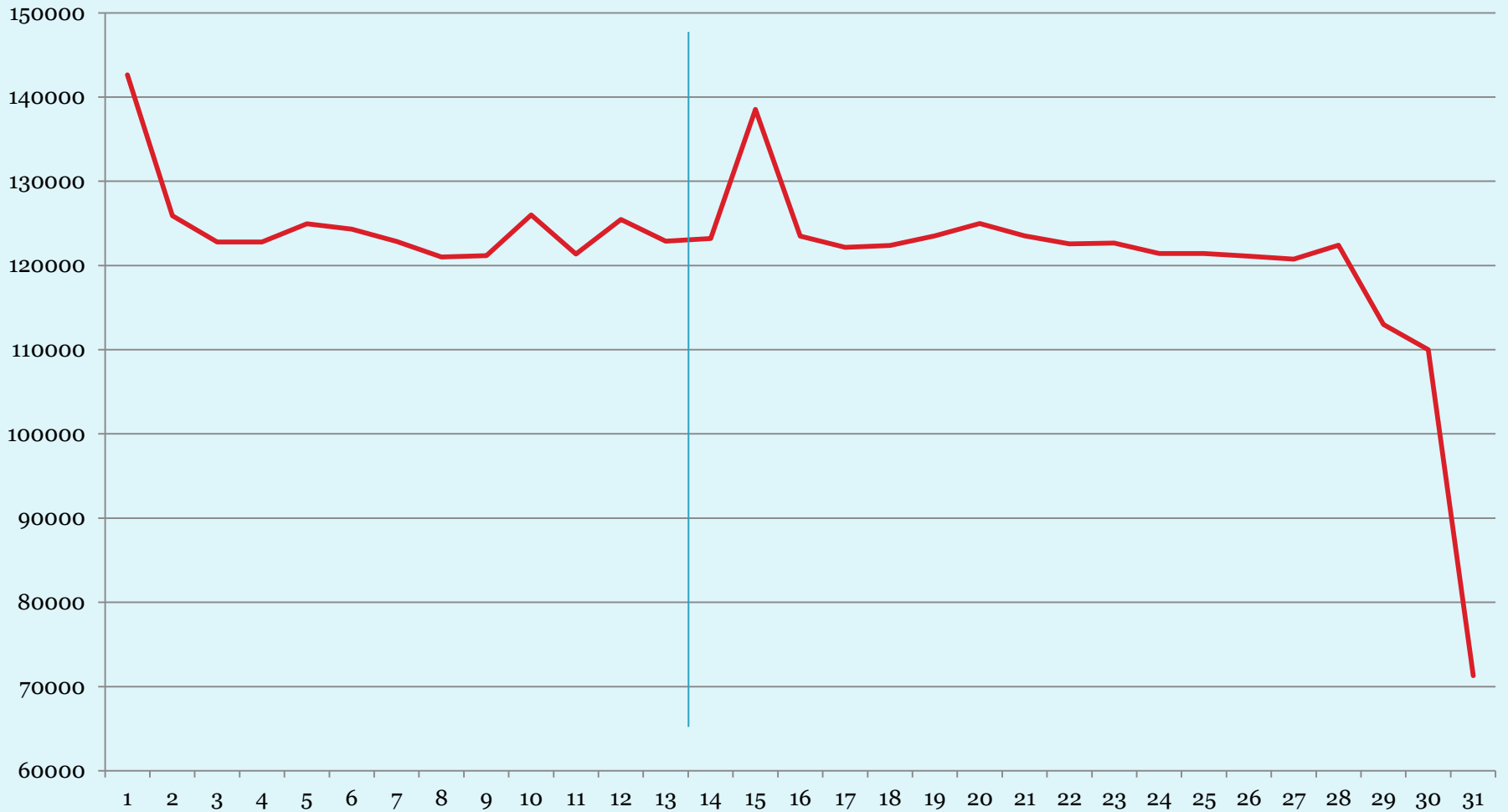


- UK Labour Force Survey, 1999-2011
- Over 100K individuals every quarter, almost 4 million usable observations
- Detailed socio-economic information, including date of birth (restricted version)
- Test:
  1. Effect of being born on the 13<sup>th</sup>
  2. Falsification tests: born on the 12<sup>th</sup> and 14<sup>th</sup>
  3. Effect of being born on Friday the 13<sup>th</sup>

