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# How many Canadians live in a city? Conceptualization, definition and proposed dissemination for alternative standards

**Presentation to the  
2011 International Methodology Symposium:  
*Strategies of Standardization of Methods and Tools***

**Ottawa, November 2 - 4, 2011**

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## Outline

### 1. Introduction

### 2. Three ways of describing a city

#### a) Form or Morphology – Population Centres

- Level of urbanization
- Rate of urbanization

#### b) Administrative units – Census Subdivisions

- Level of urbanization
- Rate of urbanization

#### c) Functional areas – CMAs and CAs

- Level of urbanization
- Rate of urbanization

### 3. How many Canadians live in a “city”?



## 1. Introduction

- **Data users ask Statistics Canada:**
  - **How many Canadians live in cities?**
- **Statistics Canada does not publish levels and rates of urbanization for:**
  - **alternative definitions of a “city”**
  - **alternative size cut-offs to be a “city”**
- **Our objective is to describe and document the levels and rates of urbanization for:**
  - **alternative definitions of a “city”**
  - **alternative size cut-offs to be a “city”**



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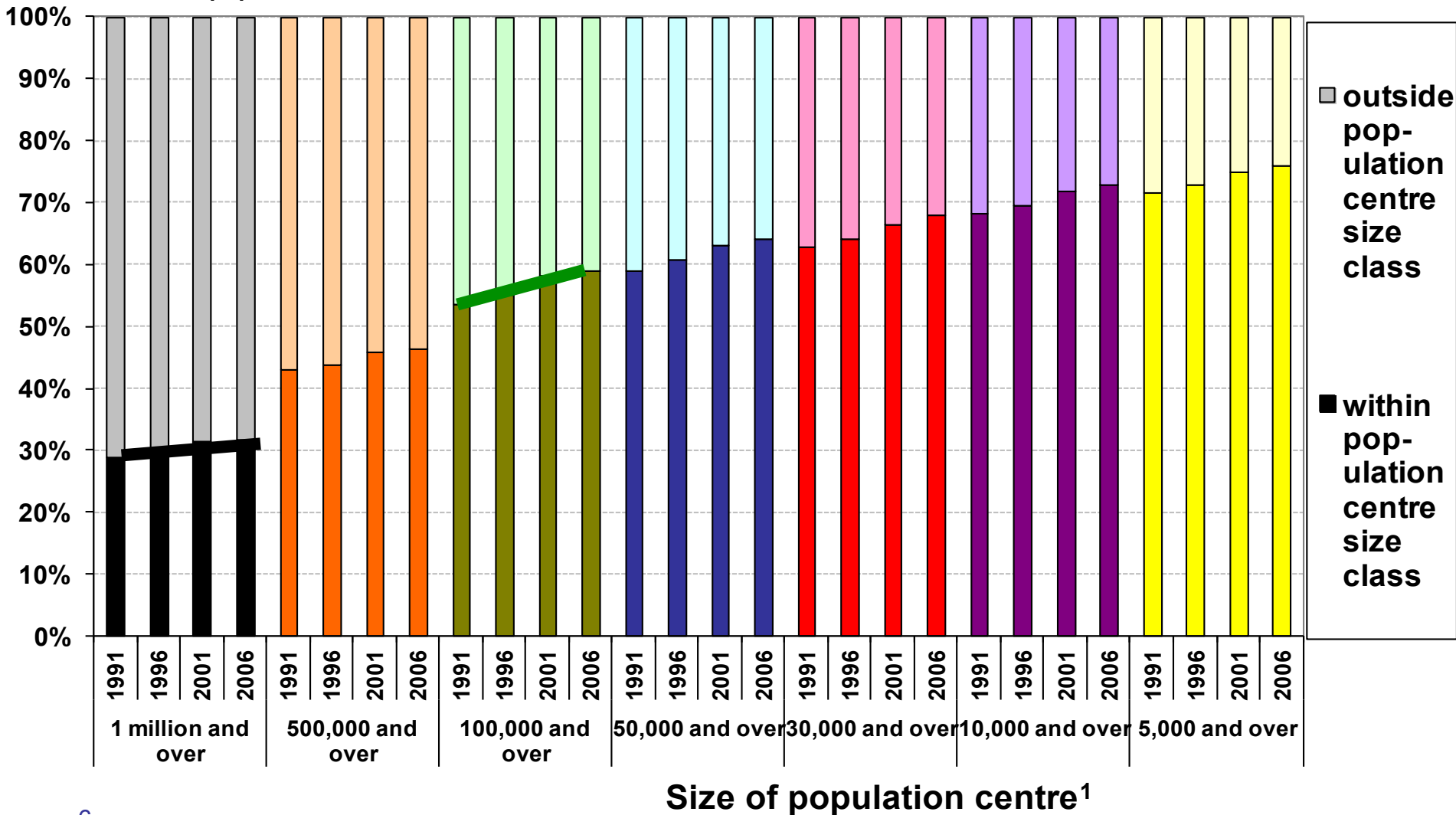
#### a) Form or Morphology – Population Centres

- This is the “built-up area” of a settlement. It corresponds to the **windshield view** when you leave the settled area and drive into the unsettled or countryside area.
- Arguably, this is the target clientele for an **urban transportation planner**.
- Within Statistics Canada, built-up areas are **population centres** with a population density of 400 inhabitants per km<sup>2</sup> or more and with a total population of 1,000 more) (formerly known as “census urban” areas).



## In 2006, 32% of Canadians lived in a population centre of 1 million or more residents

Percent distribution of total population



### Size of population centre<sup>1</sup>

1. A population centre has a minimum population of 1,000 persons and a population density of at least 400 persons per square kilometre.  
Source: Statistics Canada, Census of Population, 1991 to 2006.



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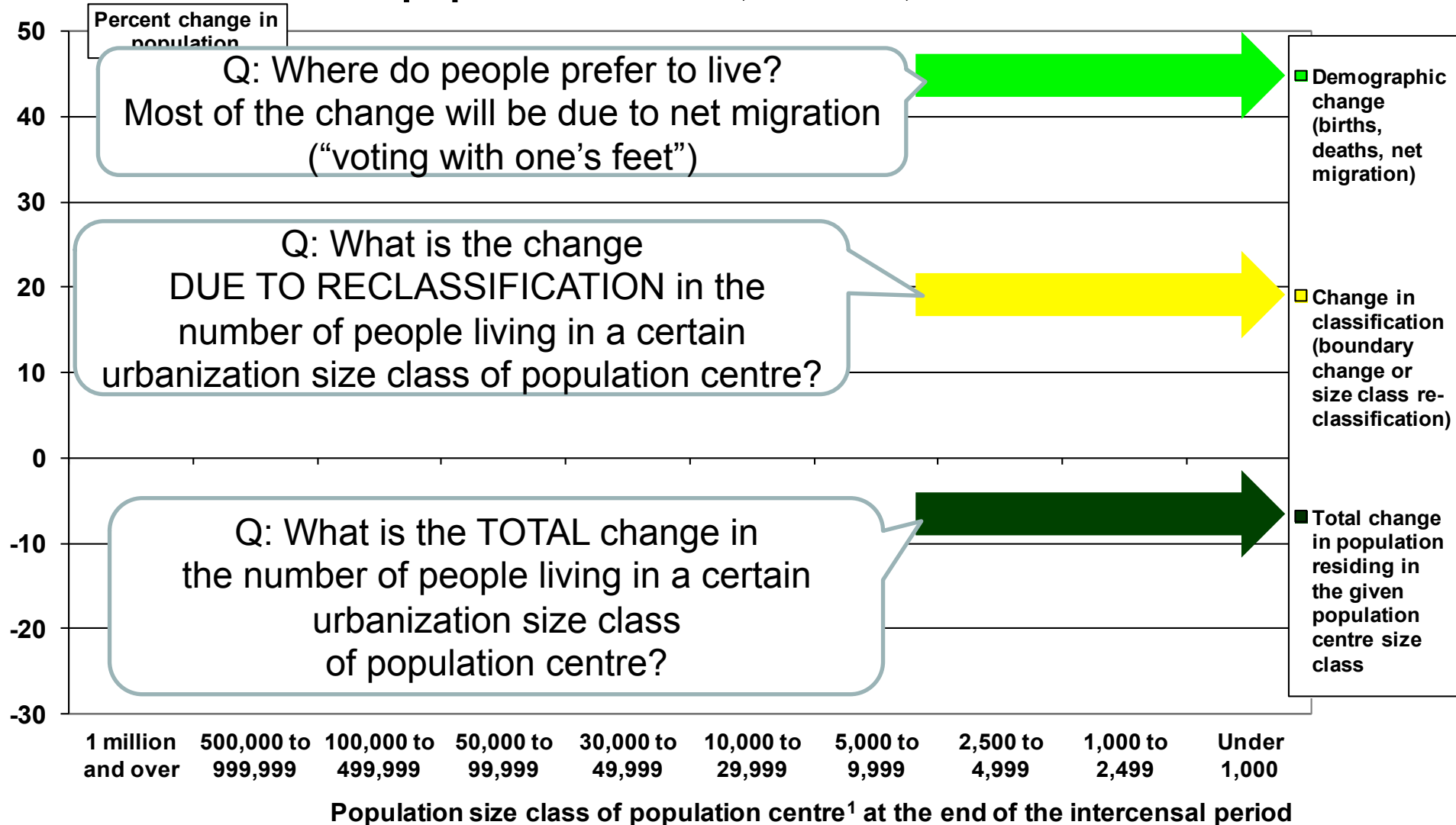
## 2. Three ways of describing a city

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## Change in population living in each size class of population centre<sup>1</sup>, Canada, 2001 to 2006

