



Industrial Studies Association 2014 Conference  
*Portland, May 28 – 30, 2014*

**Demography and the Labor Market:  
Two factors for preventing and reducing the effects  
of natural disasters**

**Francesca Sperotti**

ADAPT

@FSperotti – www.adapt.it

# Why Demography?

**CAUSE (I)**

and **CONSEQUENCE (II)** of natural disasters  
(III) a possible **key-lever** for recovery?

## **I. CAUSE**

Demographic trends are one of the main causes  
of climate change

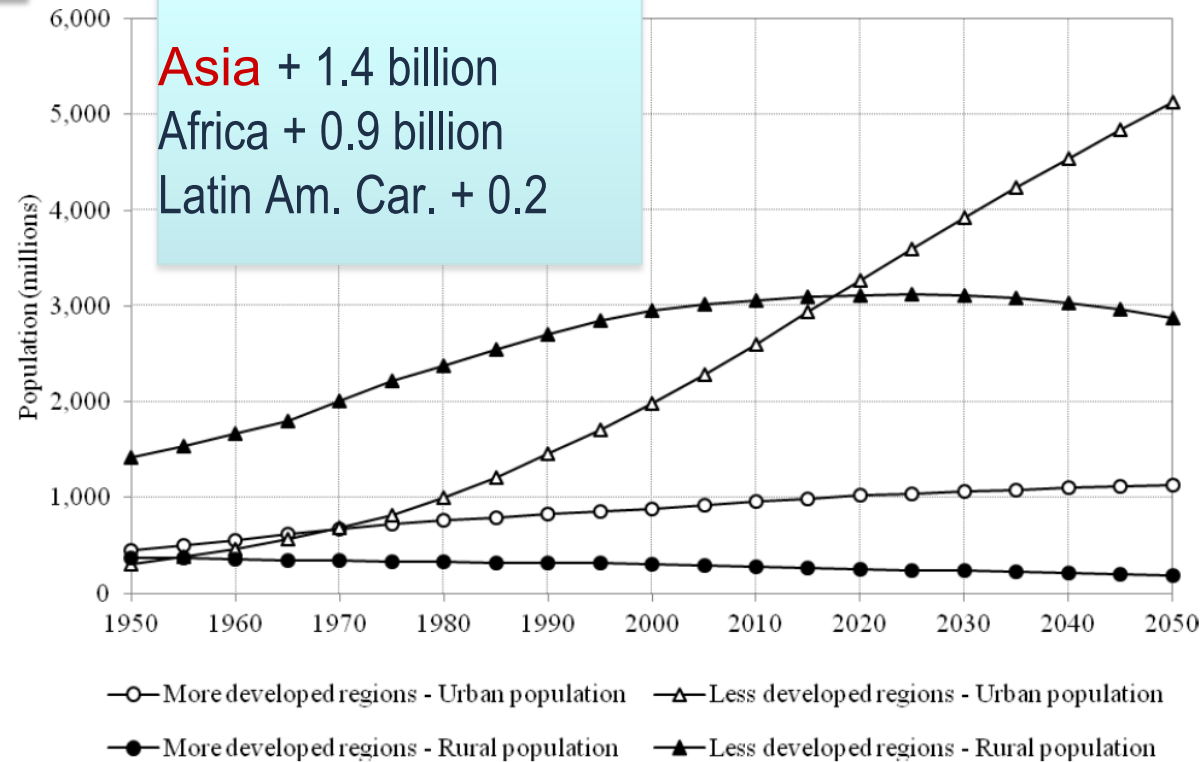
## Population growth

Area	2013	2100 (proj.)
World	7 162 119	10 900 000
More developed regions	1 252 805	1 280 000
<b>Developing countries</b>	<b>6 807 748</b>	<b>9 600 000</b>

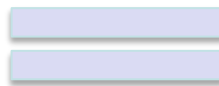
UN, 2013



## Urbanization trends

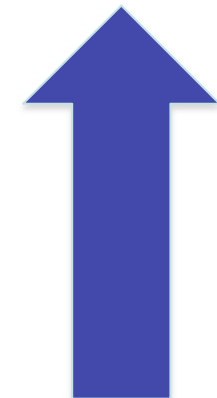


UN, 2012



Area	Particulate matter concentration (PM10)
World	46
More developed regions	18
Less developed regions	<b>49</b>
Least developed countries	<b>59</b>

