

Estimating the effects of the 2010/2011 Canterbury earthquakes on international migration flows to and from Greater Christchurch

.... a work in progress ...



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Conference



Context of monitoring and understanding local / community population changes post - EQ

- Migration flows are the major driver of post – EQ changes in population
- Indicator of the population effects over the earthquake and subsequent recovery /rebuild
- External (international) permanent / long term migration flows are registered
- internal migration flows more difficult to measure
- This is a work in progress – effects will continue until the recovery / rebuild is complete



The population adjustment components

- In departure flows
 - Permanent – long term leavers
 - short term EQ refugees
- In arrival flows
 - EQ short term “Refugees” returning
 - new settlers arriving for new opportunities
- Different distribution of these drivers of migration over the post EQ recovery



Some components of population change – June 2012 year

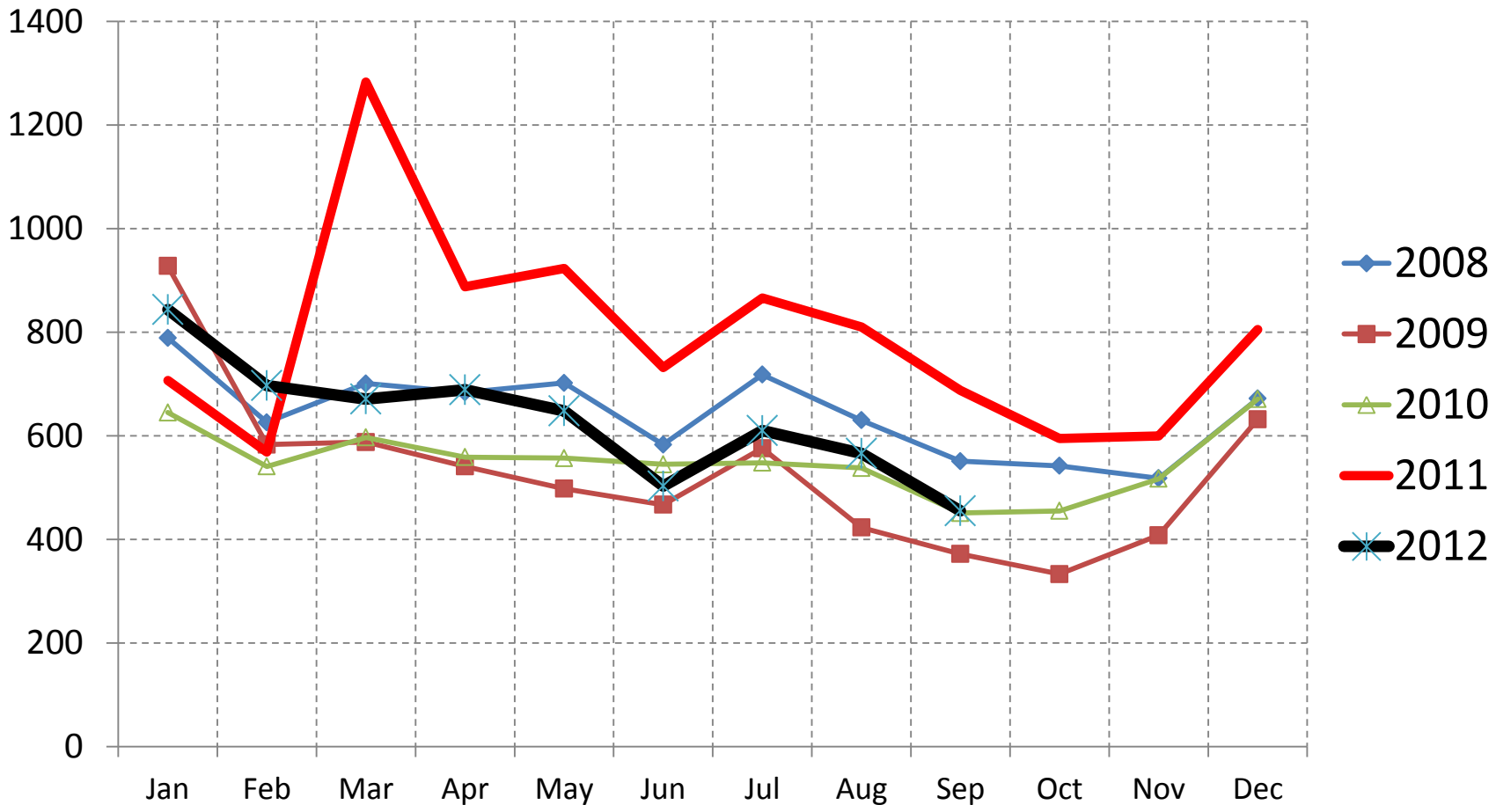
Population Component	Change over the Year to June				Difference from 2009/2010	
	2009	2010	2011	2012	2010/2011	2011/2012
Births	6,060	6,040	5,840	5,280	-200	-760
Deaths	3,280	3,260	3,620	3,340	340	80
Natural increase	2,780	2,780	2,240	1,920	-540	-840
Adjusted external Arrivals	9,900	9,300	8,350	7,850	-950	-1,450
Adjusted external departures	7,900	6,850	9,100	9,300	2,250	2,450
Resulting external net migration	2,000	2,450	-750	-1,450	-3,200	-3,900

Statistics - International Migration (PLT)

**PLT = Permanent “Long Term” -
arrivals, departures, net
migration ..**

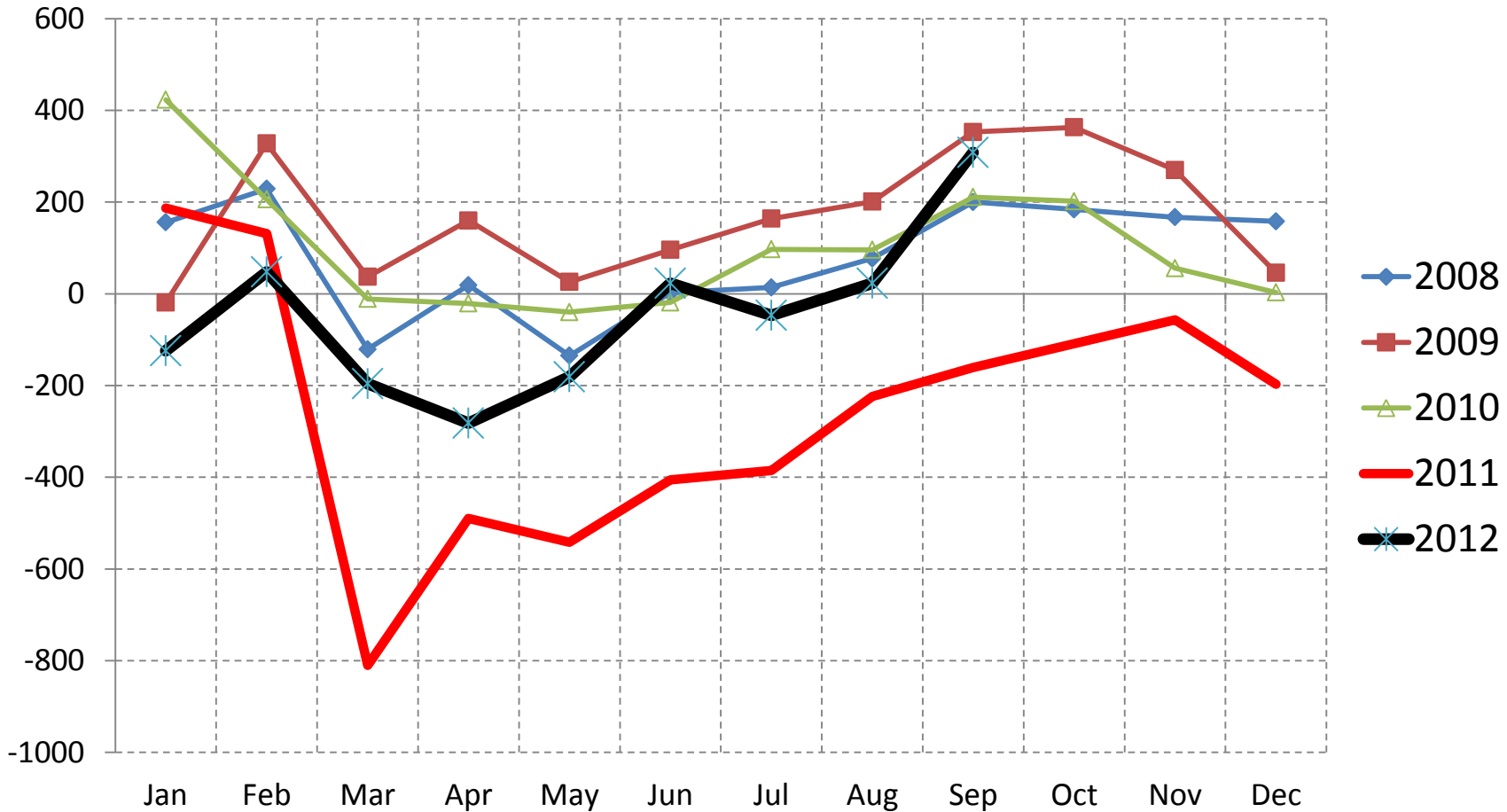


International migration departures - Greater Christchurch





International migration arrivals - Greater Christchurch



International Migration (PLT)