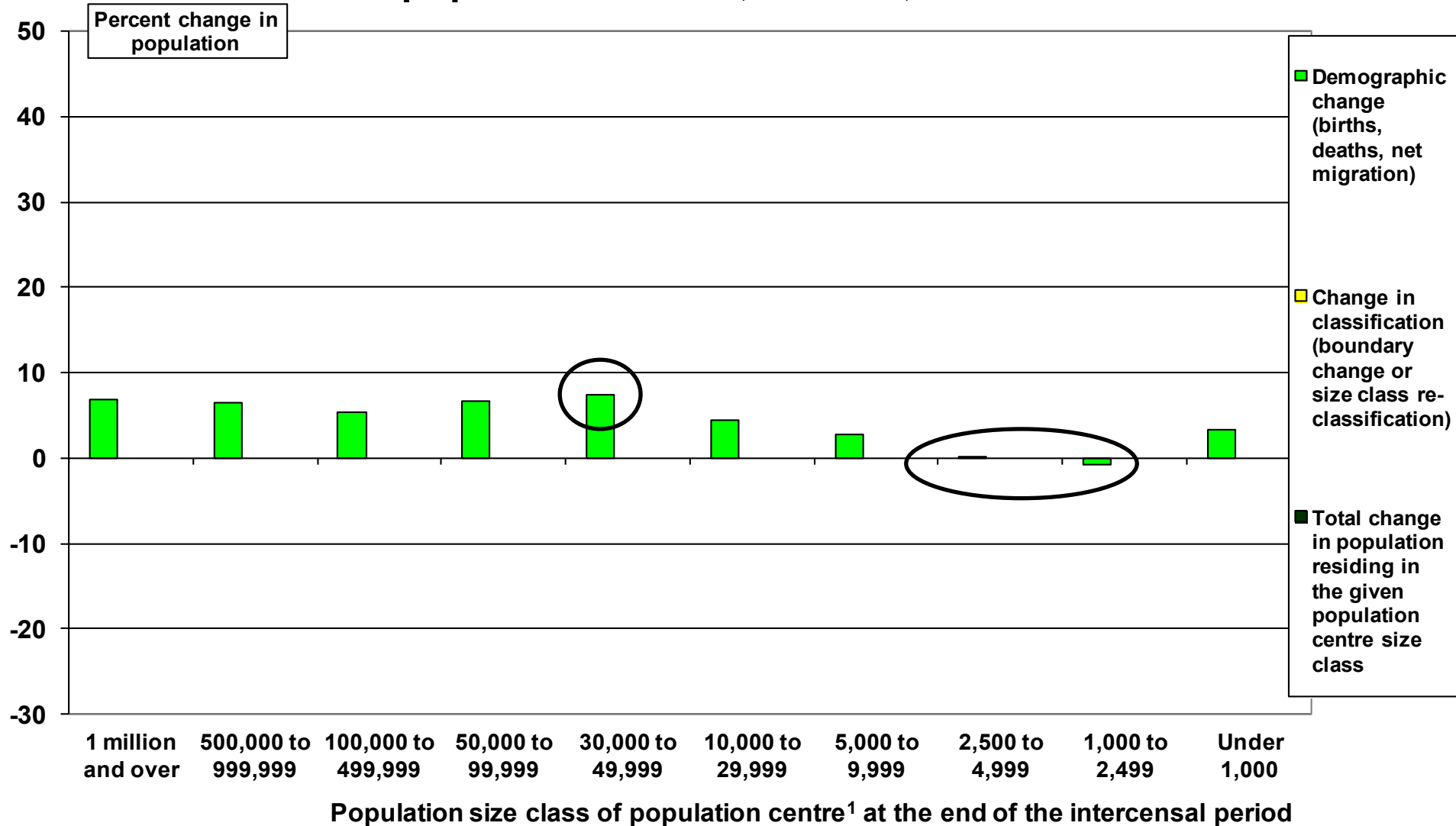


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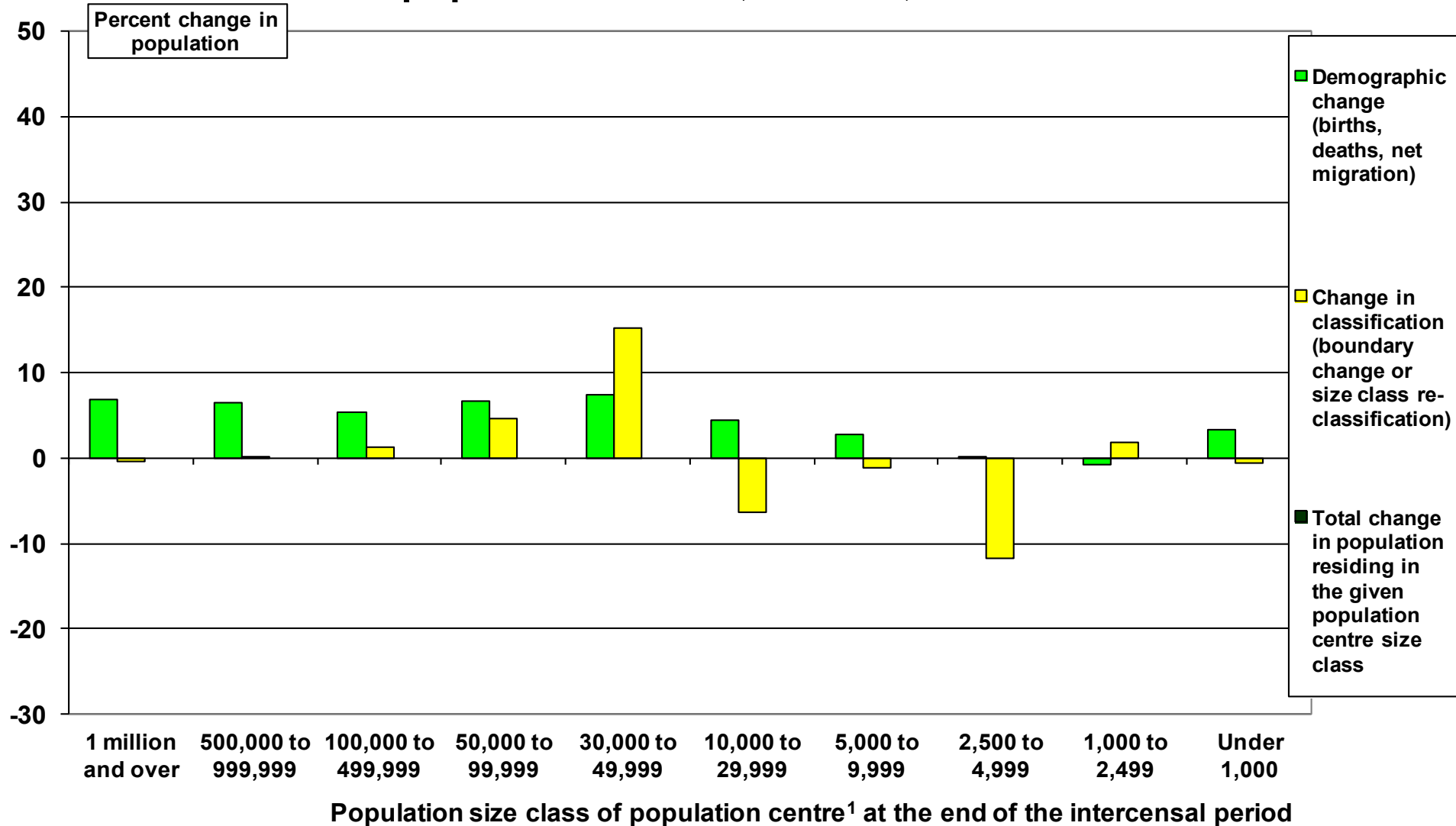
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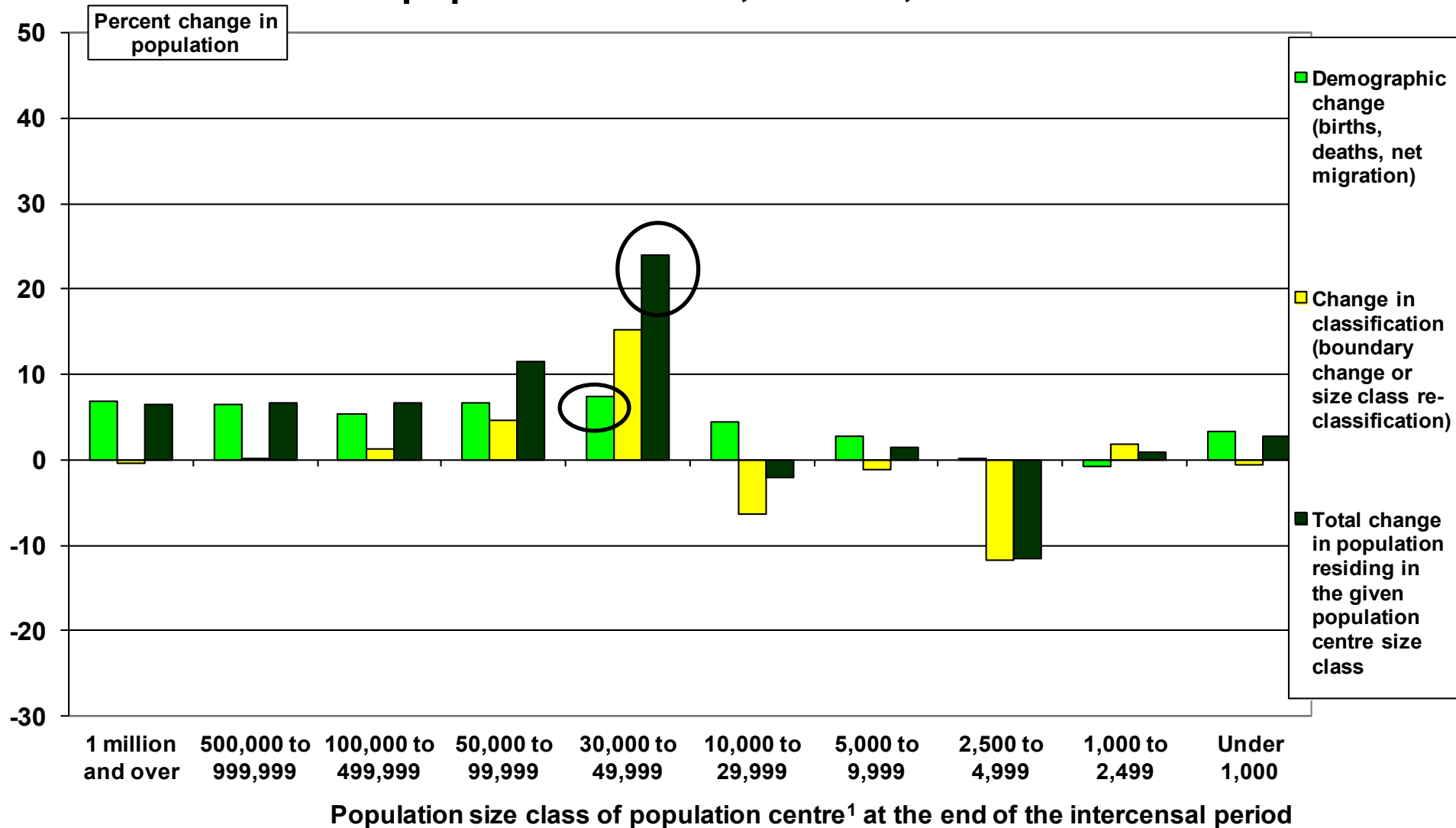
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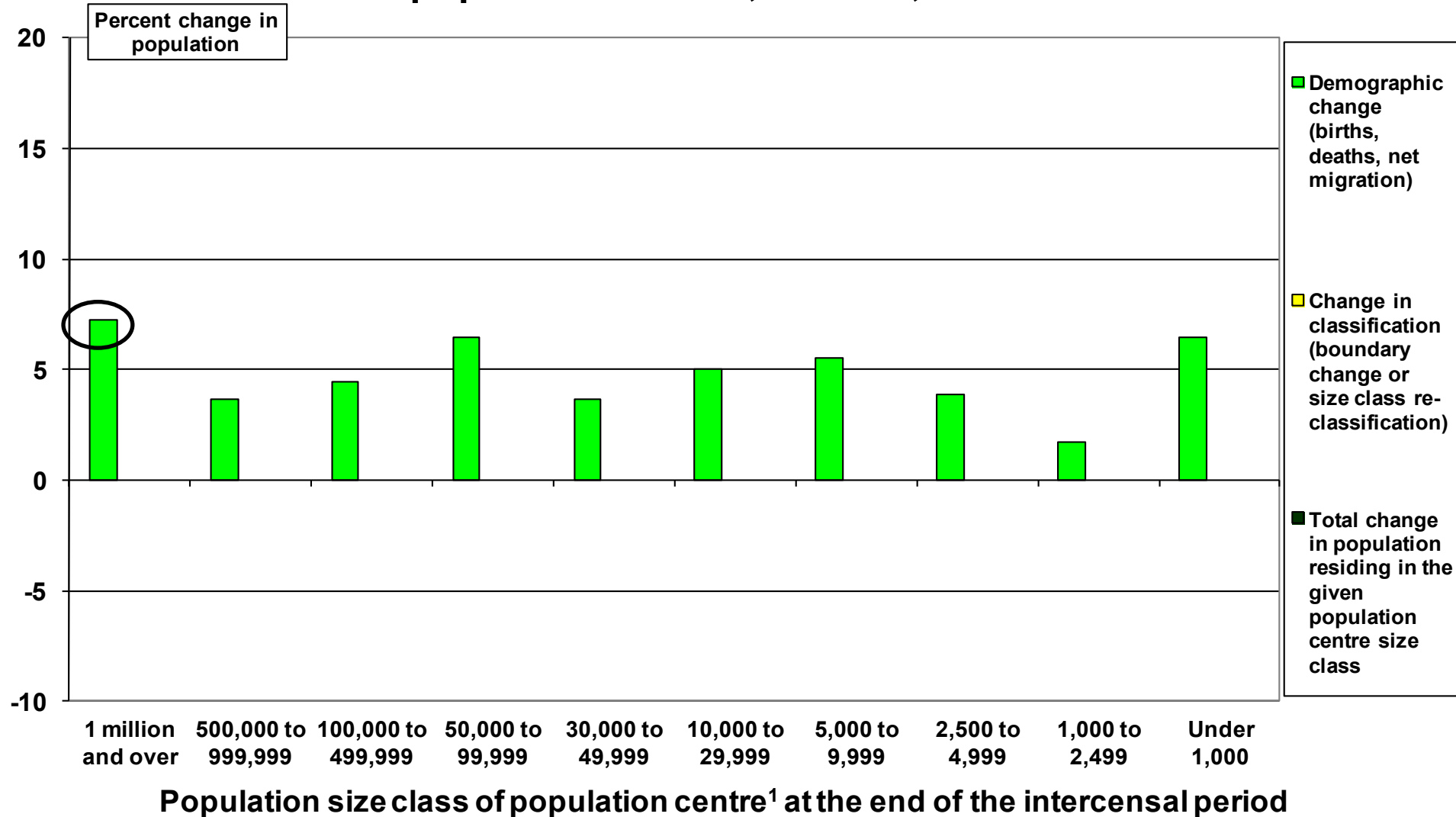
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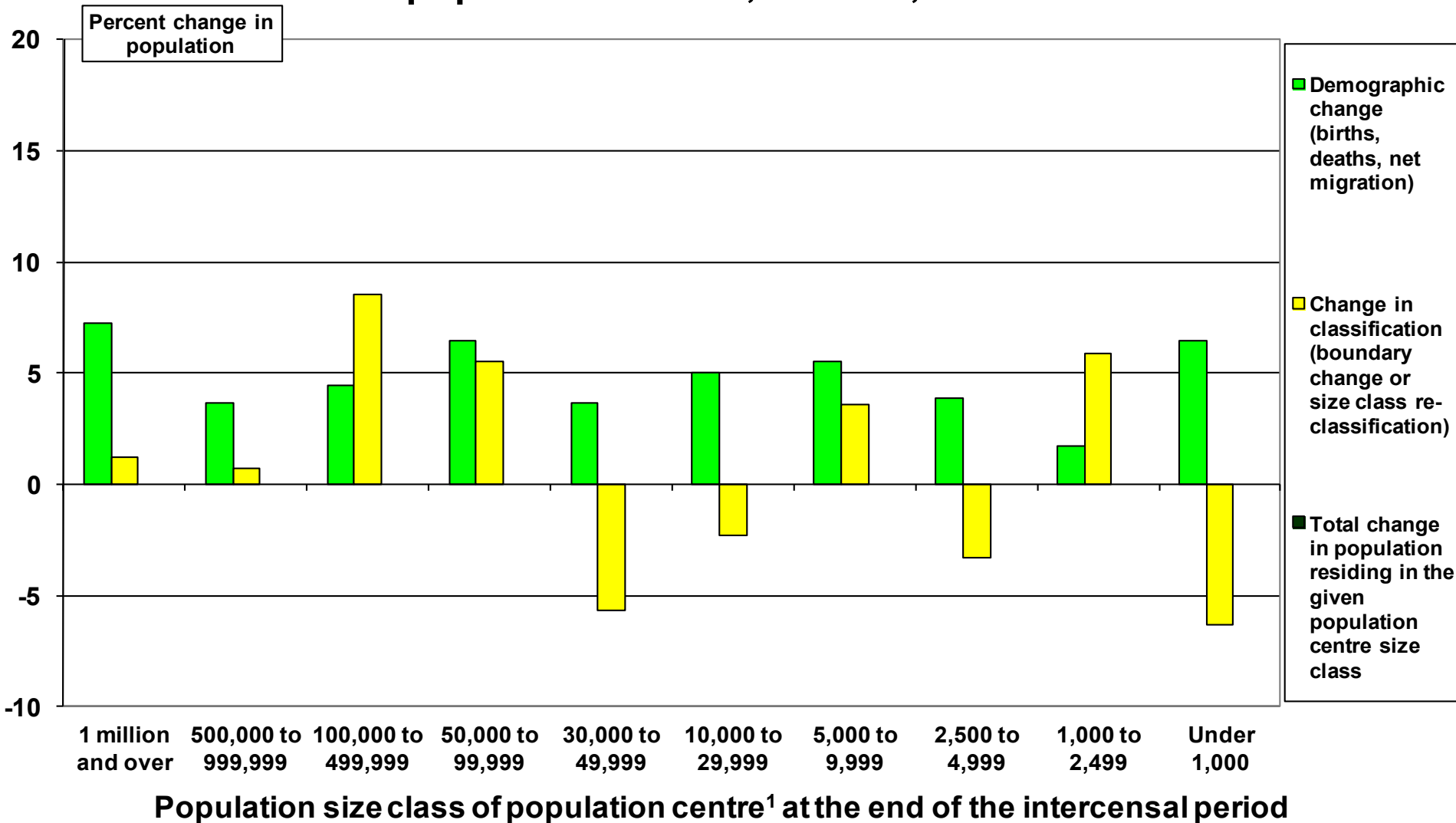


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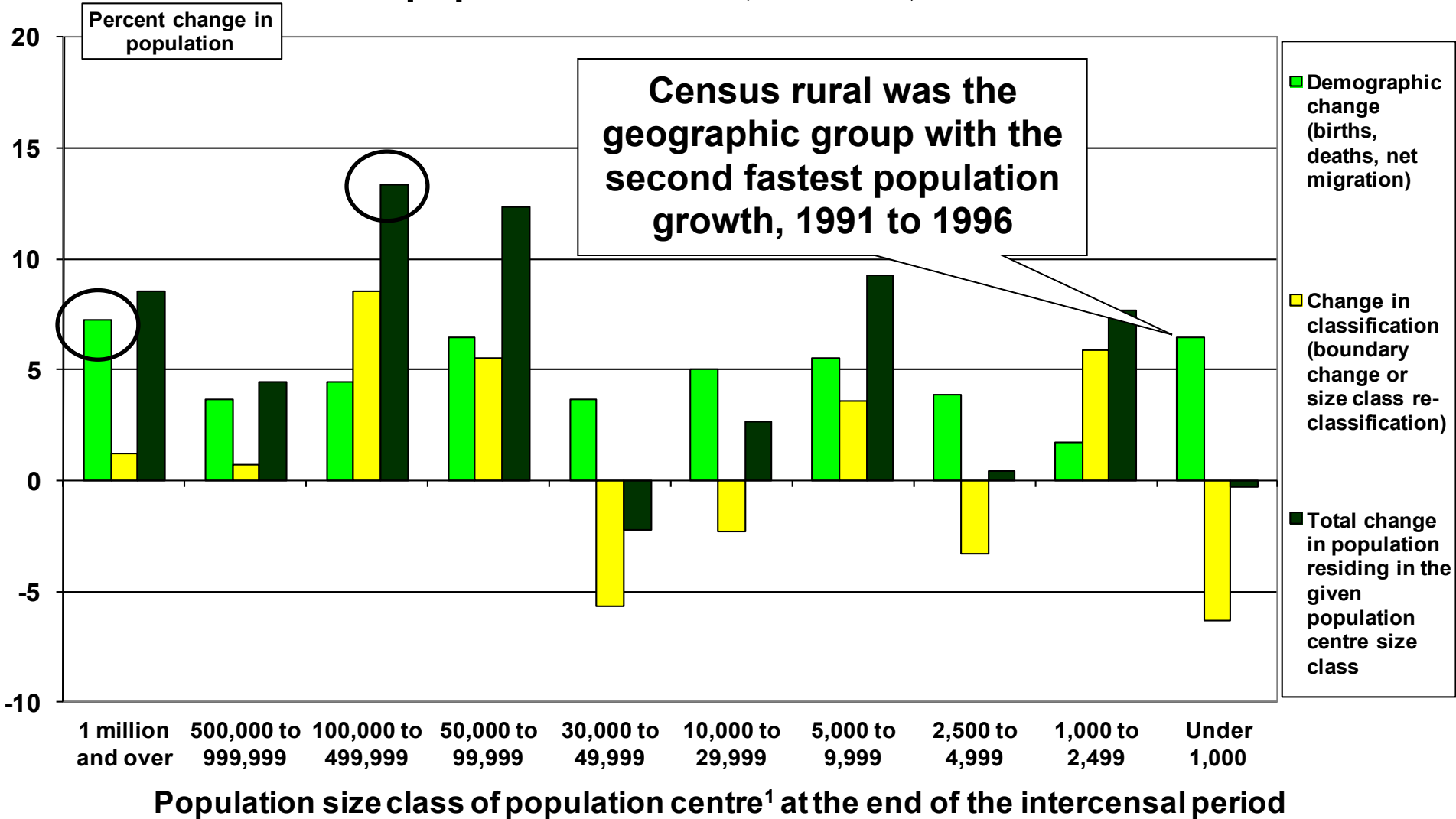