UN, 2013



**Demographic trends** are one of the main causes of climate change resulting in the **occurrence of natural disasters**

# Natural disasters occurrences and impacts 2012

No. of natural disasters	Africa	Americas	Asia	Europe	Oceania	Global
<b>Climatological 2012</b>	16	12	12	45	0	<b>85</b>
<i>Avg. 2002-11</i>	14	14	12	17	1	<b>59</b>
<b>Geophysical 2012</b>	0	6	23	3	0	<b>32</b>
<i>Avg. 2002-11</i>	3	7	22	2	2	<b>36</b>
<b>Hydrological 2012</b>	30	26	71	16	7	<b>150</b>
<i>Avg. 2002-11</i>	46	41	82	23	5	<b>197</b>
<b>Meteorological 2012</b>	11	35	39	1	4	<b>90</b>
<i>Avg. 2002-11</i>	9	34	39	14	7	<b>102</b>
<b>Total 2012</b>	<b>57</b>	<b>79</b>	<b>145</b>	<b>65</b>	<b>11</b>	<b>357</b>
<i>Avg. 2002-11</i>	<b>72</b>	<b>95</b>	<b>156</b>	<b>56</b>	<b>16</b>	<b>394</b>

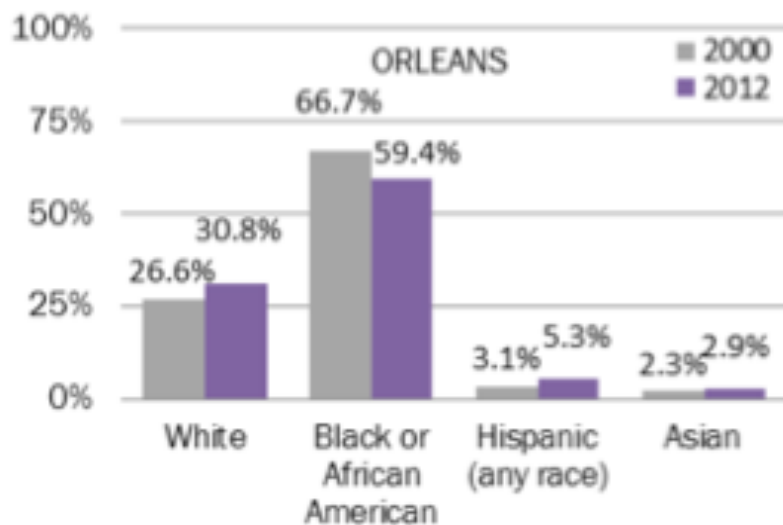
No. of victims (millions)	Africa	Americas	Asia	Europe	Oceania	Global
<b>Climatological 2012</b>	28.01	1.82	6.37	0.45	0.00	<b>36.65</b>
<i>Avg. 2002-11</i>	23.86	1.36	76.80	0.27	0.00	<b>102.29</b>
<b>Geophysical 2012</b>	0.00	1.41	1.48	0.03	0.00	<b>2.91</b>
<i>Avg. 2002-11</i>	0.08	0.83	7.13	0.01	0.07	<b>8.12</b>
<b>Hydrological 2012</b>	9.34	1.54	53.52	0.10	0.24	<b>64.74</b>
<i>Avg. 2002-11</i>	2.08	4.26	111.05	0.28	0.06	<b>117.71</b>
<b>Meteorological 2012</b>	0.47	0.80	18.93	0.00	0.02	<b>20.22</b>
<i>Avg. 2002-11</i>	0.37	2.19	37.05	0.11	0.04	<b>39.75</b>
<b>Total 2012</b>	<b>37.82</b>	<b>5.57</b>	<b>80.29</b>	<b>0.58</b>	<b>0.26</b>	<b>124.52</b>
<i>Avg. 2002-11</i>	<b>26.38</b>	<b>8.64</b>	<b>232.03</b>	<b>0.66</b>	<b>0.17</b>	<b>267.88</b>

## II. CONSEQUENCE

Natural disasters change the **demographic composition** of populations and **workforce**

## a. Hurricane Katrina – New Orleans (August 2005)

	2000	2005 (prior)	2010	2012
Tot. pop.	484,674	437,186	343,289	369,250
< 5 years old	6.9	7.8	6.4	6.7
< 18 years old	23.2	21.1	21.3	21.4
18-65 years old	65.1	67.8	67.8	67.1
> 65	11.7	11.1	10.9	13.0



US Census,  
2012

Nowadays the population, which recently started to grow, is slightly **older** but significantly **whiter** than the 2005-scenario (prior to the hurricane).