**Effect of the EQ on international
migration movements**

Expected vs Actual Movements



A working measure of the effect of the Christchurch EQ on international migration arrivals and departures

- An estimator of “expected” migration arrivals or departures if there was no earthquake
- Estimates relativities between historical seasonal movements for Greater Christchurch and rest of NZ
- The rest of NZ defined as the North Island – as the rest of the Sth Isl linked to Chch
- by age, sex, origin / destination country, month etc.



Limitation - Compares relativities in volumes rather than “rates”

- But the Gtr Chch population by age has decreased measurably
- This would logically reduced the volumes departing for the same “rate”
- Calculating the relativities as differences in population based external departure “rates” would correct for this



Relativities were estimated for year before the EQ only .. Longer term average ..

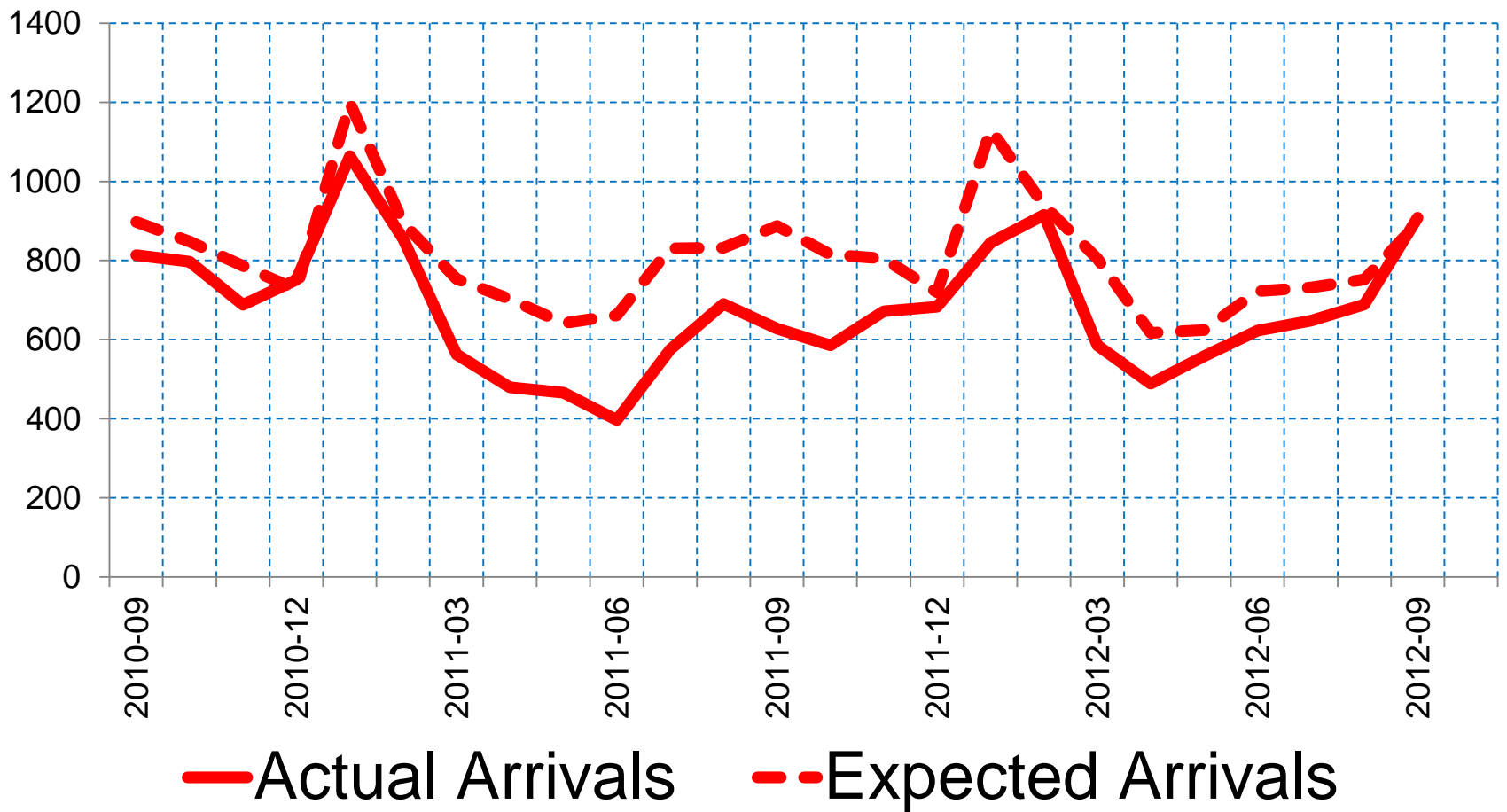
- Relativities in migration flows estimated by month for the year before the EQ only
- Calculate relativities as a monthly mean over several years?
- Would bring in effects of longer term shifts in relativities ...

Resulting Estimated Effect of the EQ on permanent / long term international migration movements