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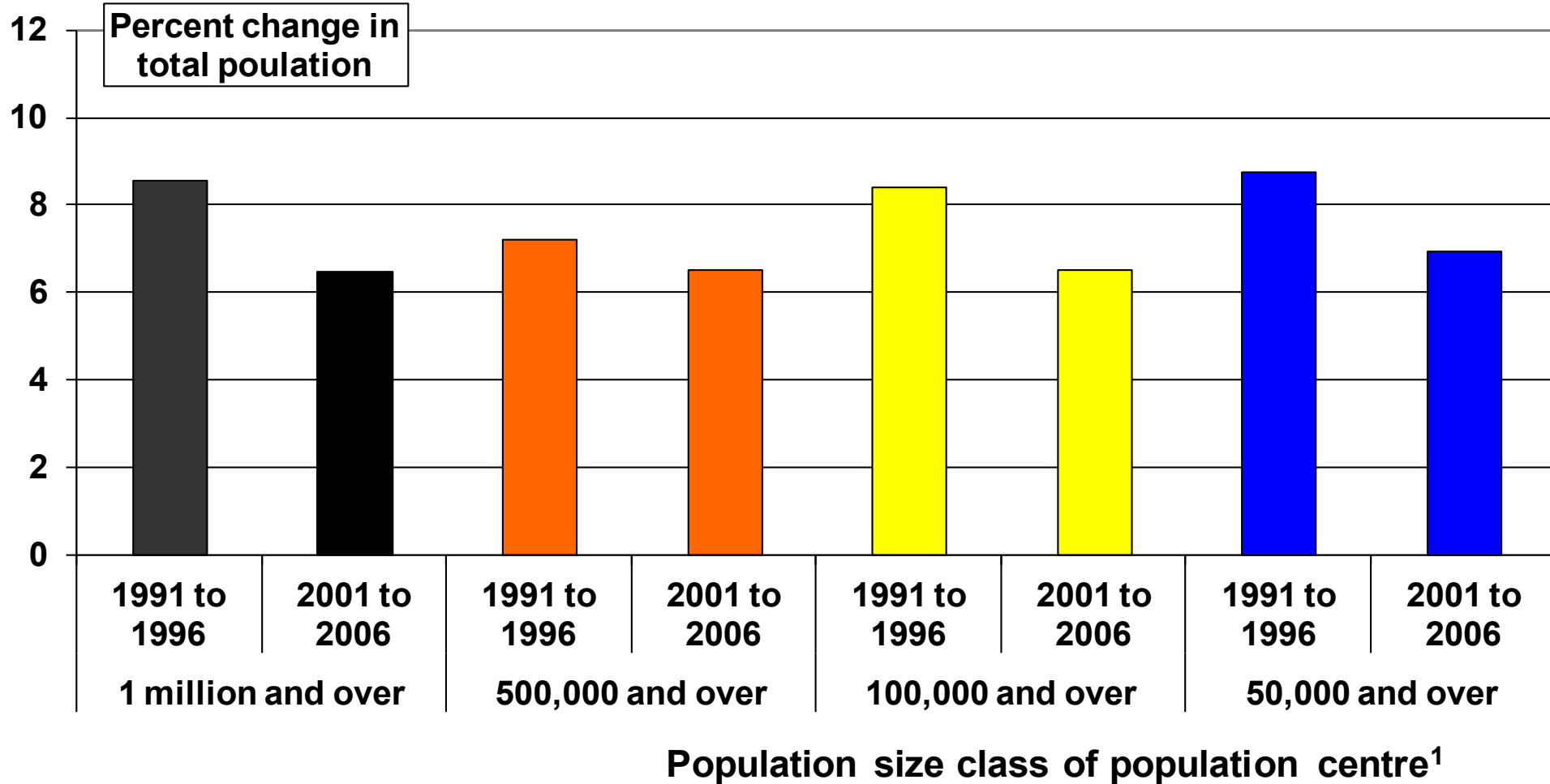
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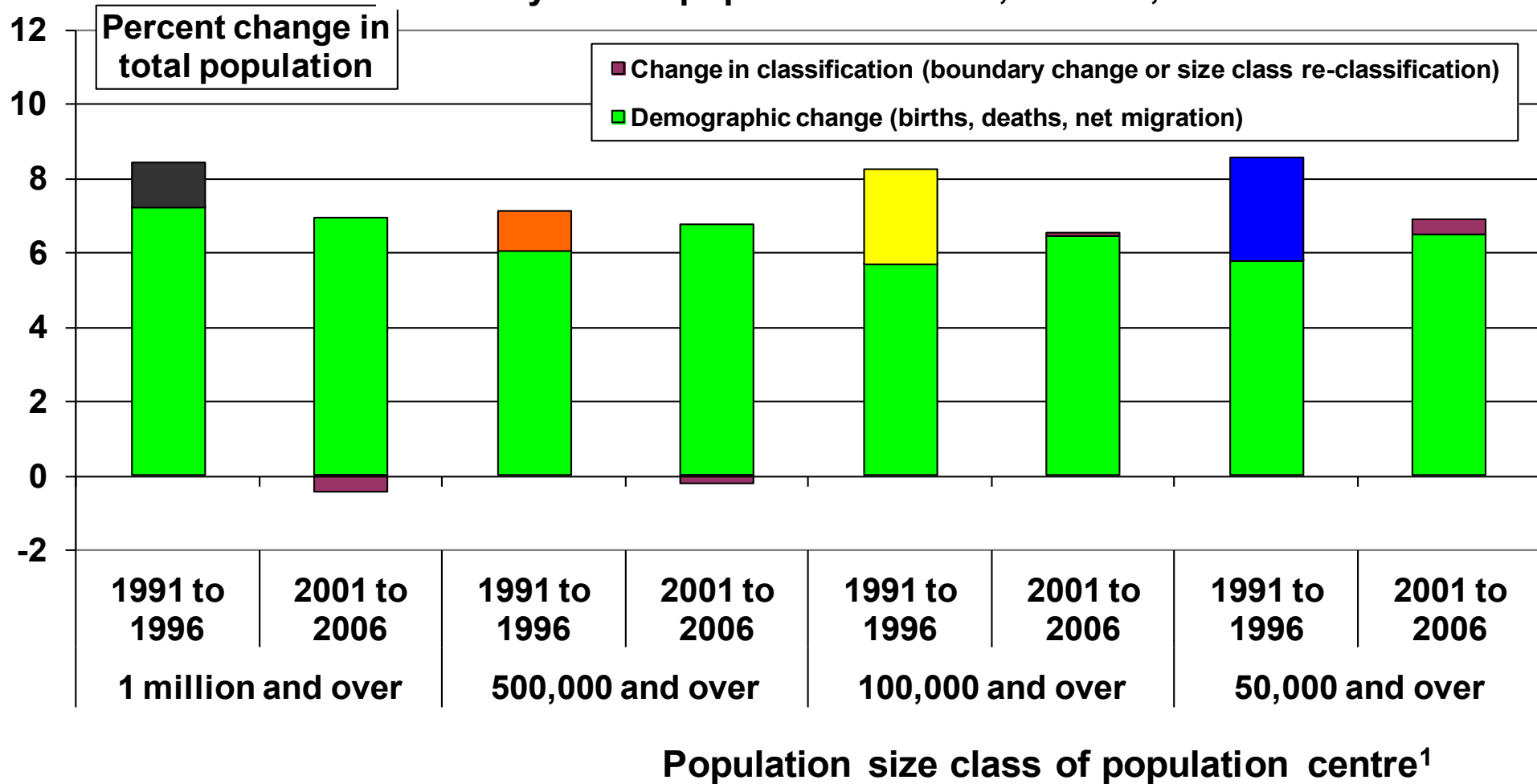
## Quinquennial rate of change in total population, by size of population centre<sup>1</sup>, Canada, 1991 to 2006



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 Note: Population change within constant boundaries for 1996 to 2001 is not available as population data for 1996 within 2001 boundaries are not available. "Since 2001 blocks did not necessarily respect 1996 enumeration areas, it was not possible to recreate 1996 urban areas based on 2001 blocks with 100% accuracy." See Matier, Kelly. (2008) **Delineation of 2006 Urban Areas: Challenges and Achievements** (Ottawa: Statistics Canada, Geography Working Paper Series No. 2008001, Catalogue no. 92F0138), p. 5.  
 Source: Statistics Canada. Census of Population, 1991 to 2006.



## Most of the change in urbanization has been due to demographic growth and a smaller share is due to a change in classification, by size of population centre<sup>1</sup>, Canada, 1991 to 2006



### Population size class of population centre<sup>1</sup>

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## Summary

- **Varying rates of population growth across size classes of population centres** (within fixed boundaries -- due to demographic factors: births, deaths, net migration).
- **The biggest population centres do not always grow the fastest in terms of demographic factors.**
- **However, the total change in the population living in a given population centre size class is also determined by re-classification.**
- **Re-classification might be due:**
  - to demographic change causing the locality to go above the lower limit; or
  - to go below the lower limit; or
  - two population centres may be merged which may cause the population of the new population centre to be re-classified to another size class.
  - Thus, between “t” and “t+1”, there is a change in the number of localities and a change in the number of Canadians enjoying the benefits and costs of a living in a locality of a given size.



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- This concept represents the **view of the mayor**.
- How many people live in my incorporated city or town?
- From the point of view of the resident – **to whom do I pay my taxes** and which administration is responsible for delivering local services.
- On your Sunday afternoon drive, you usually cannot see the boundary of the administrative city – although there is often a sign at the boundary that says “Welcome to our city of X thousand residents.”



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- Within Statistics Canada, a **census subdivision** is defined for each incorporated town or city and each incorporated municipality.



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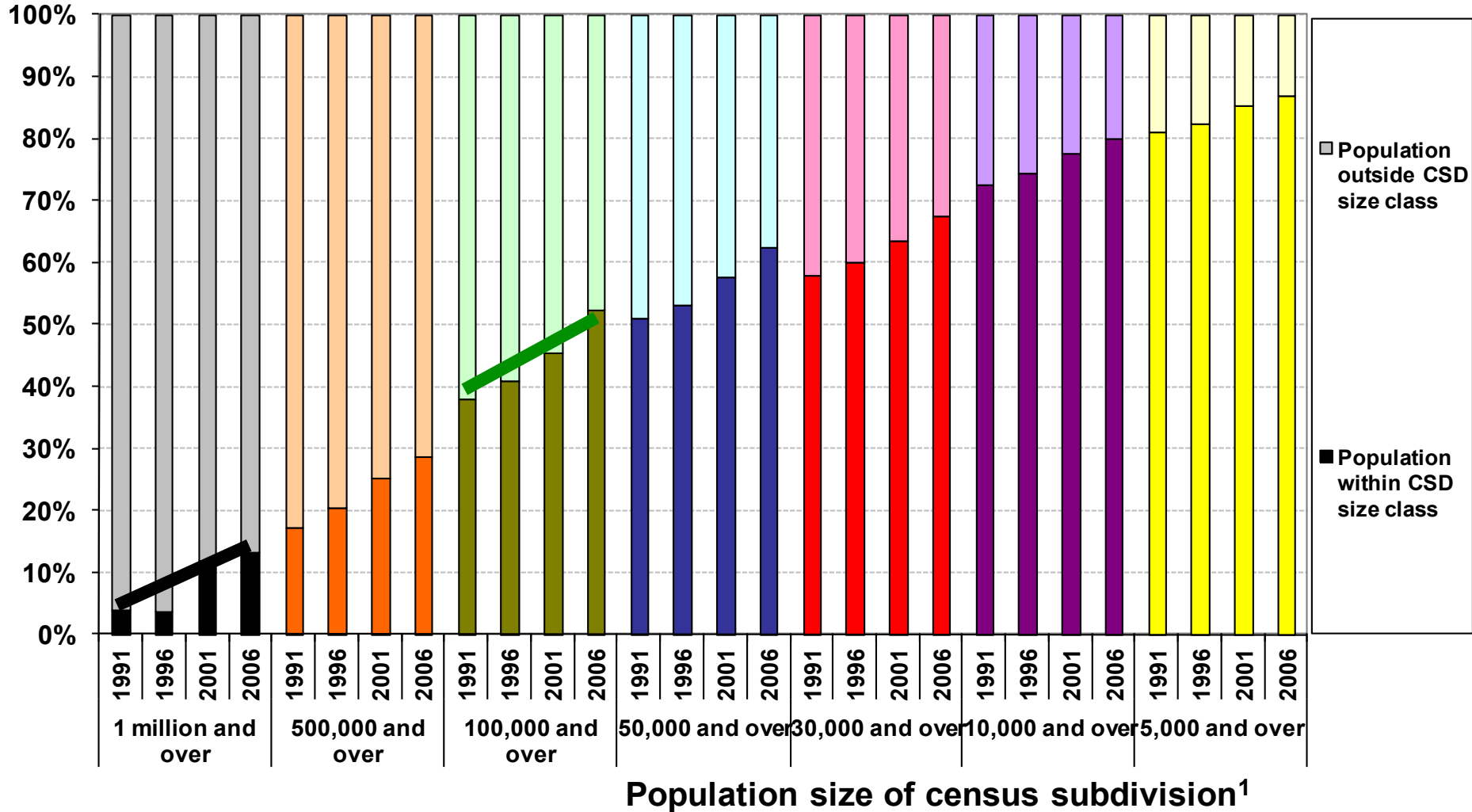
### b) Administrative units – Census Subdivisions

- Level of urbanization



## In 2006, 13% of Canadians lived in an incorporated jurisdiction (census subdivision) of 1 million or more residents

Percent distribution of total population



Source: Statistics Canada, Census of Population, 1991 to 2006.

1. A census subdivision (CSD) is the general term for municipalities (incorporated cities, towns and rural municipalities, as determined by provincial/territorial legislation) or areas treated as municipal equivalents for statistical purposes (e.g., Indian reserves, Indian settlements and unorganized territories).



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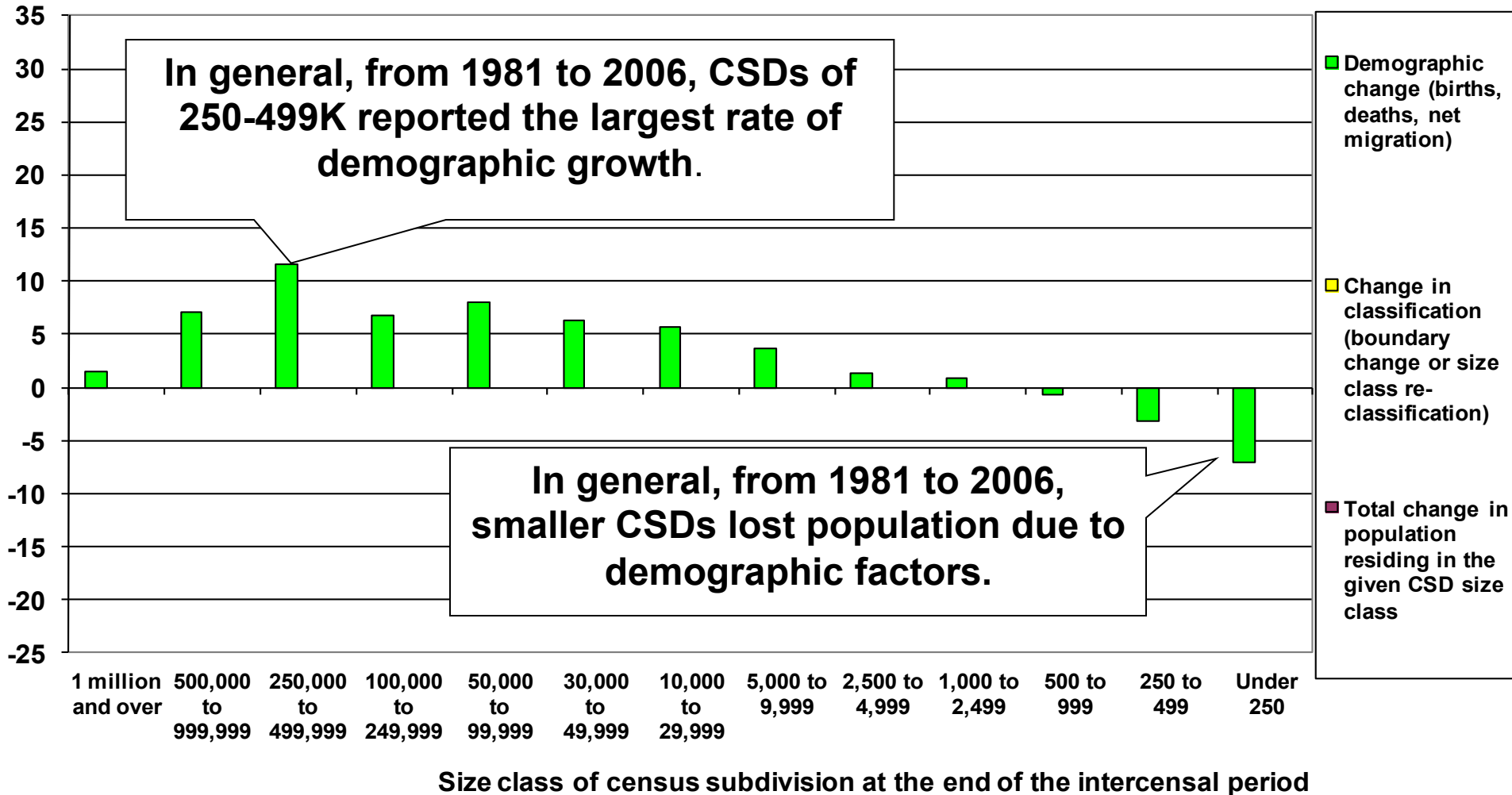
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## Change in population living in each population size class of census subdivisions, Canada, 2001 to 2006

Percent change in population



Source: Statistics Canada, Census of Population, 2001 and 2006.