## b. The Great East Japan Earthquake (March 2011)

Japan	Oct. 2009	Oct. 2011	Apr. 2014
Tot. pop. (thousand)	127,510	127,799	127,140
0-14	13.3	13.1	12.8
15-64	63.9	63.6	61.3
>65 (excluding over 75 and over 85)	22.7	23.3	25.6

Statistics Bureau of Japan (SBJ), 2013

Sendai	Sept. 2010	Sept. 2011	March 2014
Tot. pop.	1,015,362	1,019,622	1,046,192
0-14	13.56	13.47	13.21
15-64	67.73	67.60	66.10
>65	18.71	18.93	20.70

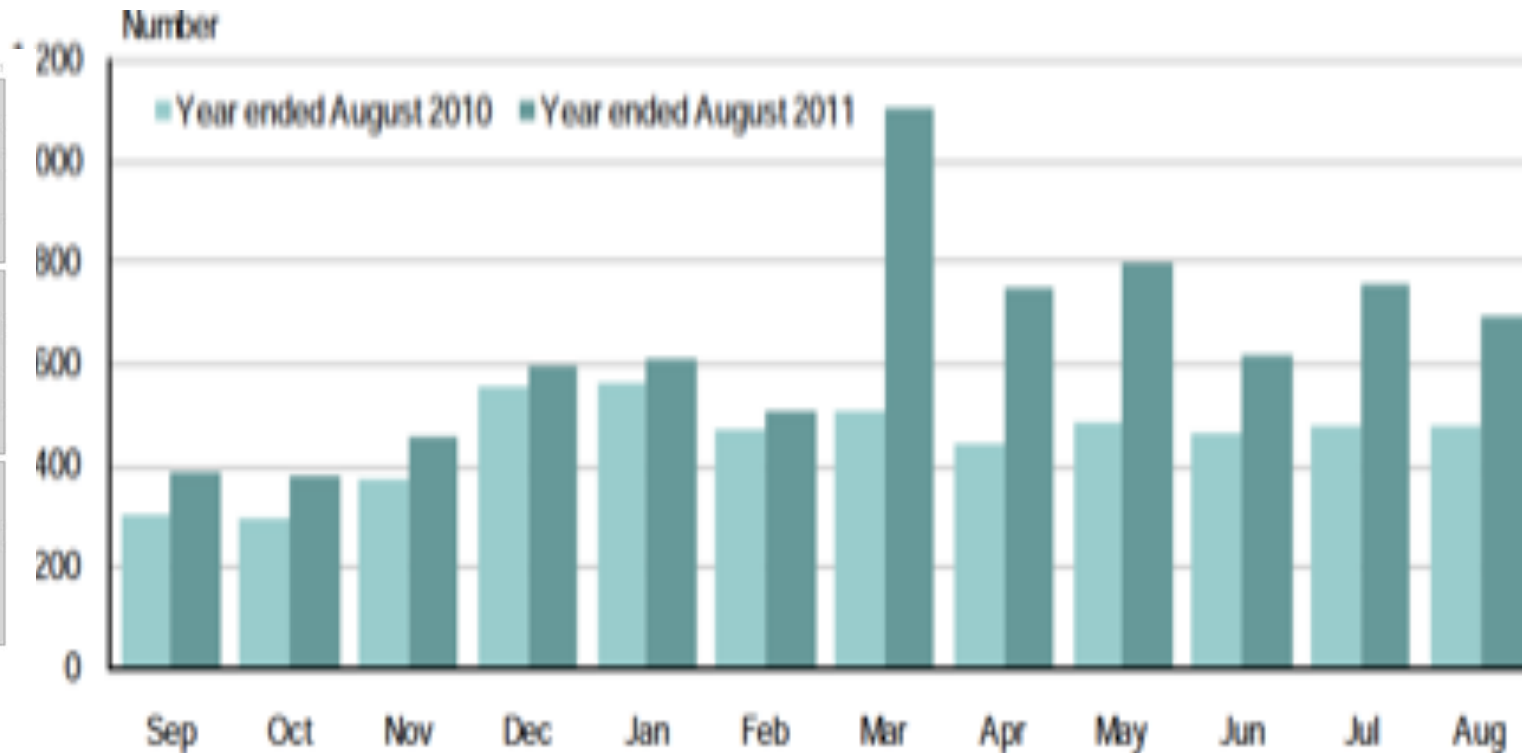
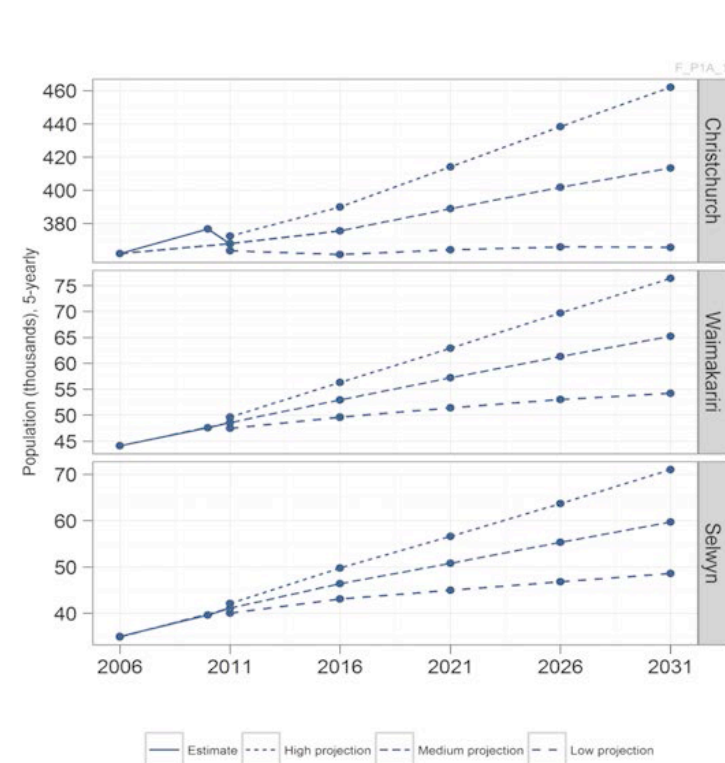
Sendai City, 2014