**Estimated as the net of
Expected vs Actual Movements
by month for any demographic
group**

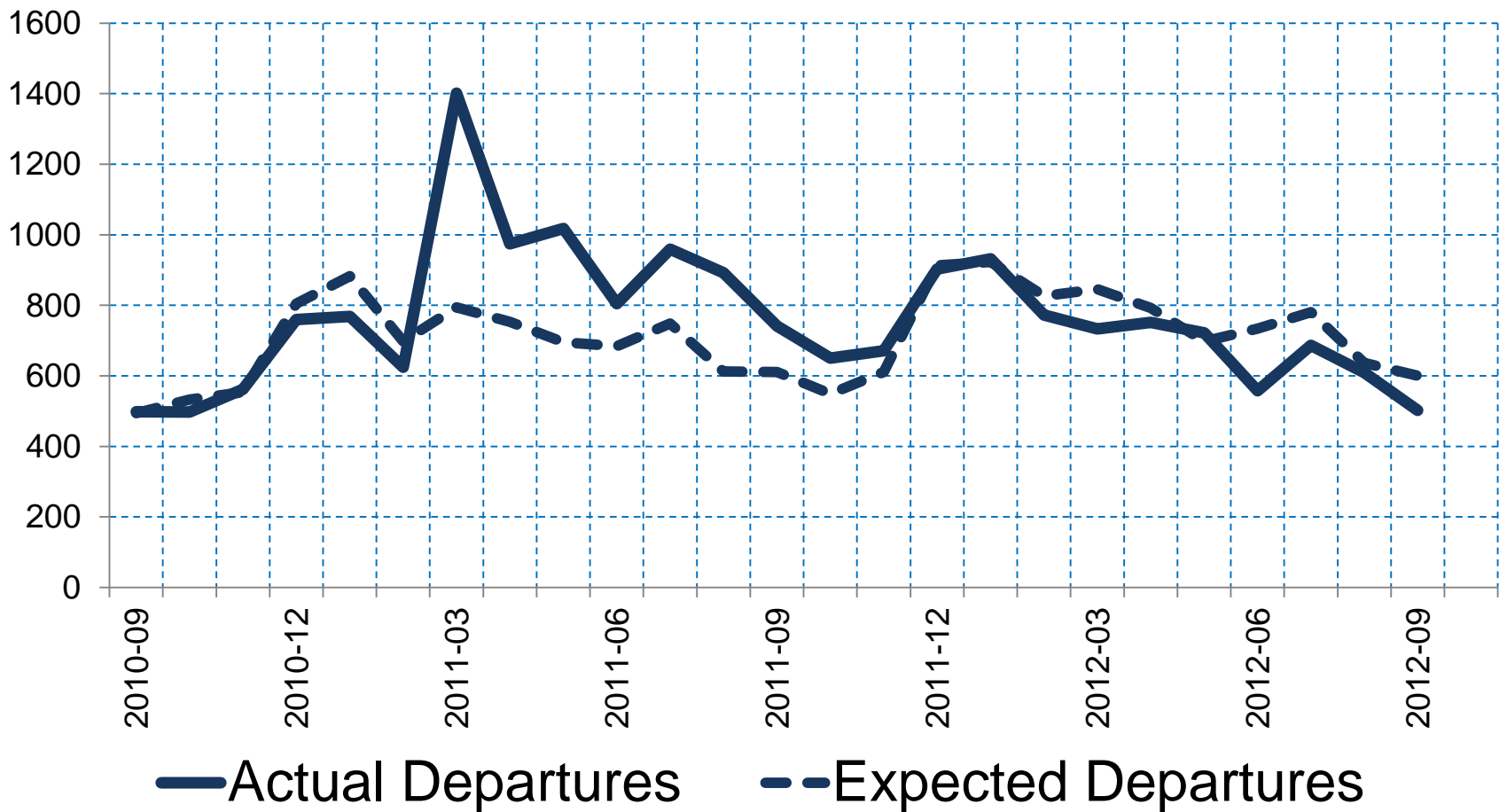


Actual versus “expected” International migration arrivals - Greater Christchurch



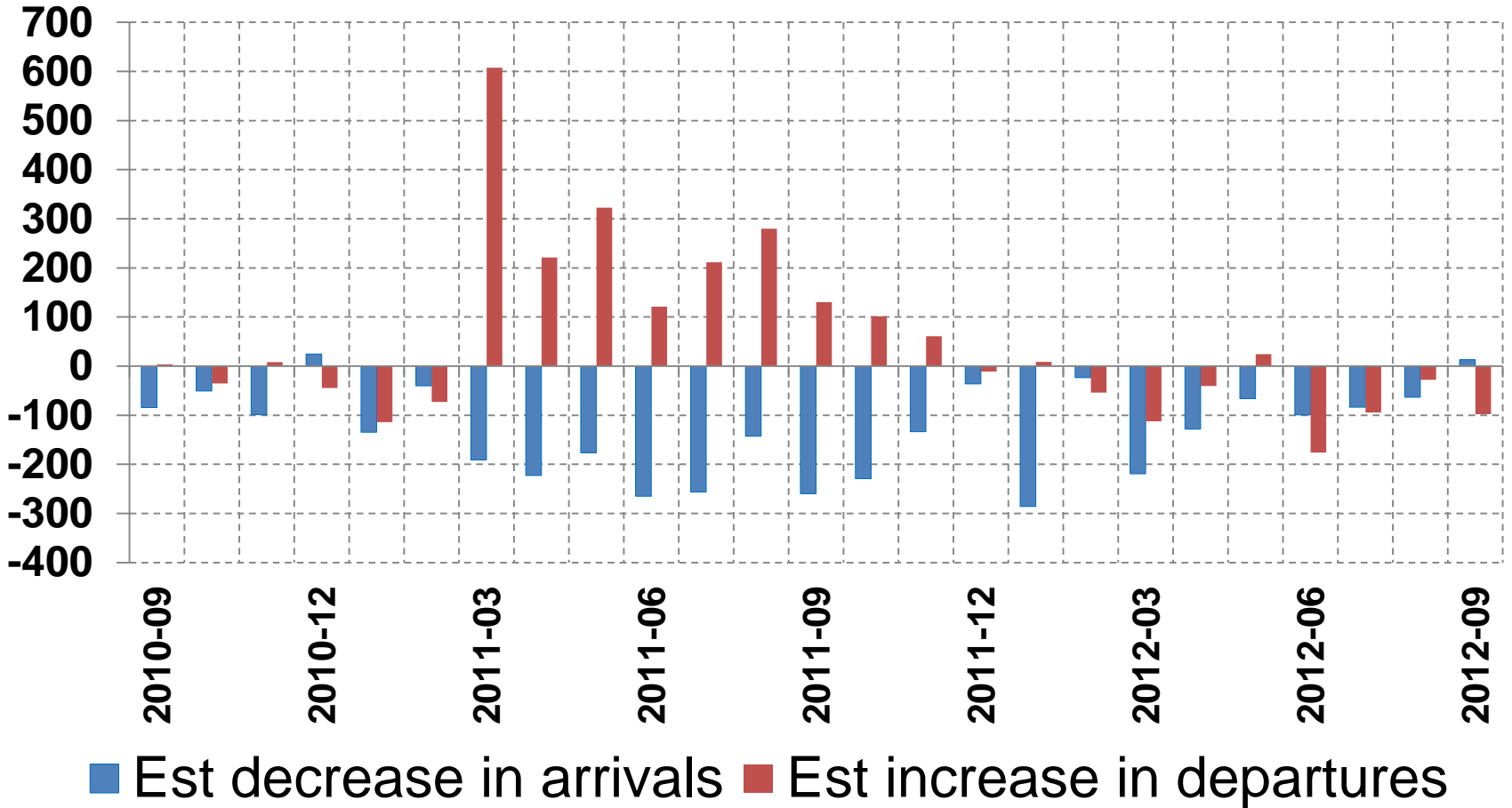


Actual versus “expected” International migration departures - Greater Christchurch



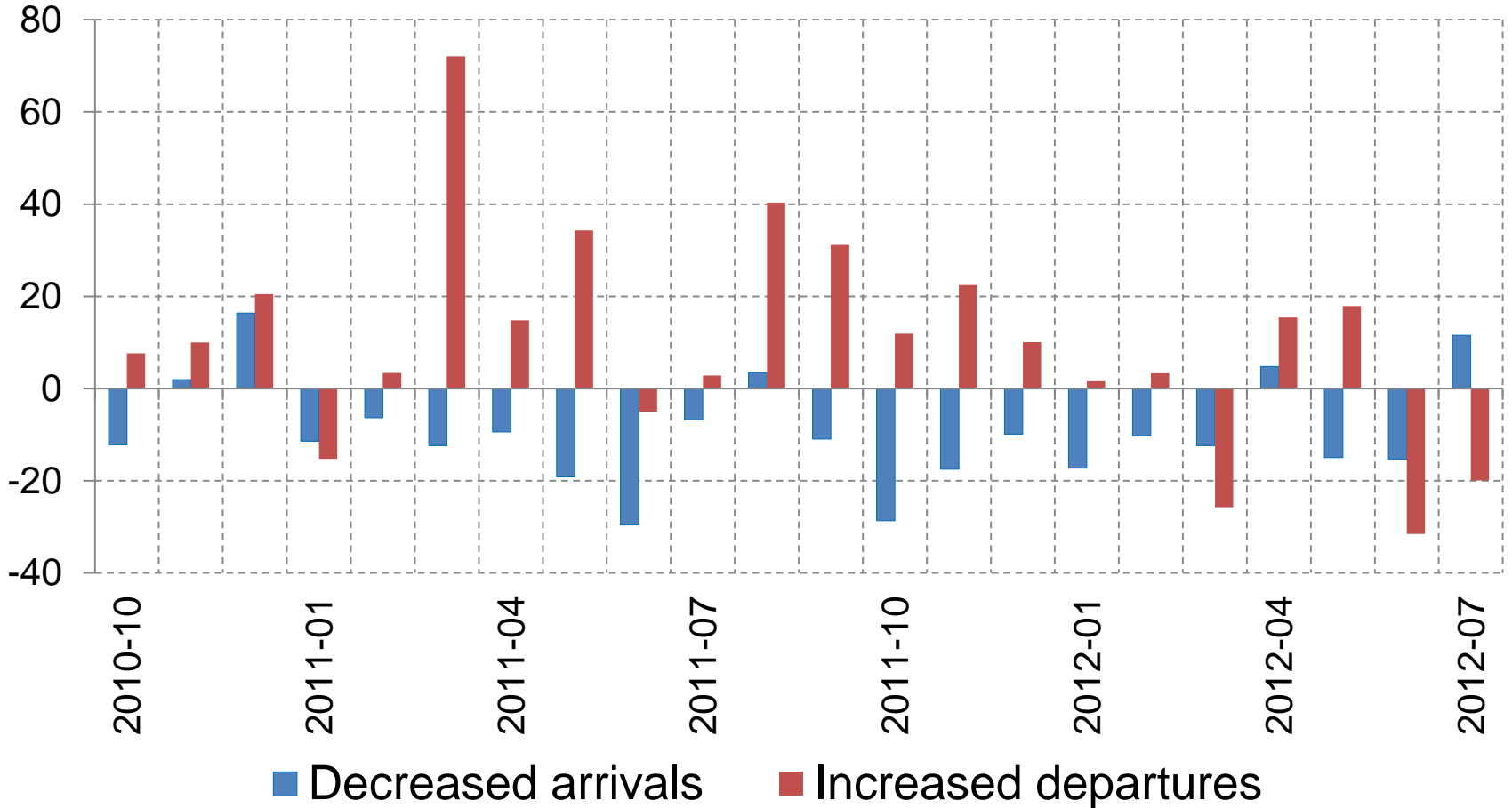


Estimated “earthquake effect” on international arrivals and departures by month for Greater Christchurch