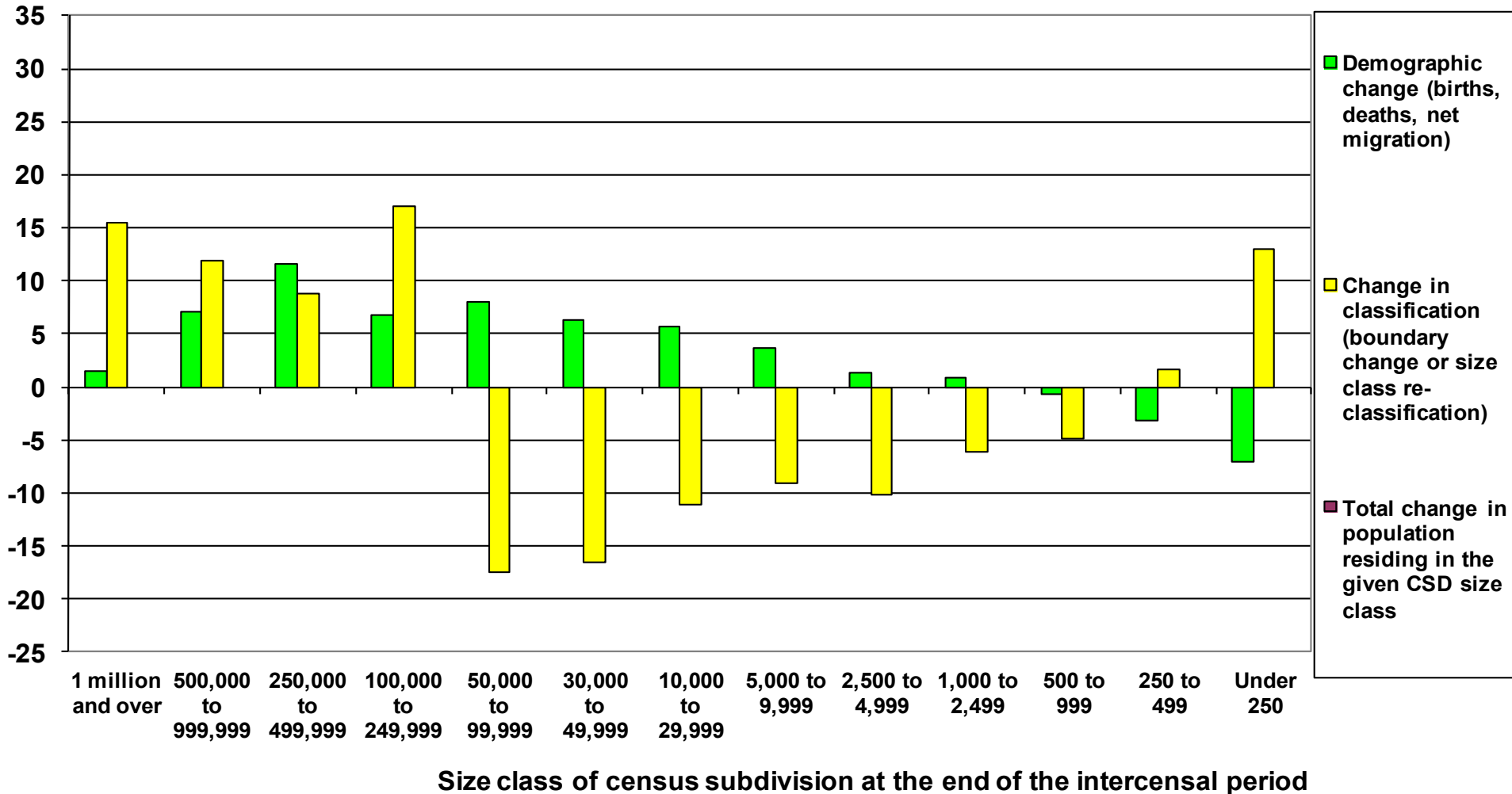
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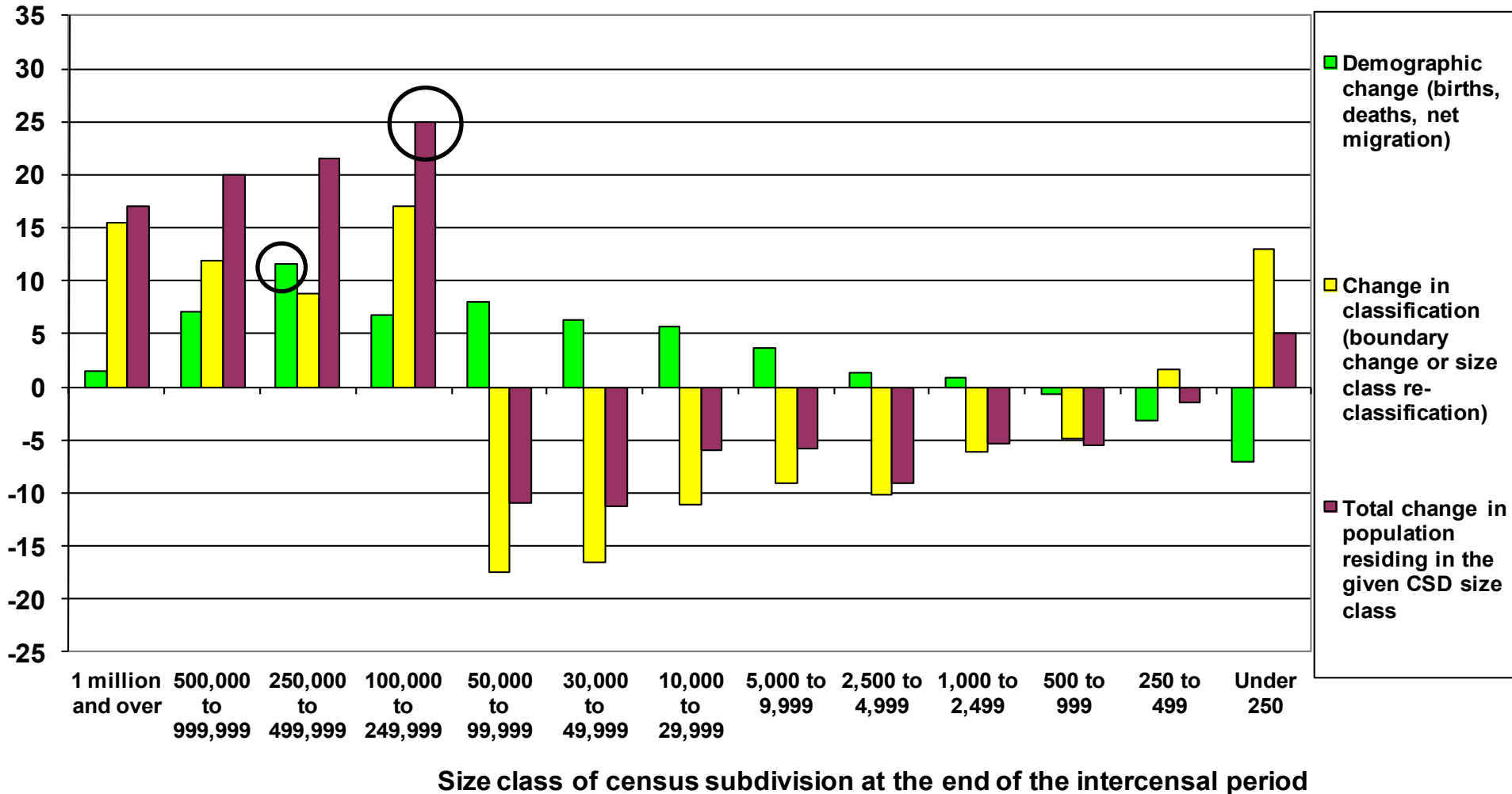
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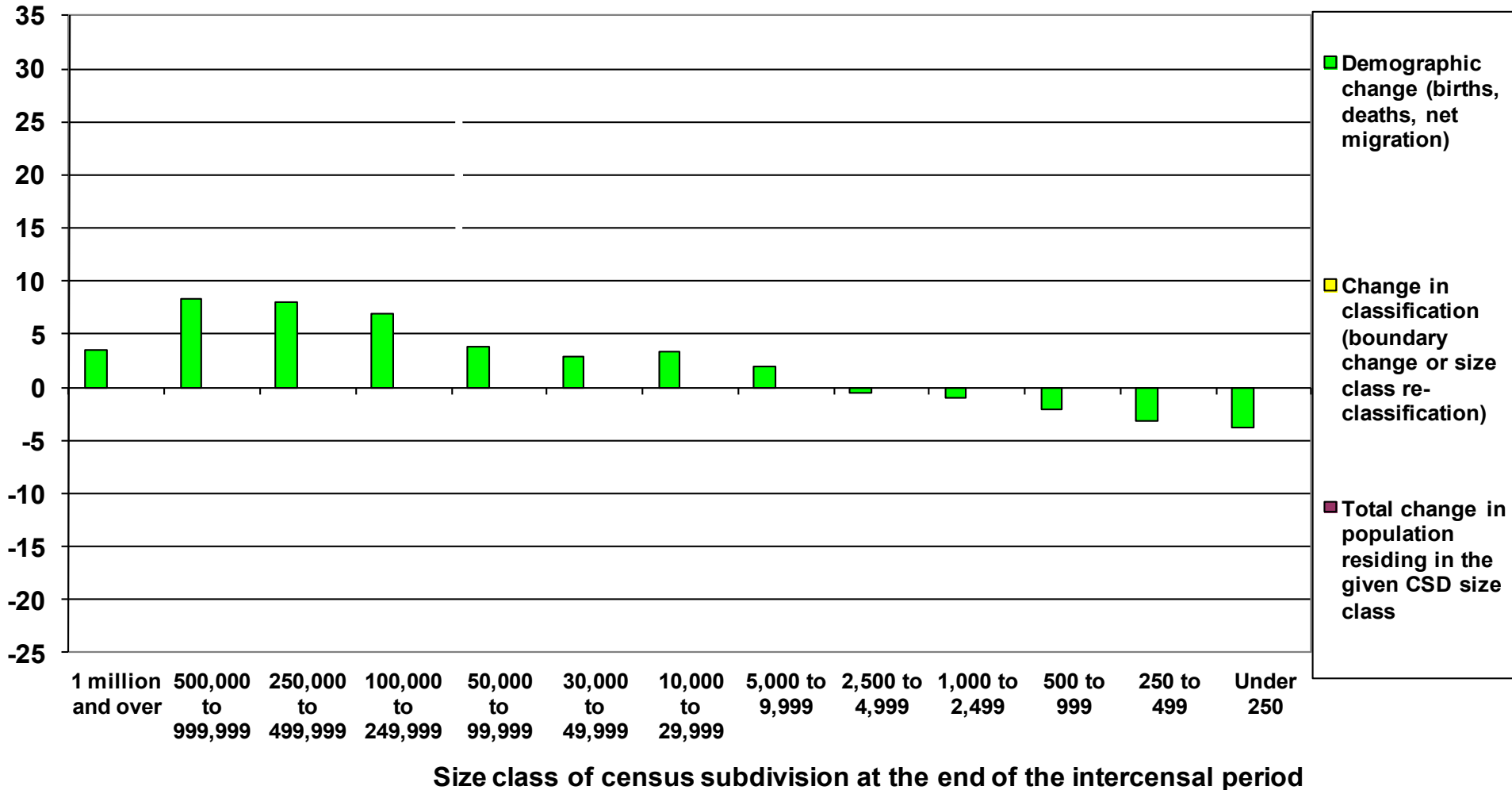
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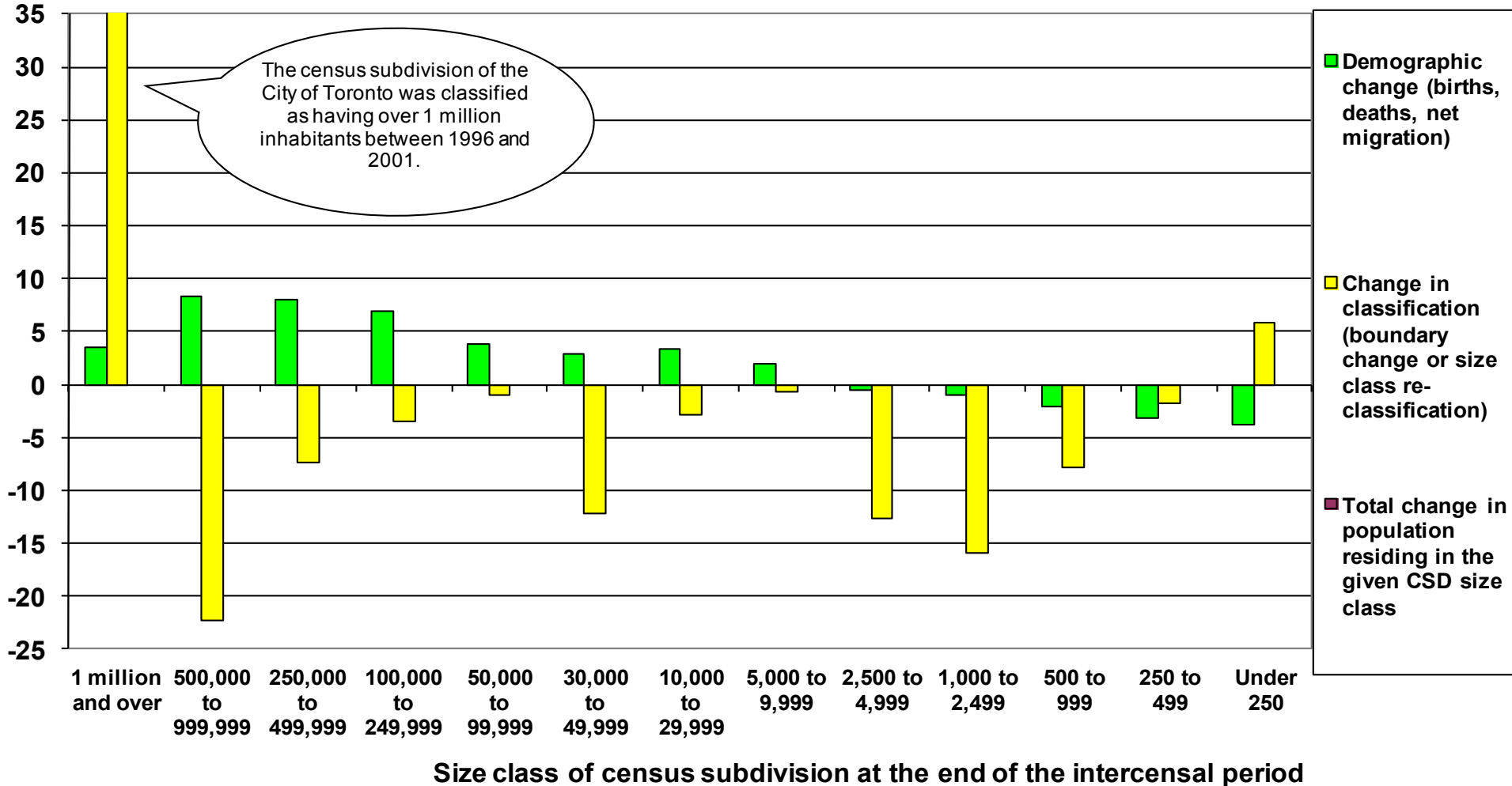
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## Change in population living in each population size class of census subdivisions, Canada, 1996 to 2001

Percent change in population



The census subdivision of the City of Toronto was classified as having over 1 million inhabitants between 1996 and 2001.