The **ageing** phenomenon further accelerated

## c. Canterbury earthquakes (Sept. 2010 and Feb. 2011)

### Population growth projections (Before)

### Permanent and long-term departures from Christchurch (After)



- Population decline
- Ageing
- Decrease of “New Zealander”

## Christchurch

Age	2006	2013
Total	348,435	341,472
< 15 years old (%)	18.8	17.8
15-64 (%)	67.6	67.2
> 65 (%)	13.5	14.6

Ethnicity	2006	2013
European	75%	84%
Asian	8%	9%
Maori	8%	9%
Pacific Island	3%	3%
Middle Eastern/Latin American /African	1%	1%
Other*	13%	2%

Statistics New Zealand, 2014

**Demographic changes are taking place along with industry transformations as a consequence of natural disasters**

## a. Hurricane Katrina – New Orleans (August 2005)

Employment by industry in New Orleans-Metairie-Kenner [Numbers in thousands]

Industry	May 2005	May 2006	March 2014
Total nonfarm	614.7	429.7	550.4
Natural resources and mining	38.4	29.8	7.7
Construction	30.0	19.5	32.0
Manufacturing	38.4	28.6	29.1
Trade, transportation and utilities	123.5	90.2	111.5
Information	9.6	7.3	8.2
Financial activities	32.9	24.5	8.2
Professional and business services	75.6	45.3	73.5
Education and health services	81.7	45.7	85.2
Leisure and hospitality	87.4	57.8	79.1
Other services	22.6	9.8	20.4
Government	104.6	90.7	76.1

## b. The Great East Japan Earthquake (March 2011)

### Employment trends

	2009	2010	2012
Total	62,820,000	62,560,000	56,324,082
Primary industry	4.2	4.0	0.6
Secondary Industry	25.4	24.8	23.7
Tertiary	69.5	70.3	75.6