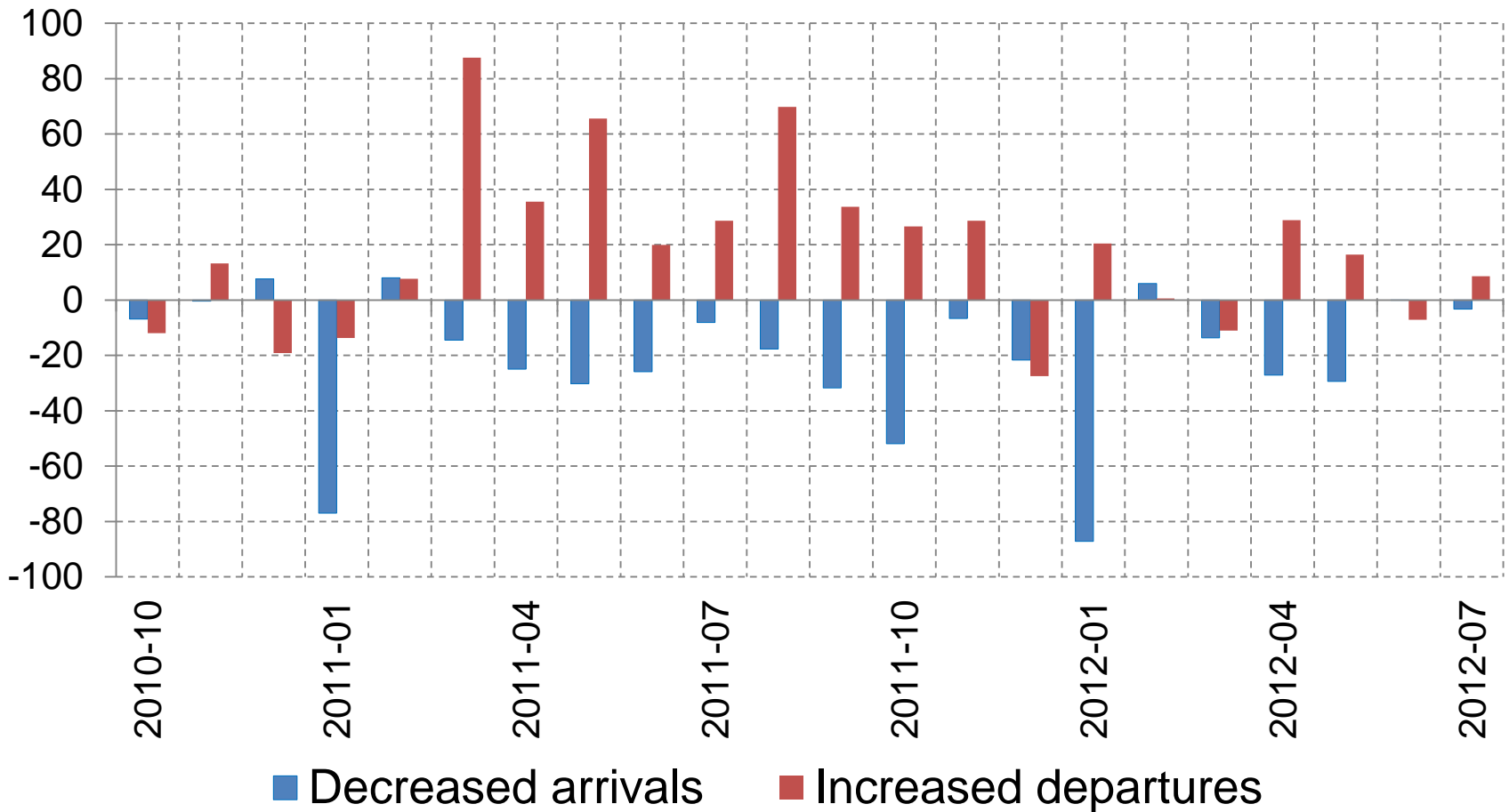


Estimated “earthquake effect” on international arrivals and departures – ages 0 to 4 yrs only



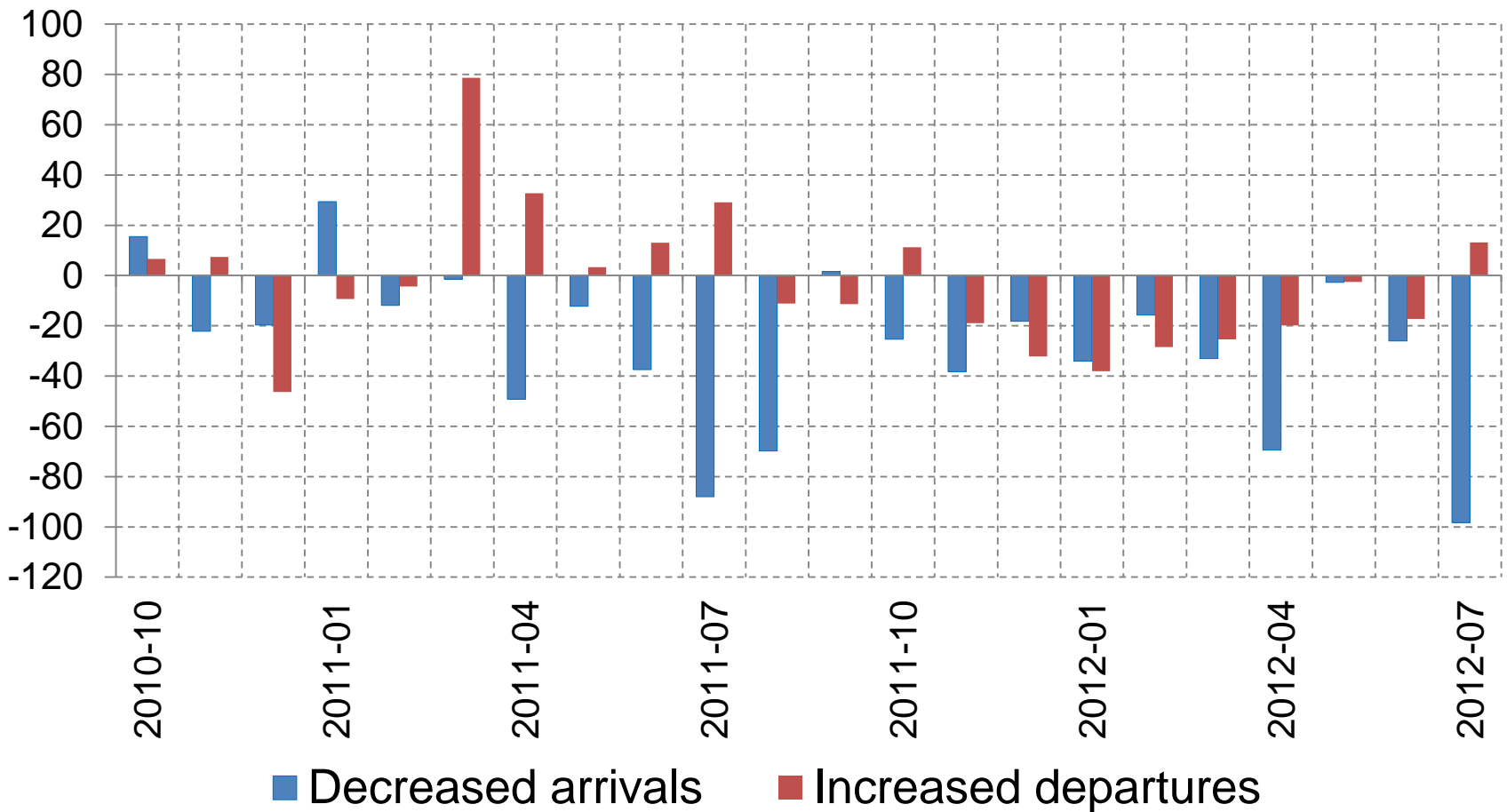


Estimated “earthquake effect” on international arrivals and departures – ages 5 to 14 yrs only