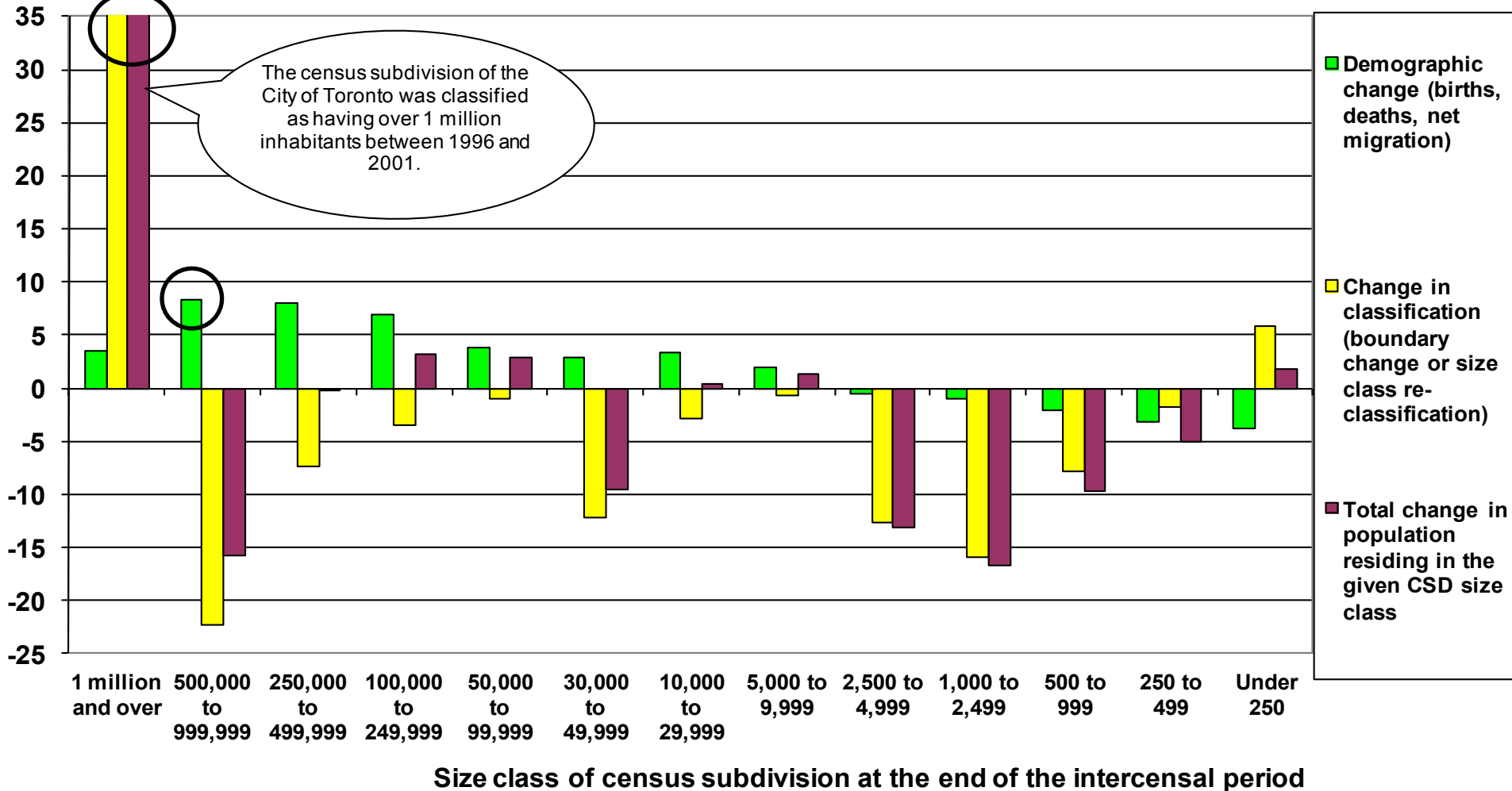
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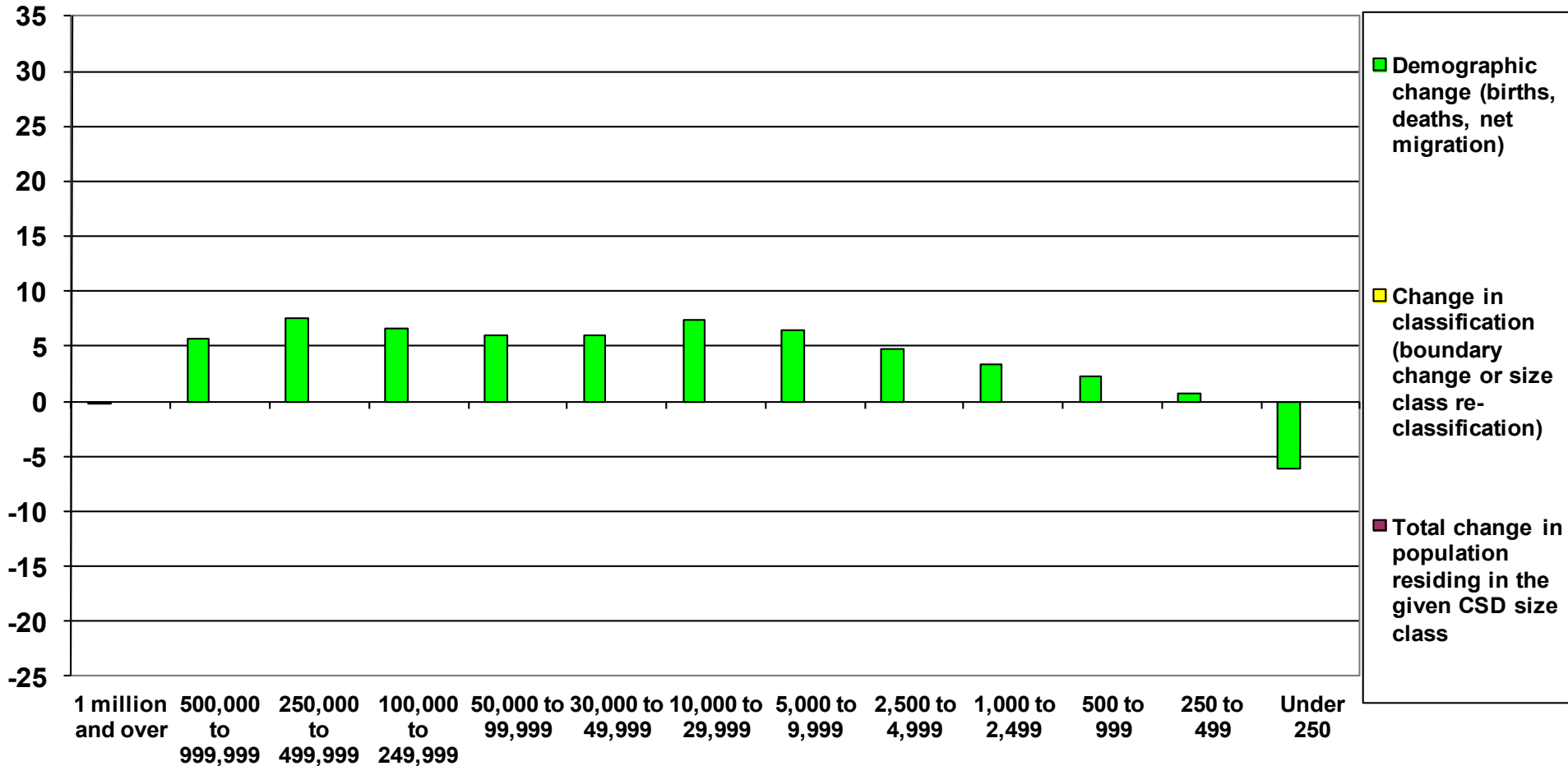
- Demographic change (births, deaths, net migration)
- Change in classification (boundary change or size class re-classification)
- Total change in population residing in the given CSD size class

Source: Statistics Canada, Census of Population, 1996 and 2001.  
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Percent change in population



Size class of census subdivision at the end of the intercensal period

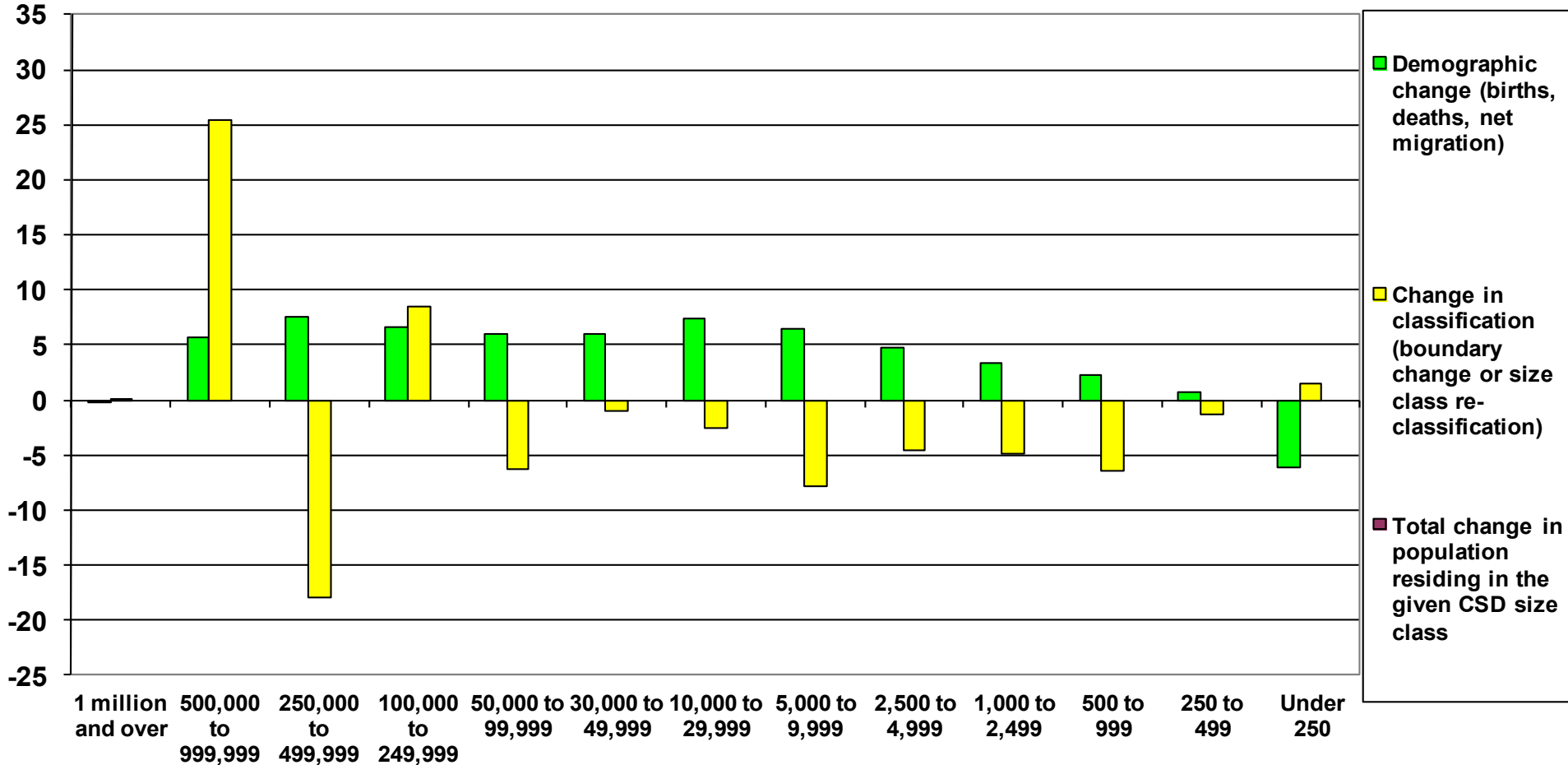
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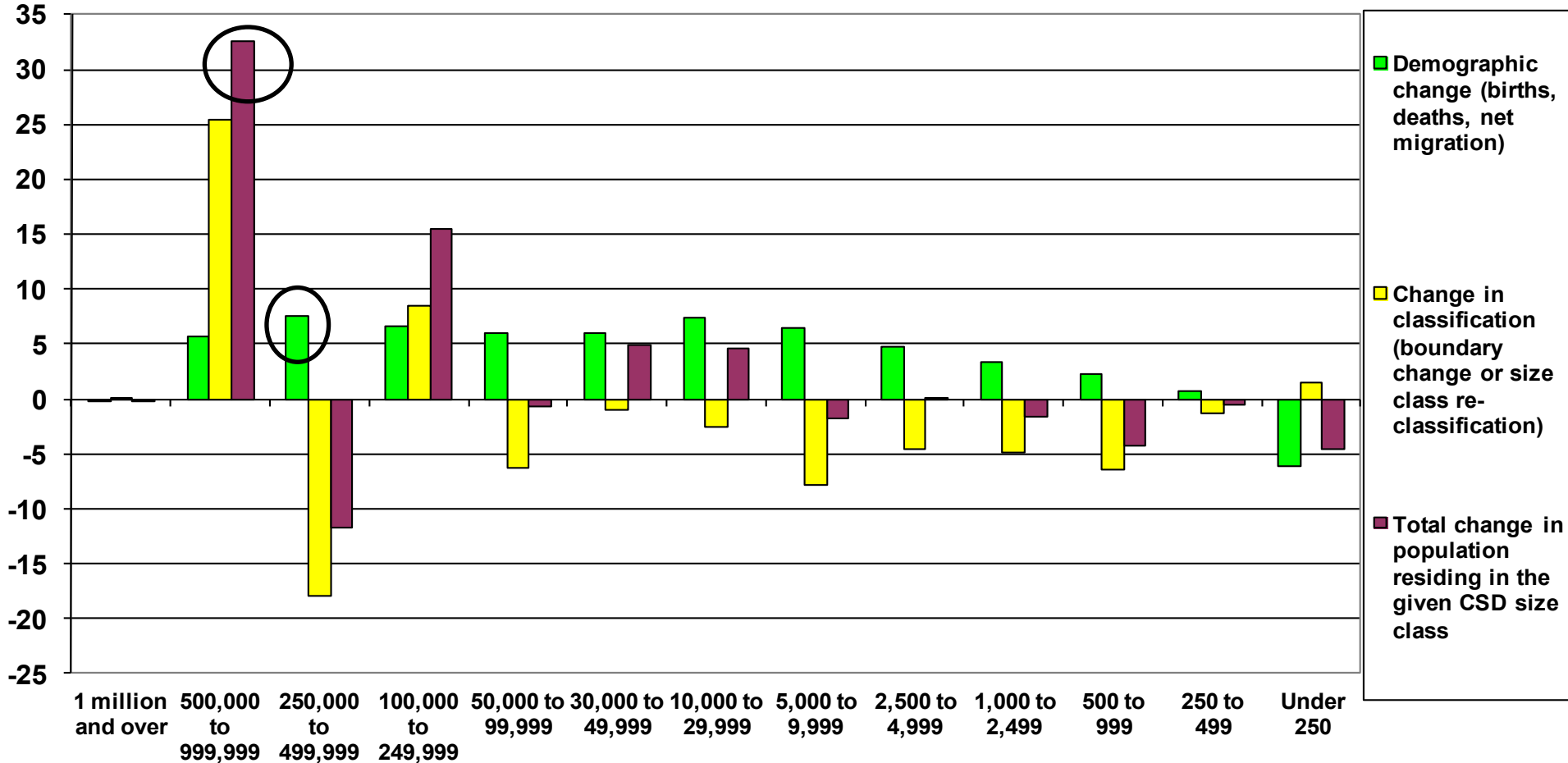
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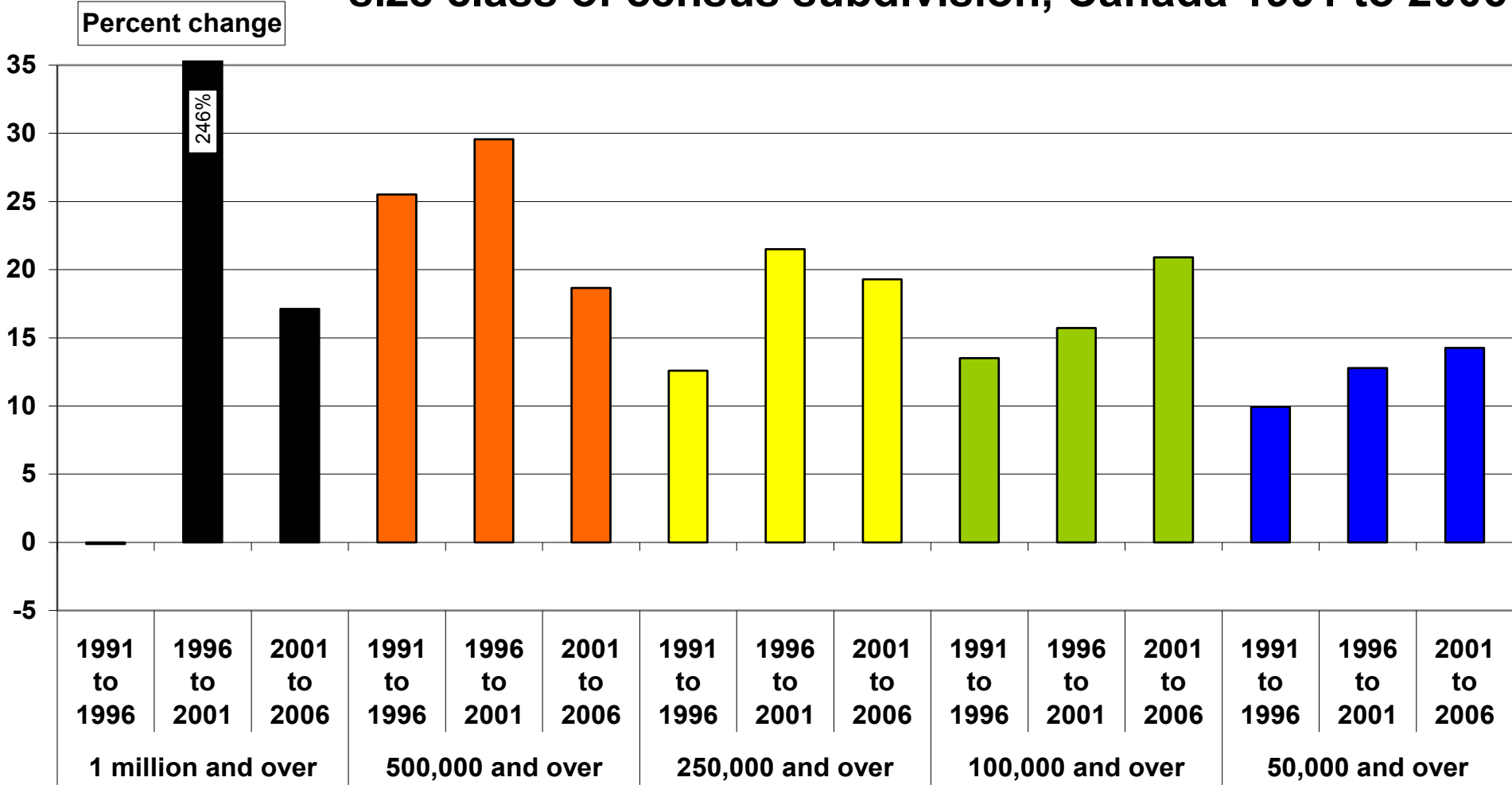
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## Quinquennial growth in population by size class of census subdivision, Canada 1991 to 2006