Statistics Japan, 2014

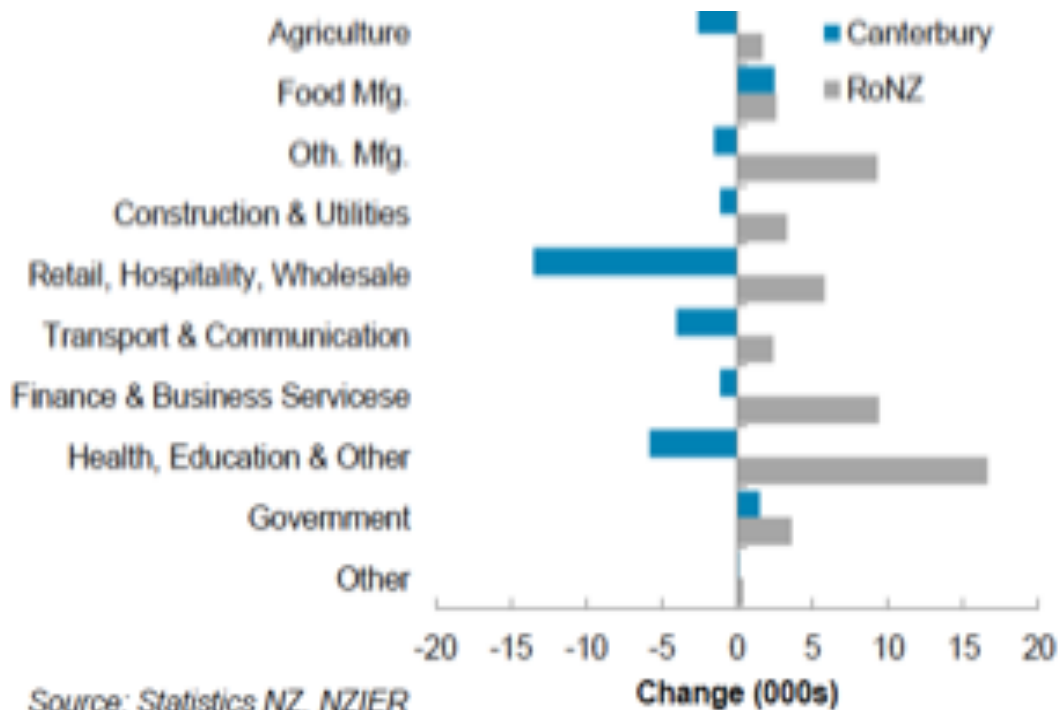
### Tohoku (Government, Dec. 2013) :

- Sharp rise in the **construction sector** and public **employment services** > skills shortages;
- Job offers related to **manufacturing industries** have increased;
- In coastal areas, although the ratio of job offers to applicants continues to be high, there are many job offers in the manufacturing industries, including seafood processing, and in the construction industry, such as civil engineering work. **The imbalance continues between the needs of those offering jobs and those seeking jobs.**

## c. Canterbury earthquakes (Sept. 2010 and Feb. 2011)

Employment change by industry, Canterbury, Dec. 2011

Job losses, Canterbury, Dec. 2010-Dec. 2011



Accommodation & Food services	- 37%
Health care and social assistance	-13%
Construction industries	-13%
Real estate	-38%

OECD, 2012

### ***Who is recruiting and who isn't?***

- The construction industry has the highest proportion of employers recruiting

### ***Who is having difficulty recruiting staff?***

- The construction, primary, transportation and utilities industries had the highest proportion of employers that found vacancies hard to fill

### ***Why is recruitment more difficult?***

- 1° reason: workers leaving Christchurch
- 2° reason: workers less likely to move to Christchurch
- The cause of recruitment was due to the disruption of the labor market by the earthquakes

### ***What types of skills are hard to find?***

- Trade skills were the most widely reported skills in shortage
- Professional and technical skills
- Construction was the industry most likely to report skills shortages

### ***Future recruitment challenges in Canterbury***

- The timing of the rebuilding has been pushed back
- The size of the Canterbury region's working age population has decreased
- There has been continuing growth in job vacancies
- Recruitment challenges identified above are likely to still exist or worsen



**Is demography  
(III) a key-lever for recovery?**

## **a. Hurricane Katrina – YES**

- The economy could (and still can) count on a relative young workforce
- The construction industry was able to deploy its full potential thanks to Latinos immigrants
- The most important economic sector – hospitality and tourism – was able to regain its vitality and it's one of the highest concentration of jobs

## **b. The Great East Japan Earthquake – NO**

- Population ageing
- Previous economy based mainly on fishery, agriculture and manufacturing
- Nowadays the only sector increasing in the region is manufacturing but the imbalance continues between the needs of those offering jobs and those seeking jobs.

## **c. Canterbury earthquakes – Maybe**

- Population decline
- Construction sector is able to attract a lot of workers but imbalances will continue

# Concluding remarks

**Demography can be a key-lever for recovery** if it is respondent, in terms of numbers, age and skills composition, those sectors able to drive the recovery and sustain the economy.

Demography must be taken into consideration **before** the occurrence of natural disasters because the possibility of certain industries to survive or disappear depends also on the composition of the workforce.

This is truer if we consider that **certain determinants always occur** in the event of natural disasters and therefore **some changes are already predictable**:

- Sectors hardly hit: tourism, hospitality, retail trade, fishery and agriculture activities
- Major employment opportunities rise in the construction sector
- The new employment opportunities that emerge during the rebuilding phase are not always suited to the skills of those who have been displaced.



Industrial Studies Association 2014 Conference  
*Portland, May 28 – 30, 2014*

**Thank you**

**Francesca Sperotti**  
ADAPT

@FSperotti – www.adapt.it