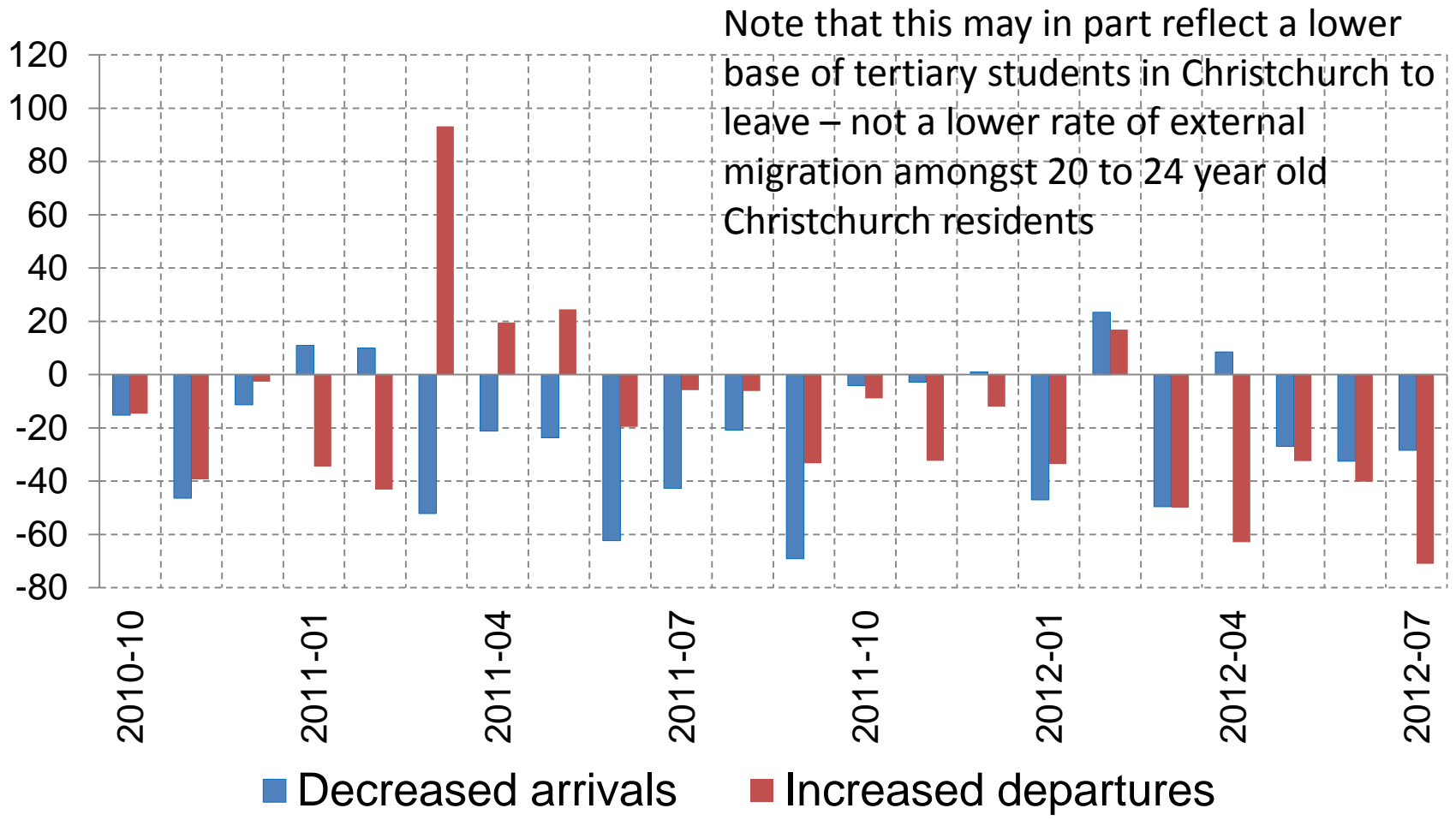


Estimated “earthquake effect” on international arrivals and departures – ages 15 to 19 yrs only



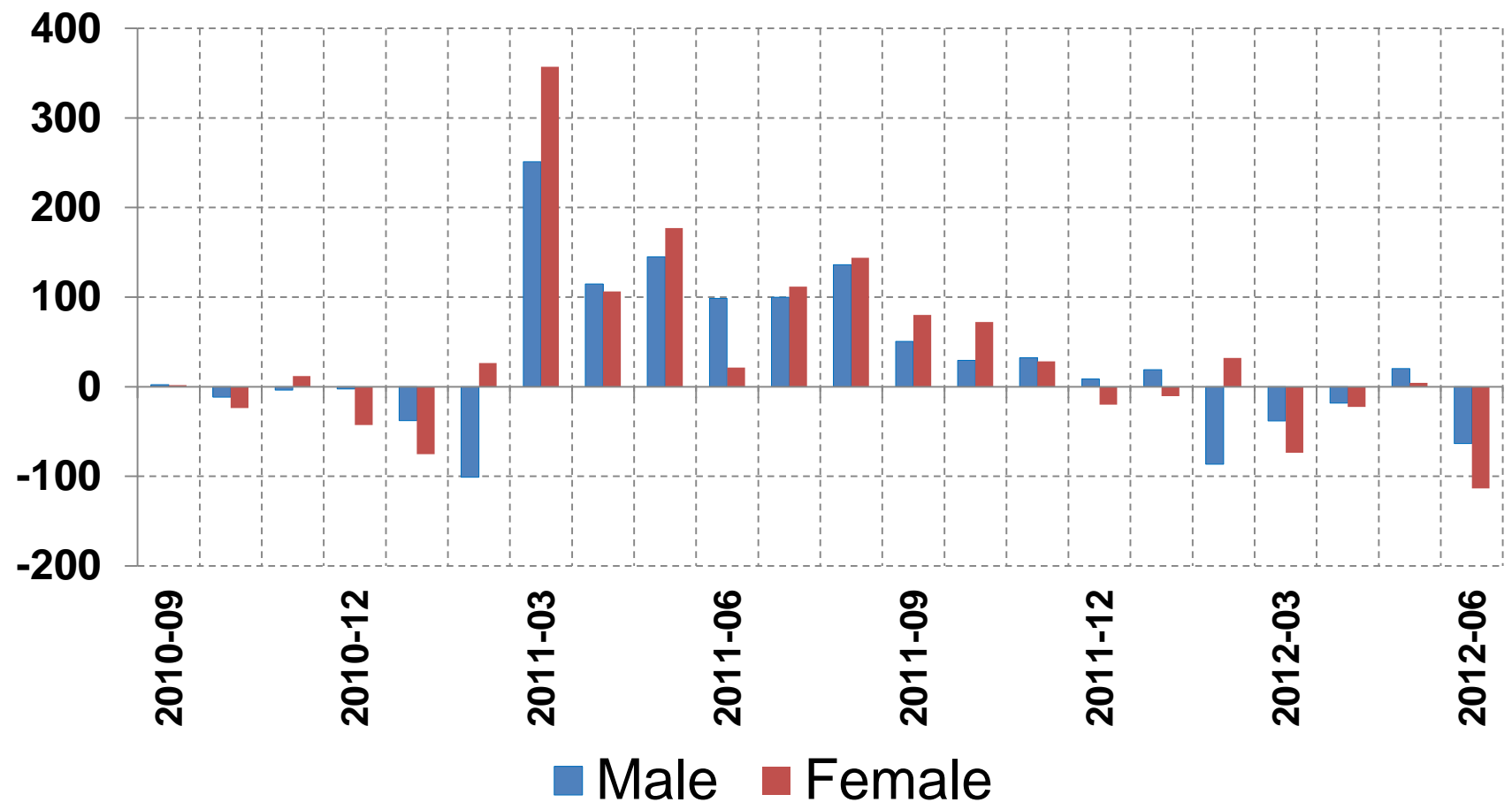


Estimated “earthquake effect” on international arrivals and departures – ages 20 to 24 yrs only





Slightly higher departures effect for females than males ..