# Unlucky 13



# Some Numbers











# Unlucky in love?



## Probability of being single

	Birth on the 13 <sup>th</sup>			Birth on the 12 <sup>th</sup>			Birth on the 14 <sup>th</sup>		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Birth day effect	-.0024872 (.00162) [-1.54]	-.006715 (.0024) [-2.80] **	.0010283 (.00217) [0.47]	-.00301 (.0016) [-1.88] *	-.00351 (.00239) [-1.47]	-.002273 (.00214) [-1.06]	-.0035679 (.00162) [-2.21]	-.0020213 (.00243) [-0.83]	-.0045031 (.00214) [-2.10] **
No of obs	3802201	1867180	1935020	3802201	1867180	1935020	3802201	1867180	1935020
Pseudo R2	0.3934	0.3976	0.3994	0.3934	0.3976	0.3994	0.3934	0.3976	0.3994
LR chi2	1893916.4	960861.7	954631.5	1893917.	960856.	954632.	1893918.9	960854.6	954635.66
Prob> F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			



# FRIDAY THE 13<sup>TH</sup>



# Unlucky at work?



## Probability of being employed (full or part time)

	Birth on Friday the 13 <sup>th</sup>		
	Total	Men	Women
Birth day effect	-.0009006 (.00189) [-0.48]	-.0000888 (.00246) [-0.04]	-.0015747 (.00257) [-0.61]
Number of obs	2,952,022	1,537,869	1,398,711
Pseudo R2	0.1908	0.0821	0.2081
LR Chi2	267397.28	57138.82	128840.10
Prob>chi2	0.0000	0.0000	0.0000

# Unlucky at payday?



## Effect on hourly wage

	Birth on Friday the 13 <sup>th</sup>				
	Total	Men	Women	Blue collar	White collar
Birth day effect	-0.3032 (.3061) [-0.99]	-0.5231 (.5586) [-0.94]	-0.0821 (.3480) [-0.24]	-0.4704 (0.853) [-0.55]	-0.5164 (0.9653) [-0.53]
Number of obs	258117	106990	151127	34074	16247
Adj R <sup>2</sup>	0.0342	0.0318	0.0405	0.0632	0.0525
F	183.61	74.19	131.32	50.59	22.45
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0000

# Unlucky in love?



## Probability of being single

	Birth on Friday the 13 <sup>th</sup>		
	Total	Men	Women
Birth day effect	.0082634 (.00421) [1.96] **	.00801 (.00627) [1.28]	.0092068 (.00564) [1.63] *
Number of obs	3,802,201	1,867,180	1,935,020
Pseudo R2	0.3934	0.3976	0.3994
LR chi2	1893917.92	960855.55	954633.98
Prob>F	0.0000	0.0000	0.0000



# Matching Model



Birth day effect on	Birth on the 13 <sup>th</sup>	Birth on Friday the 13 <sup>th</sup>
<b>Employment</b>	.001784503 (.002969413) [0.60]	.000569111 (.003053289) [0.19]
<b>Number of obs</b>	2,952,022	2,952,012
<b>Hourly wage</b>	.014812172 (.178562015) [ 0.08]	-.121767635 (.145375928) [-0.84]
<b>Number of obs</b>	258,117	257,974
<b>Being single</b>	.002247008 (.004667413) [ 0.48]	.006989903 (.005125805) [ 1.36]
<b>Number of obs</b>	3,802,201	3,802,155

# Conclusions



- Superstitions and irrational beliefs have important effects of people's behavior
- Some 'inauspicious' outcomes difficult to avoid
- Little evidence that being born on the 13<sup>th</sup> has adverse effect on employment, pay or marriage
  - Men more likely to be employed, and less likely to remain single but effects small in magnitude
- Little adverse effect of being born on Friday the 13<sup>th</sup>
  - Women more likely to remain single (not very robust)
- The 13<sup>th</sup>, and Friday the 13<sup>th</sup>, are days as any other

Daniel Fidrmuc, born on Friday, 13<sup>th</sup> April 2001