Population size class of census subdivision<sup>1</sup>

Source: Statistics Canada, Census of Population, 1991 to 2006.

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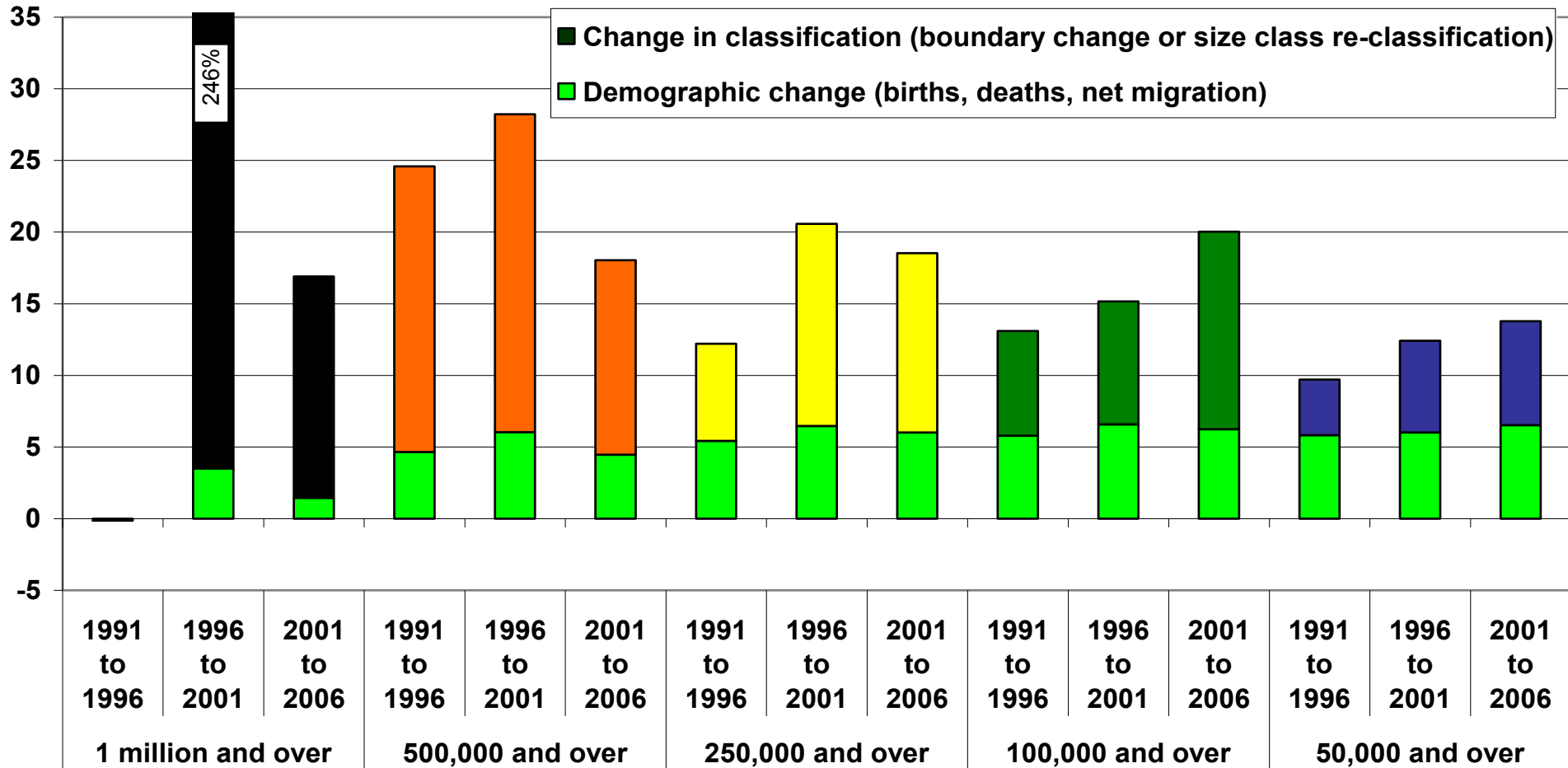


## Within each population size class, more than one-half of the growth of population living in a given urbanization class is due to reclassification, Canada, 1991 to 2006

Percent change

■ Change in classification (boundary change or size class re-classification)

■ Demographic change (births, deaths, net migration)



Population size class of census subdivision<sup>1</sup>

Source: Statistics Canada, Census of Population, 1991 to 2006.

A census subdivision (CSD) is the general term for municipalities (incorporated cities, towns and rural municipalities, as determined by provincial/territorial legislation) or areas treated as municipal equivalents for statistical purposes (e.g., Indian reserves, Indian settlements and unorganized territories).



## Summary

- **In general, larger CSDs have a larger demographic growth than smaller CSDs.**
- **In the case of census subdivisions, most of the increased in urbanization is due to re-classification.**



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- This concept is based on the idea that **“We are all in this together.”**
- Thus, from the point of view of citizens and from the point of view of investors, we all **share in the outcomes** of good development projects and we all share in the outcomes of bad development projects.
- In this sense, the agglomerated population operates together as a functional area, regardless of form and regardless of administrative boundaries.



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- Within Statistics Canada, **Census Metropolitan Areas (CMAs) and Census Agglomerations (CAs)** are delineated for any built-up core of 10,000 or more and includes all neighbouring census subdivisions where 50% or more of the employed residents commute to the built-up core.
- Thus, commuting rates are used to measure or proxy the areas around the built-up core that “function together.”



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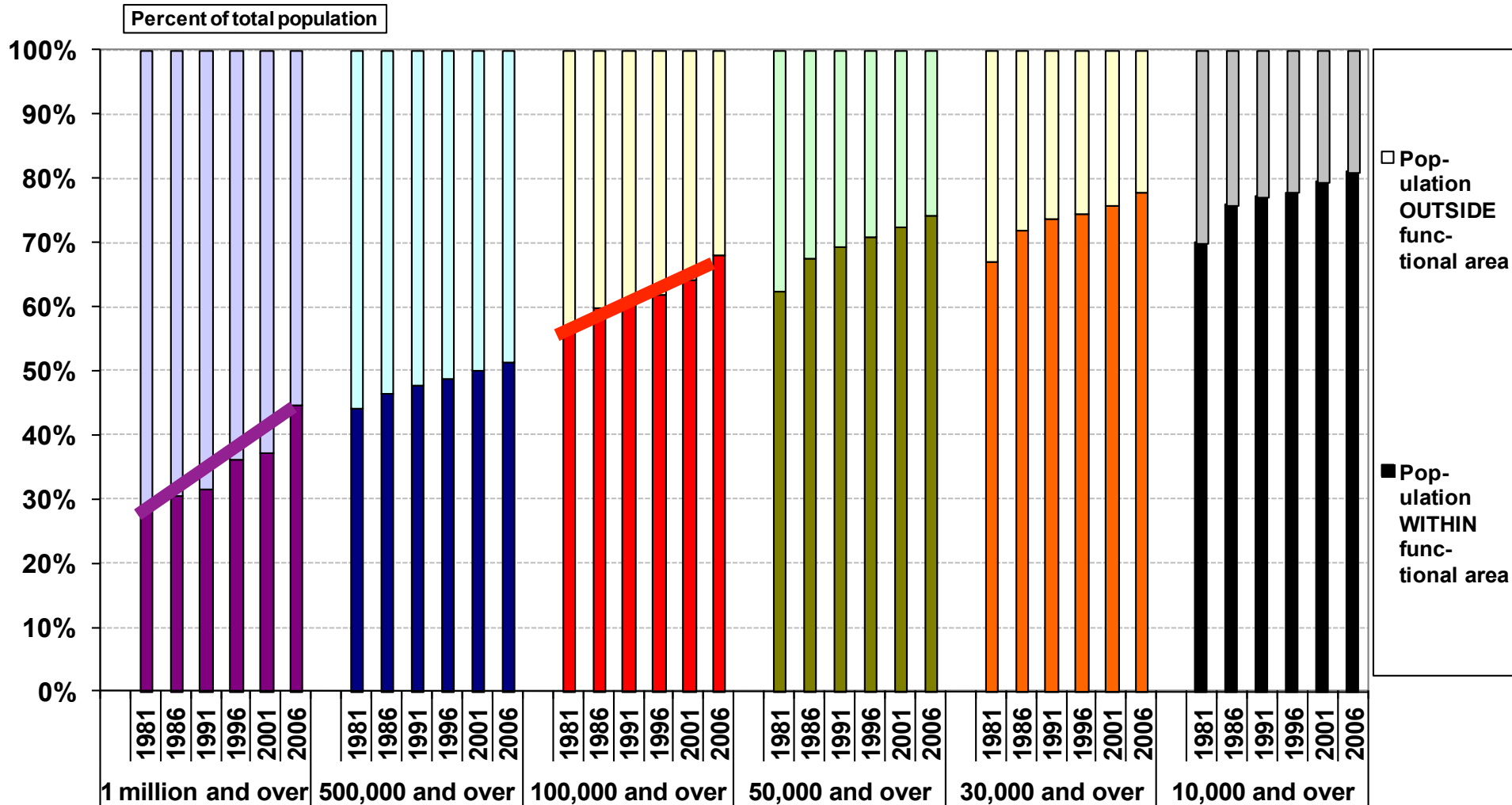
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## In 2006, 45% of Canadians resided within a functional labour market area with a population of 1 million or more







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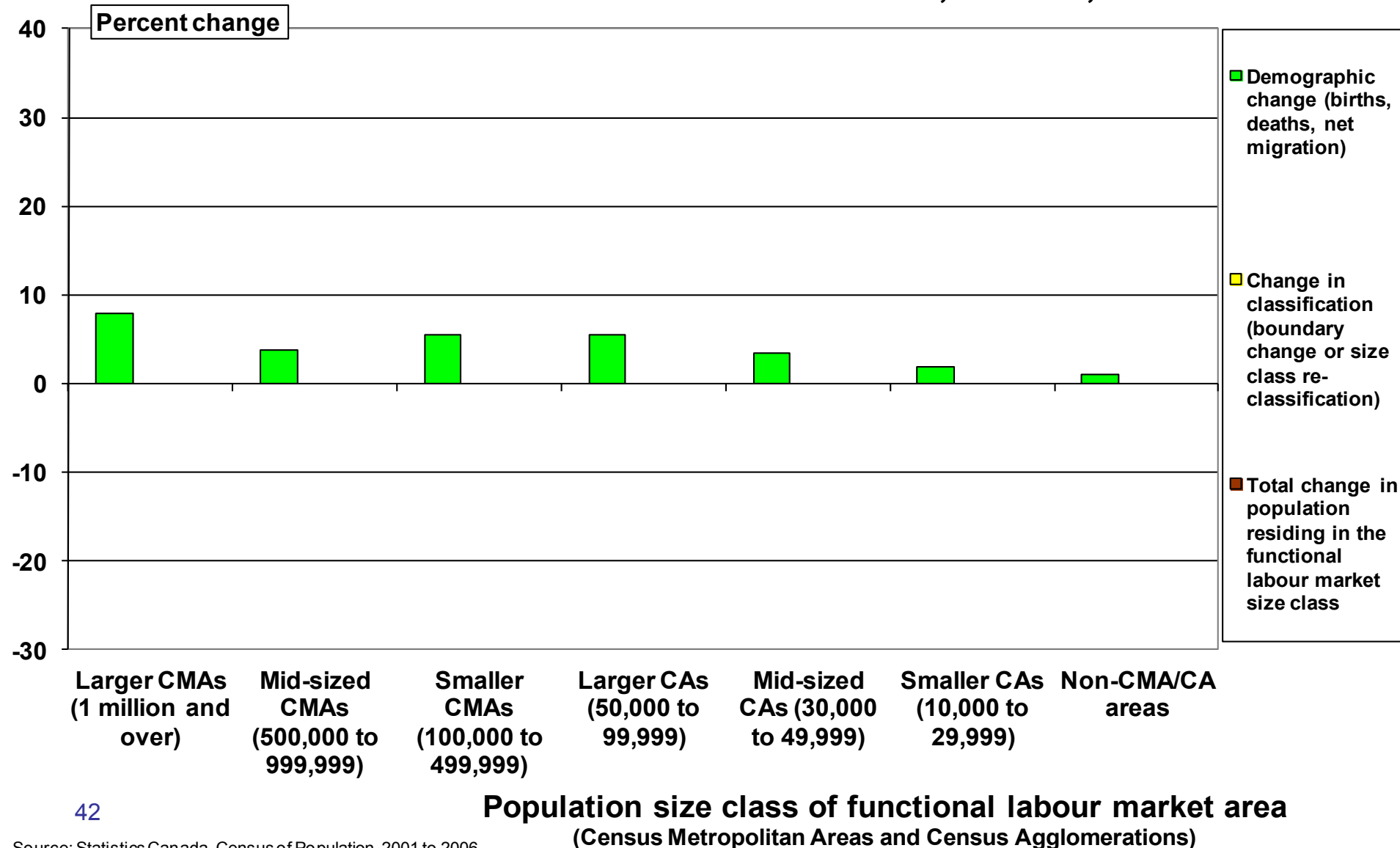
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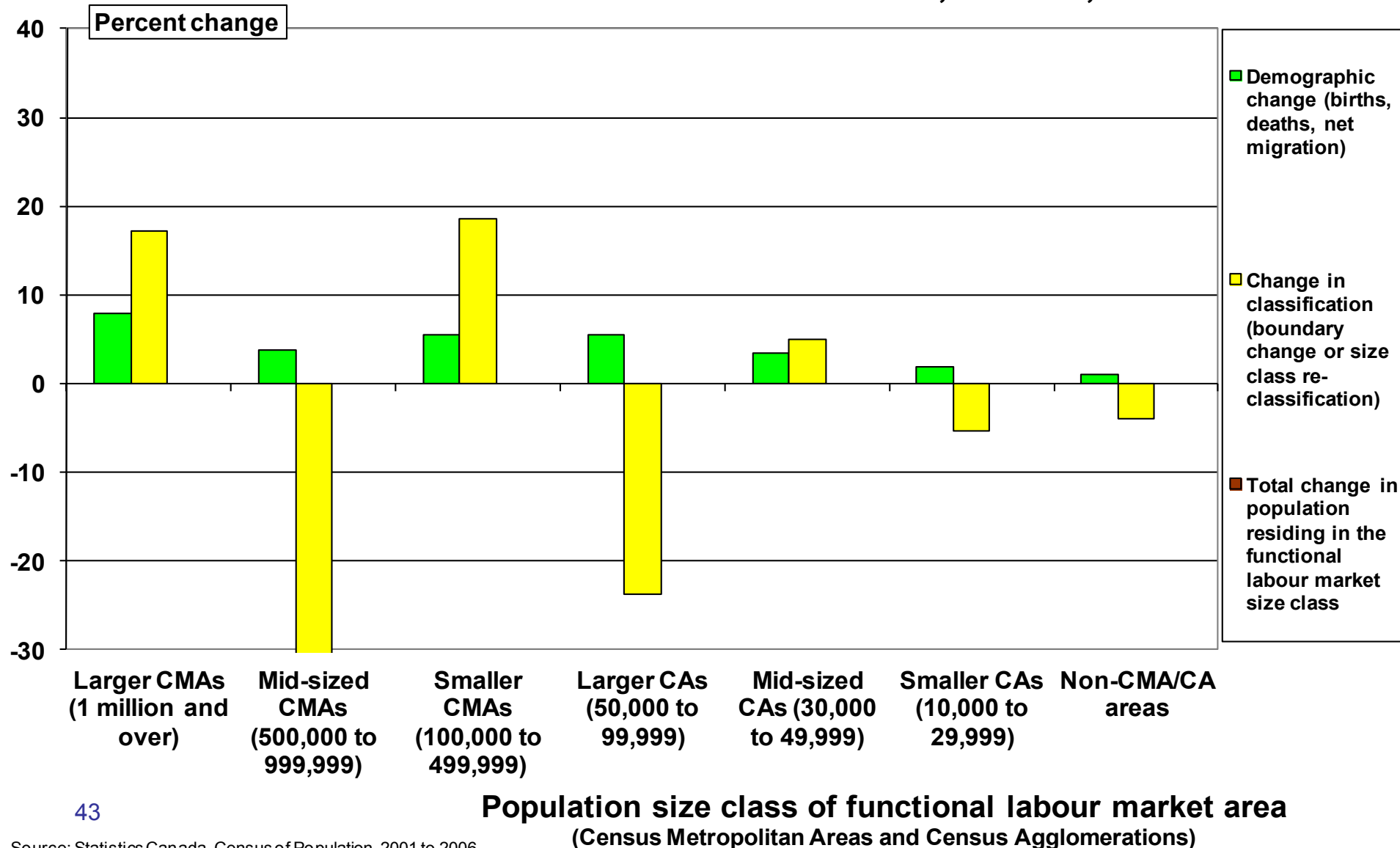