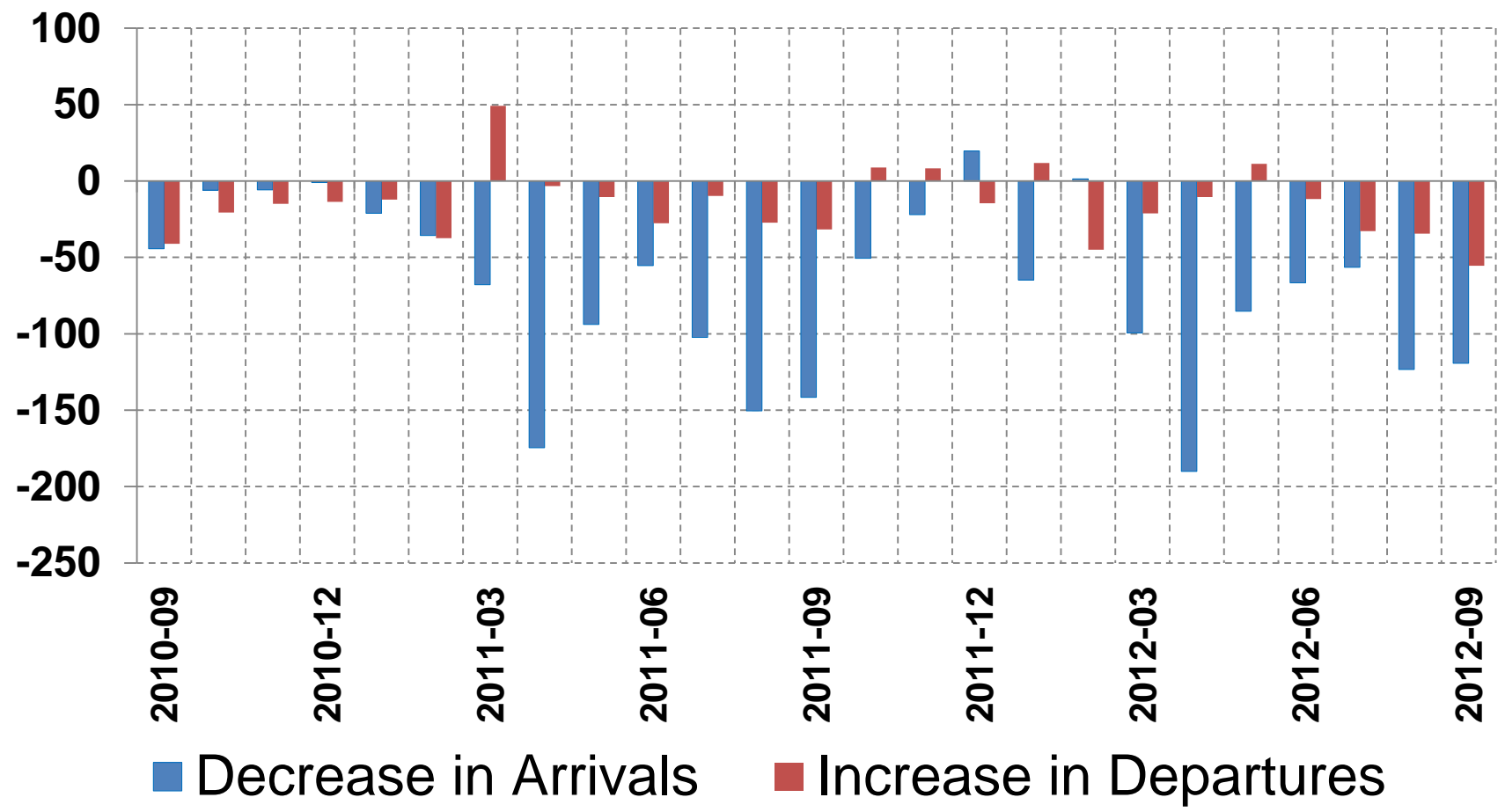


Summary of Net Effects by Country Region to Sept 2012

Country Region	Decrease in Arrivals	Increase in Departures
Not Defined or miscoded	-294	-10
Australia	-653	1,685
Pacific / Melanesia	-52	22
North Asia	-1,757	-386
South and East Asia	-514	93
Central Asia and Indian subcontinent	-97	5
Southern Africa	52	11
Other Africa and Middle East	-74	-52
United Kingdom & Ireland	66	16
Other Europe and USSR	-84	223
Americas	-171	34
Total	-3,254	1,220

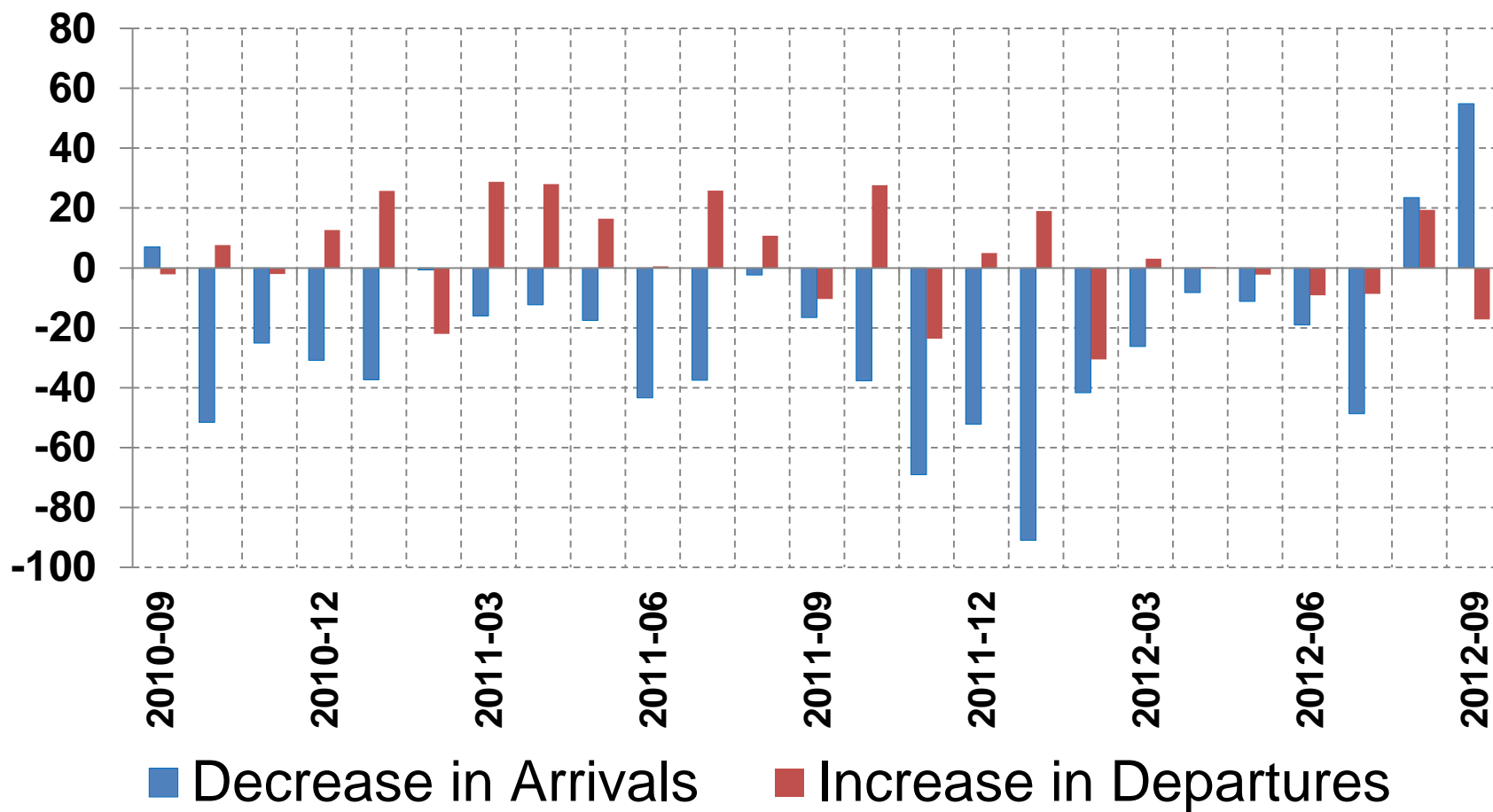


Sustained lower arrivals effect from North Asia ..



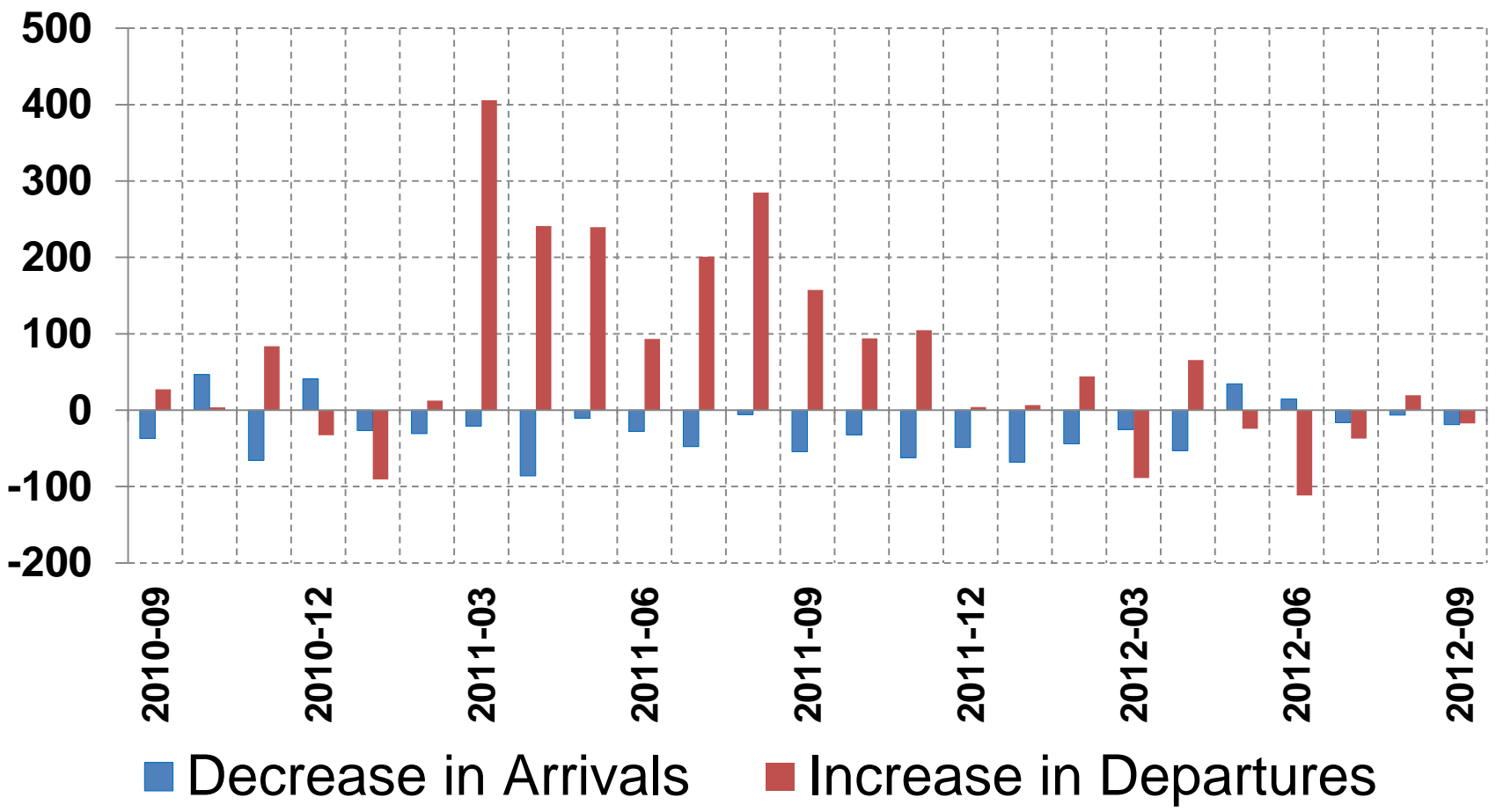


Other Asia ..



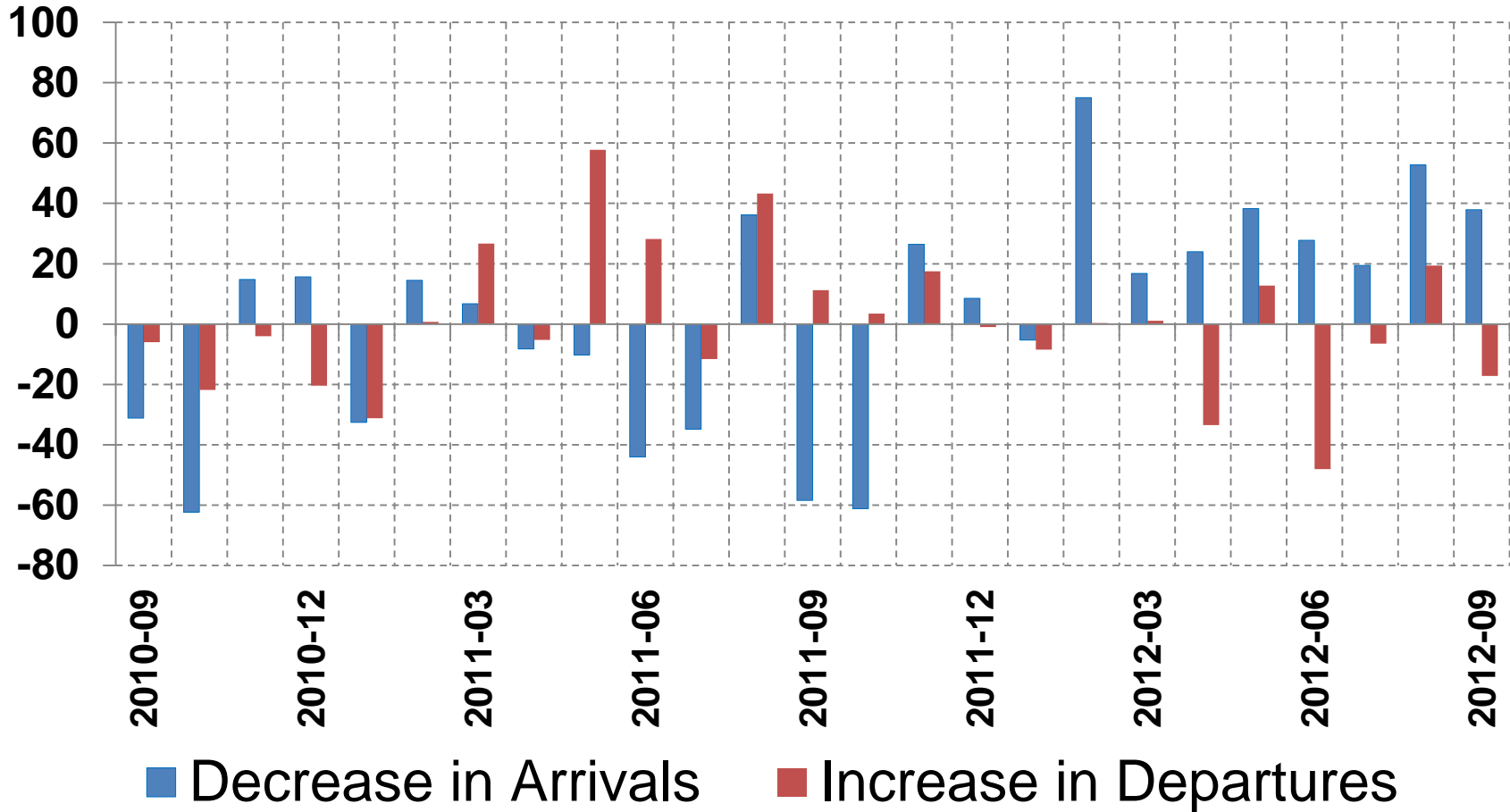


Contrasts with Australia ..





UK / Ireland ...