## Change in population living in each population size class of functional labour market areas, Canada, 2001 to 2006



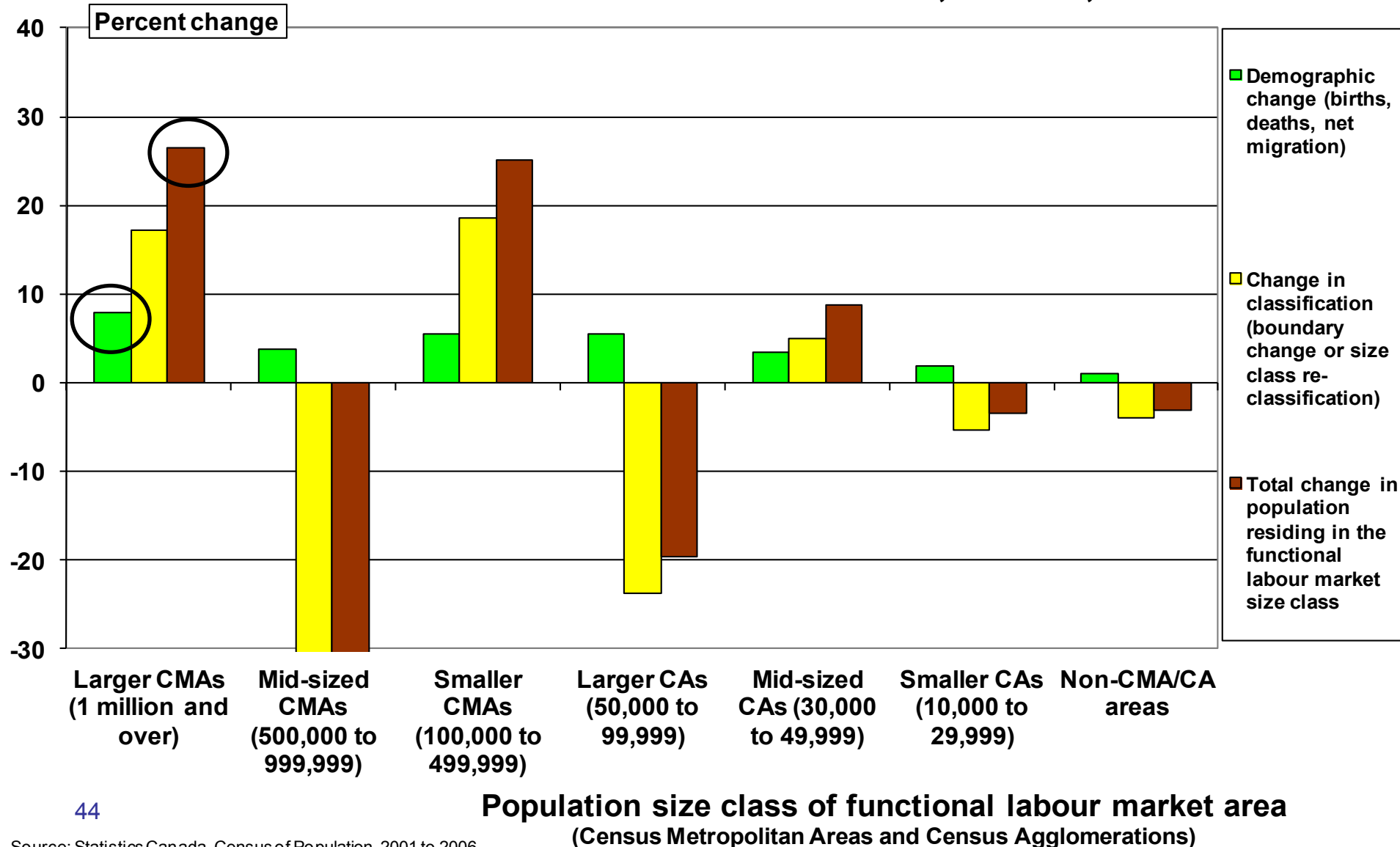


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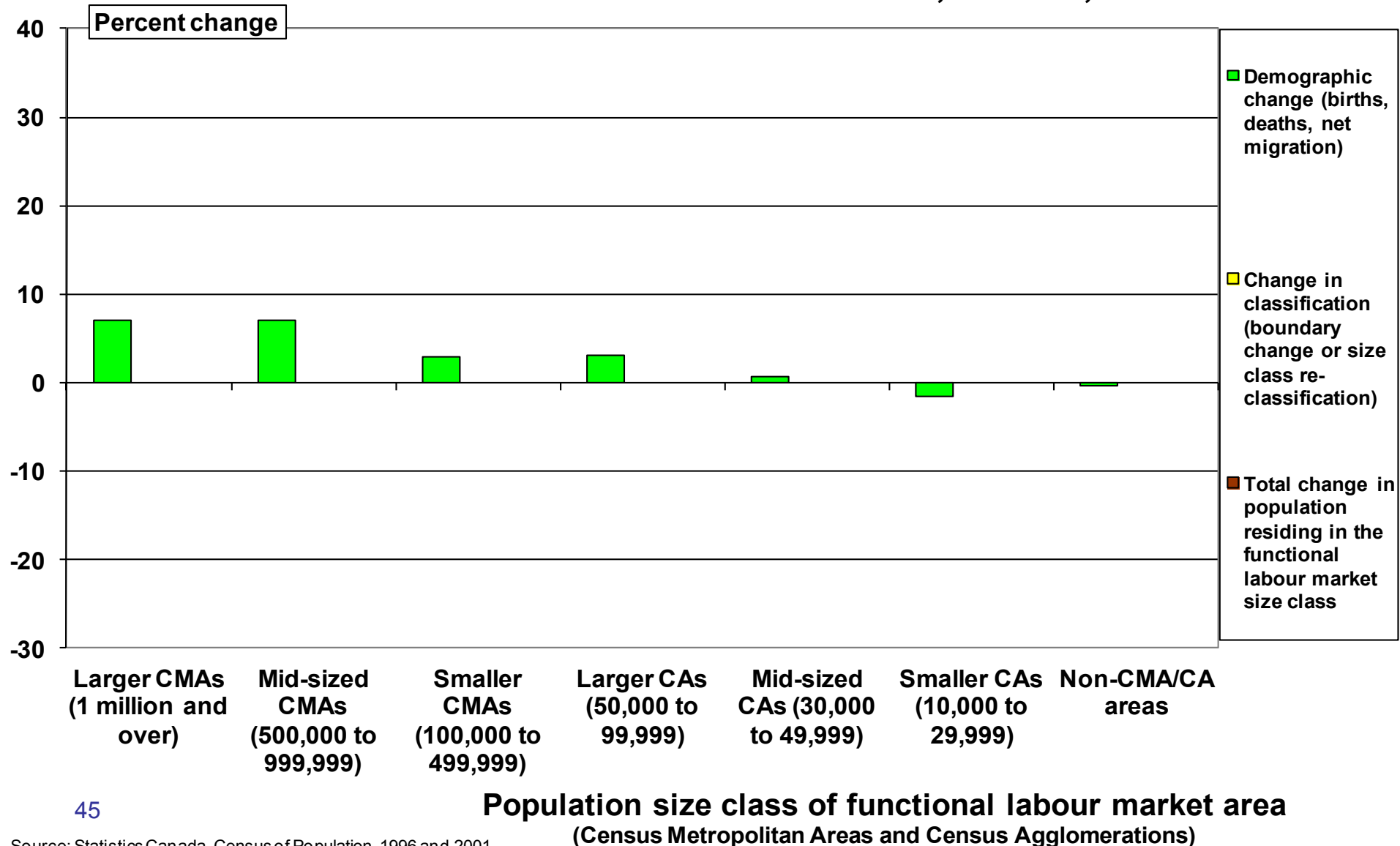


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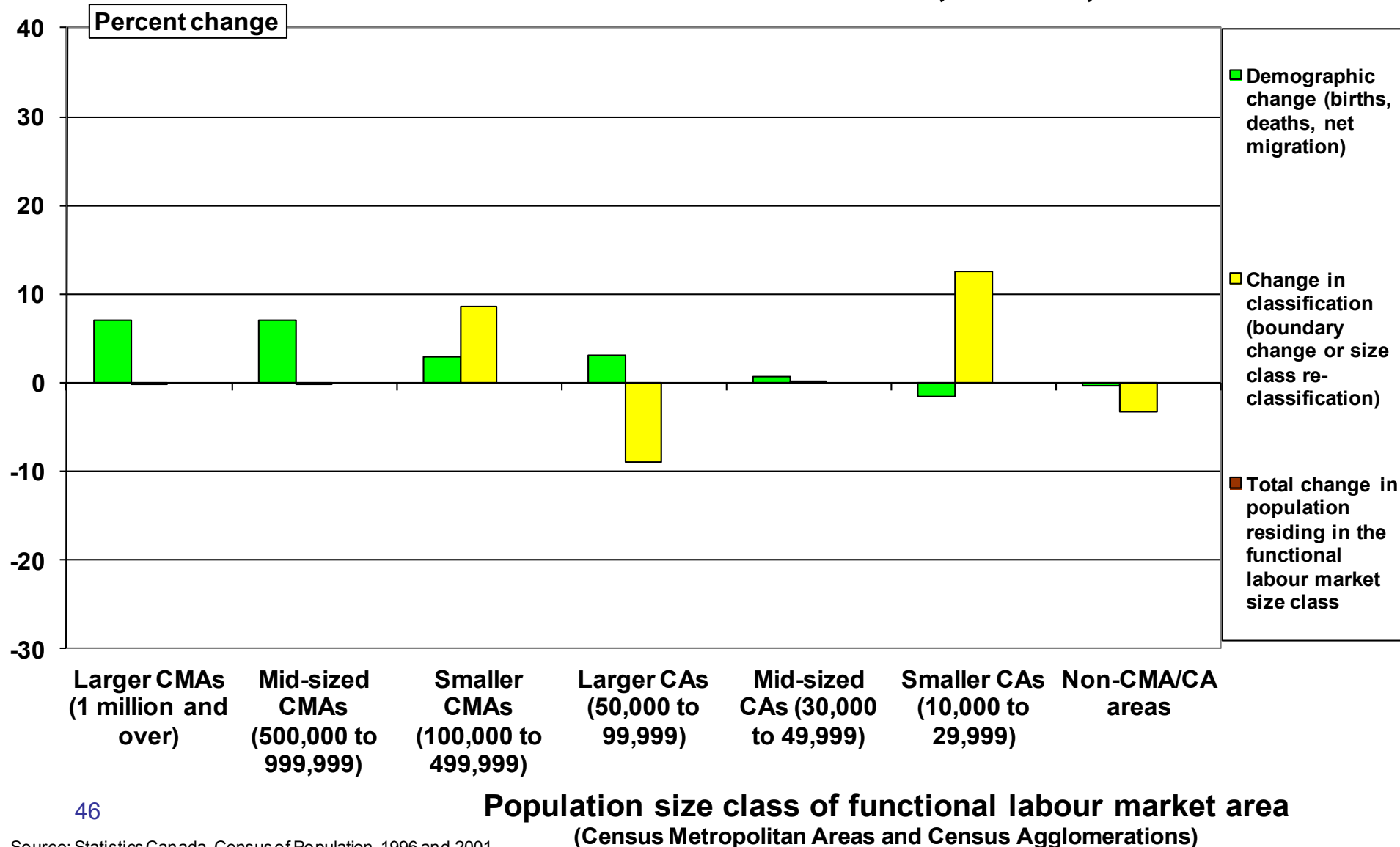


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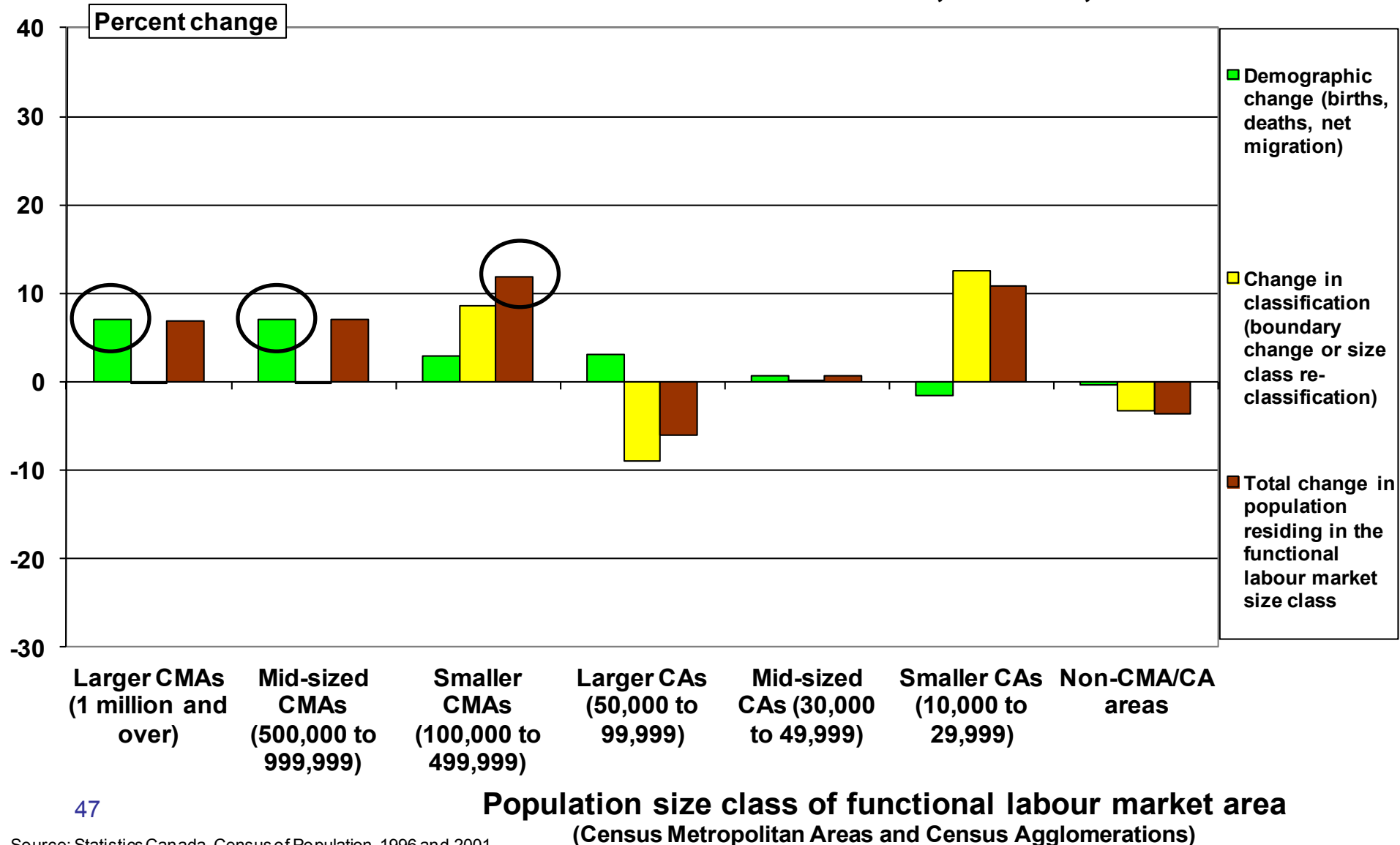