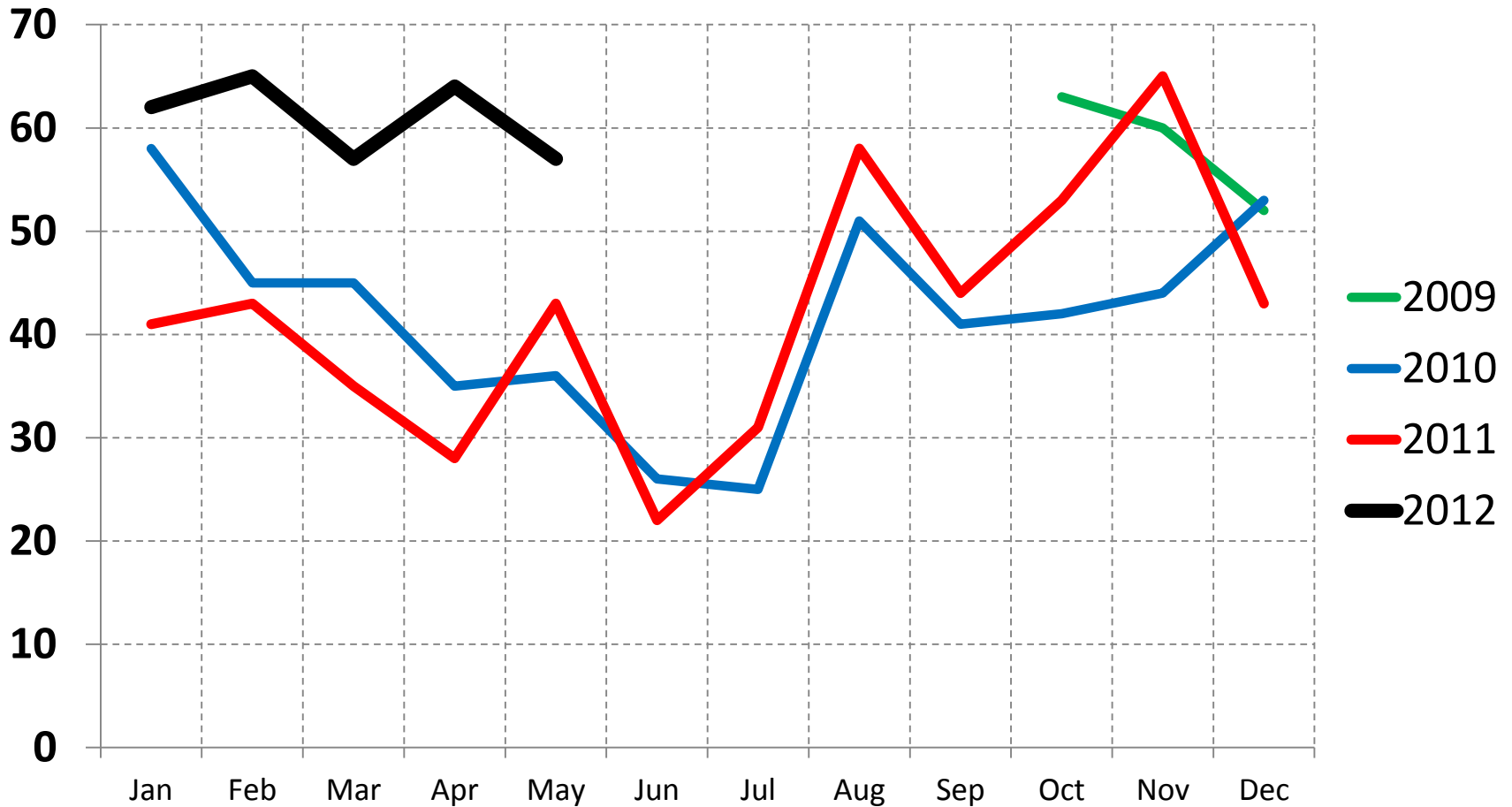


Occupational Profile of Migration Flows to and from “Greater Christchurch”

- predictions of a massive increase in the demand for labour over the rebuild ...
- evidence of increased labour demand so far?
- data to May 2012
- Greater Christchurch = Christchurch City, Waimakariri and Selwyn Districts

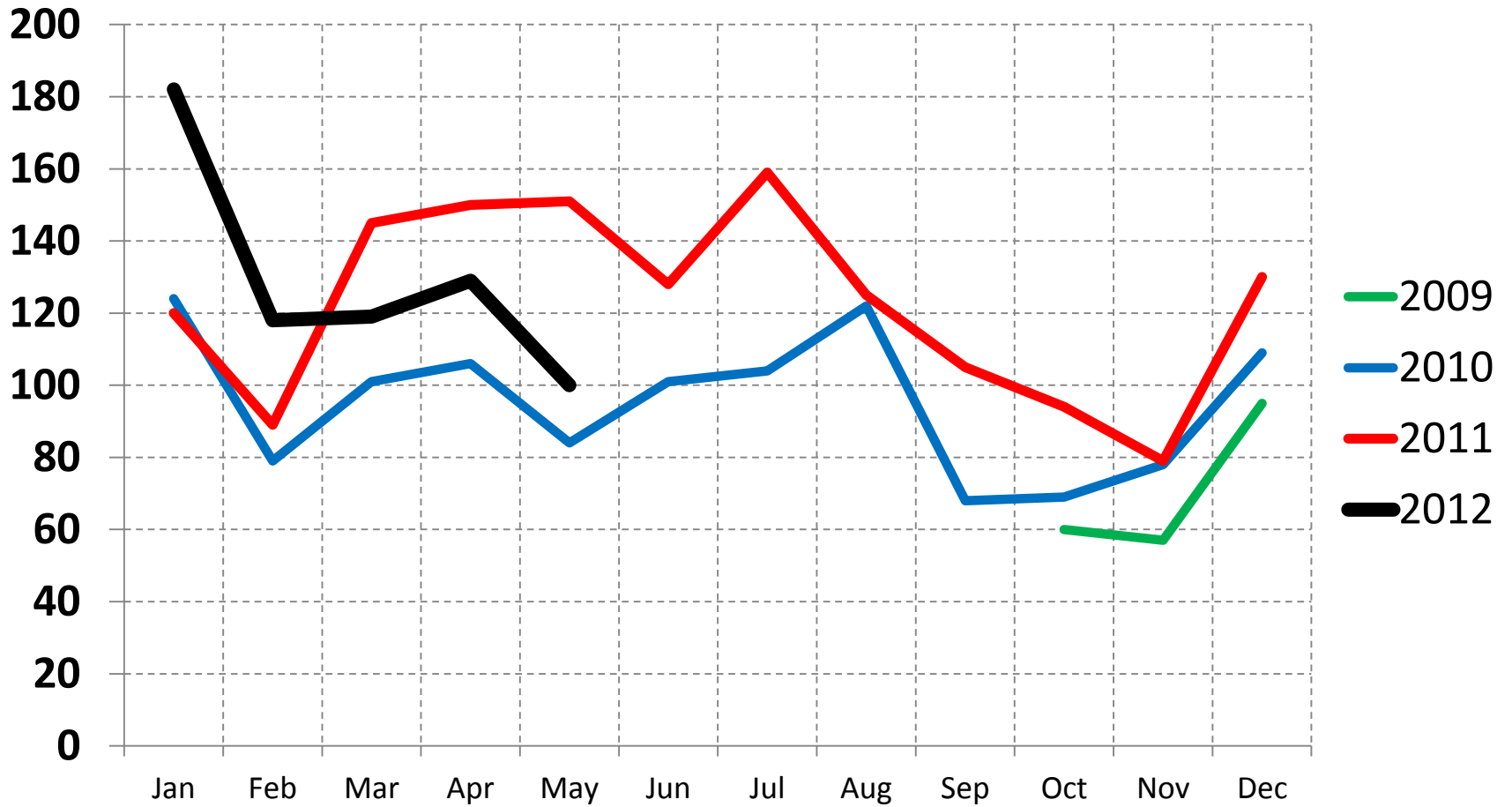


Occupational Profile of International “Long Term” Migration Arrivals – Technicians and Trades Workers ...





Occupational Profile of International “Long Term” Migration Departures – Professionals ...





Some summary points

- Simple estimator of effect of EQ in external migration flows based on relativities
- Sensitivity testing to variations / more sophisticated methods would be interesting ... but
- Provides coherent results that provide insight into the population adjustment process post EQ
- Understanding effects of EQ on external migration flows a work in progress
- Effects of EQ on international PLT flows are changing over time and nuanced by age, sex, country, occupation, direction of flow ...