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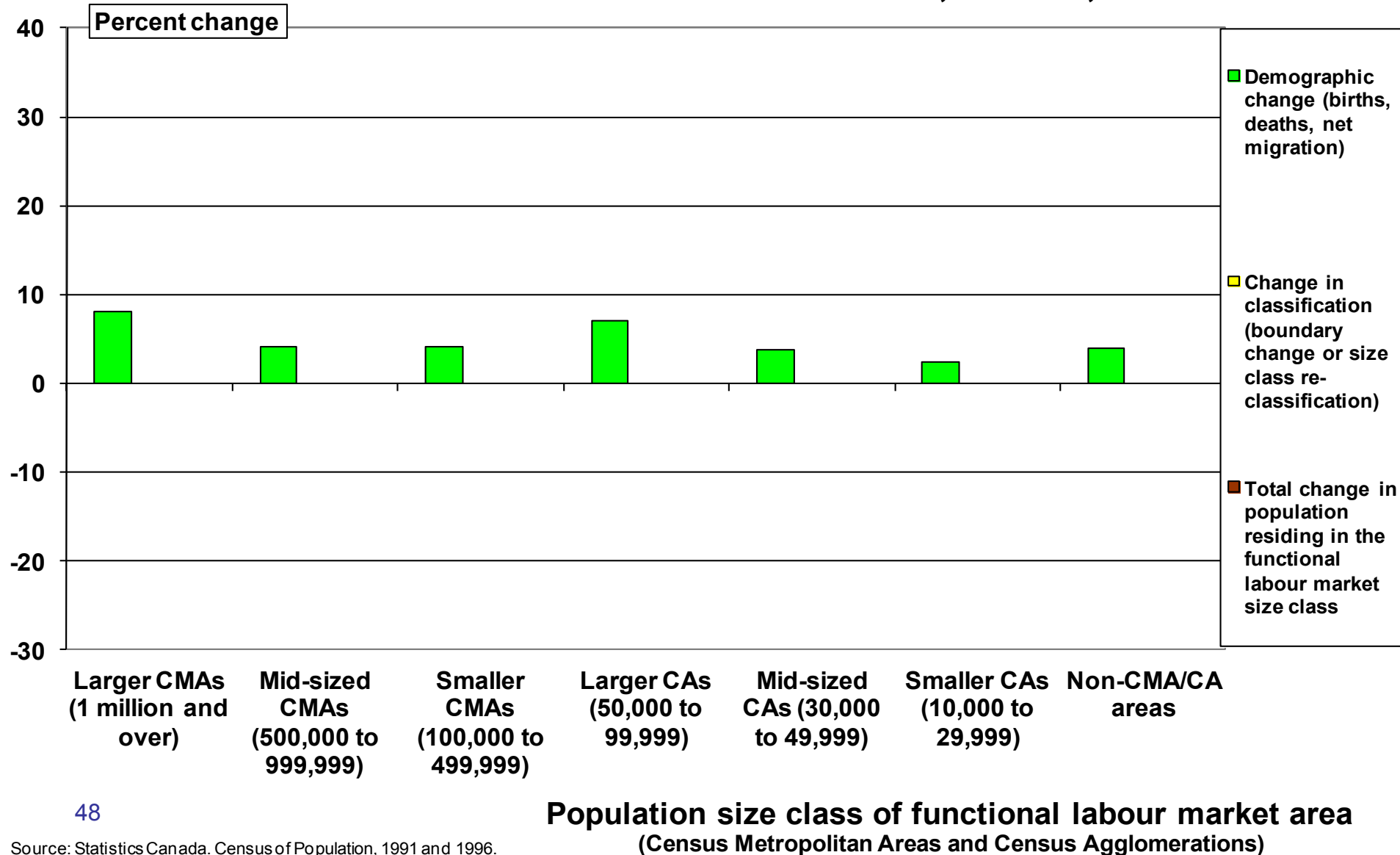


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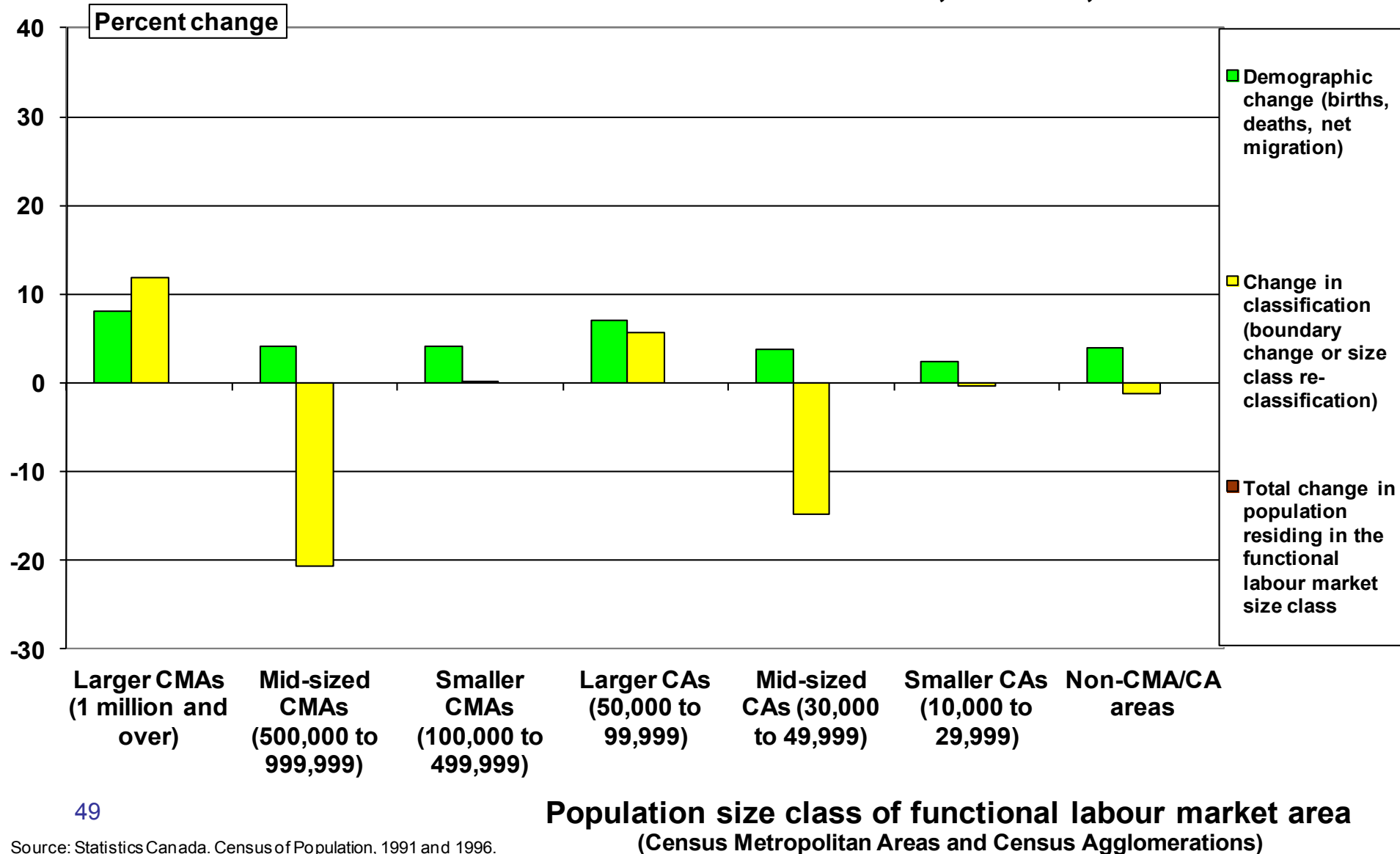
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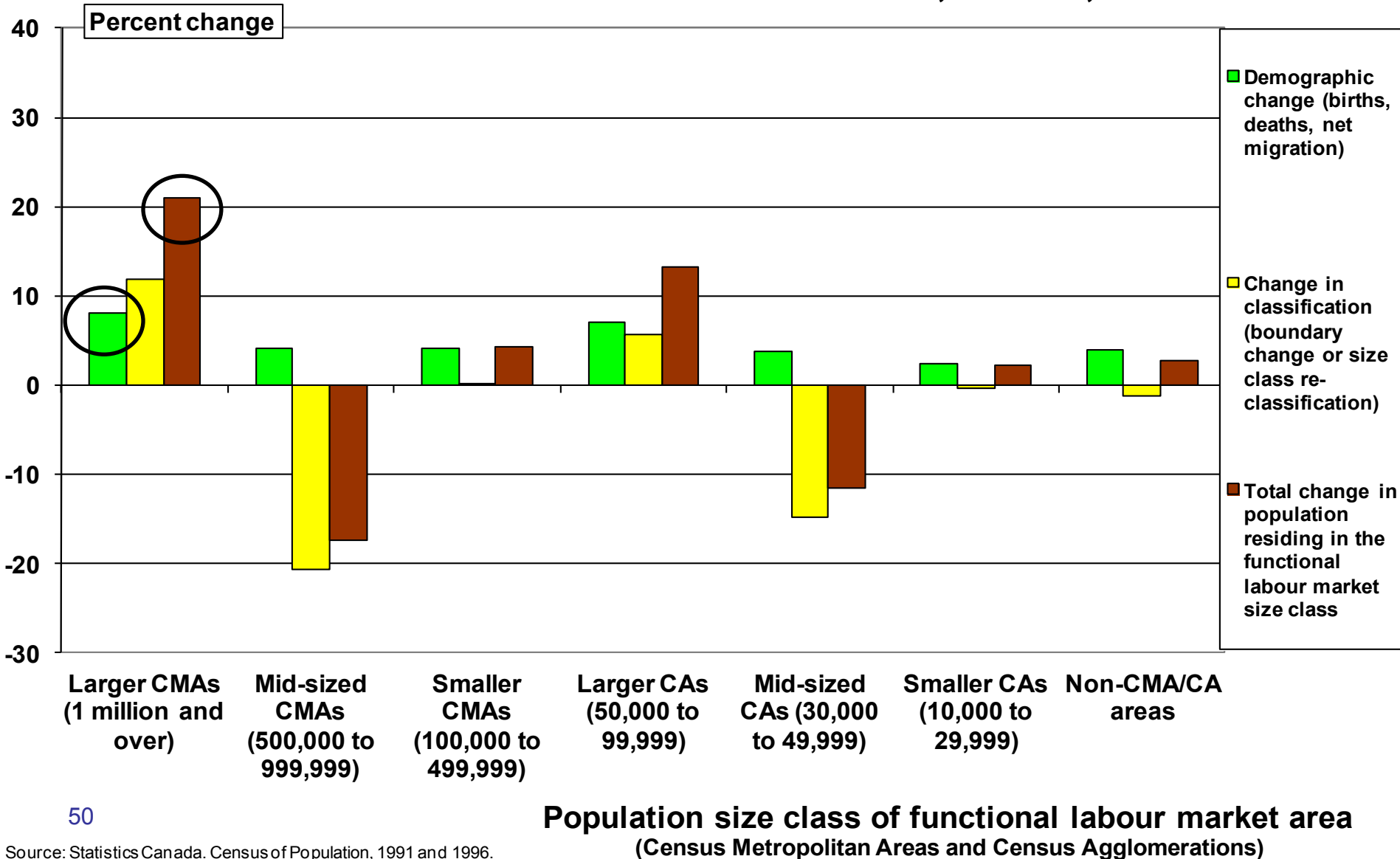


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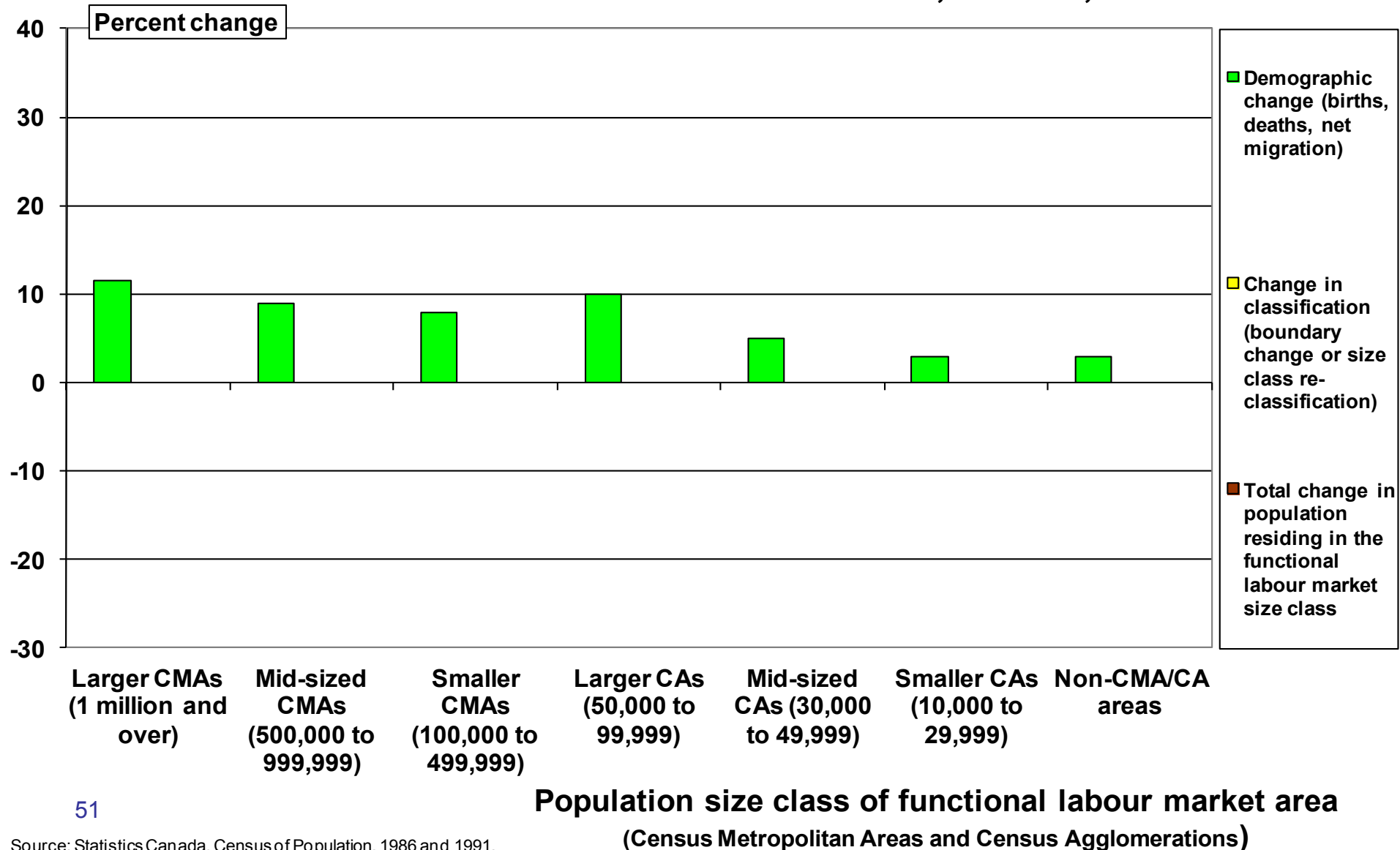


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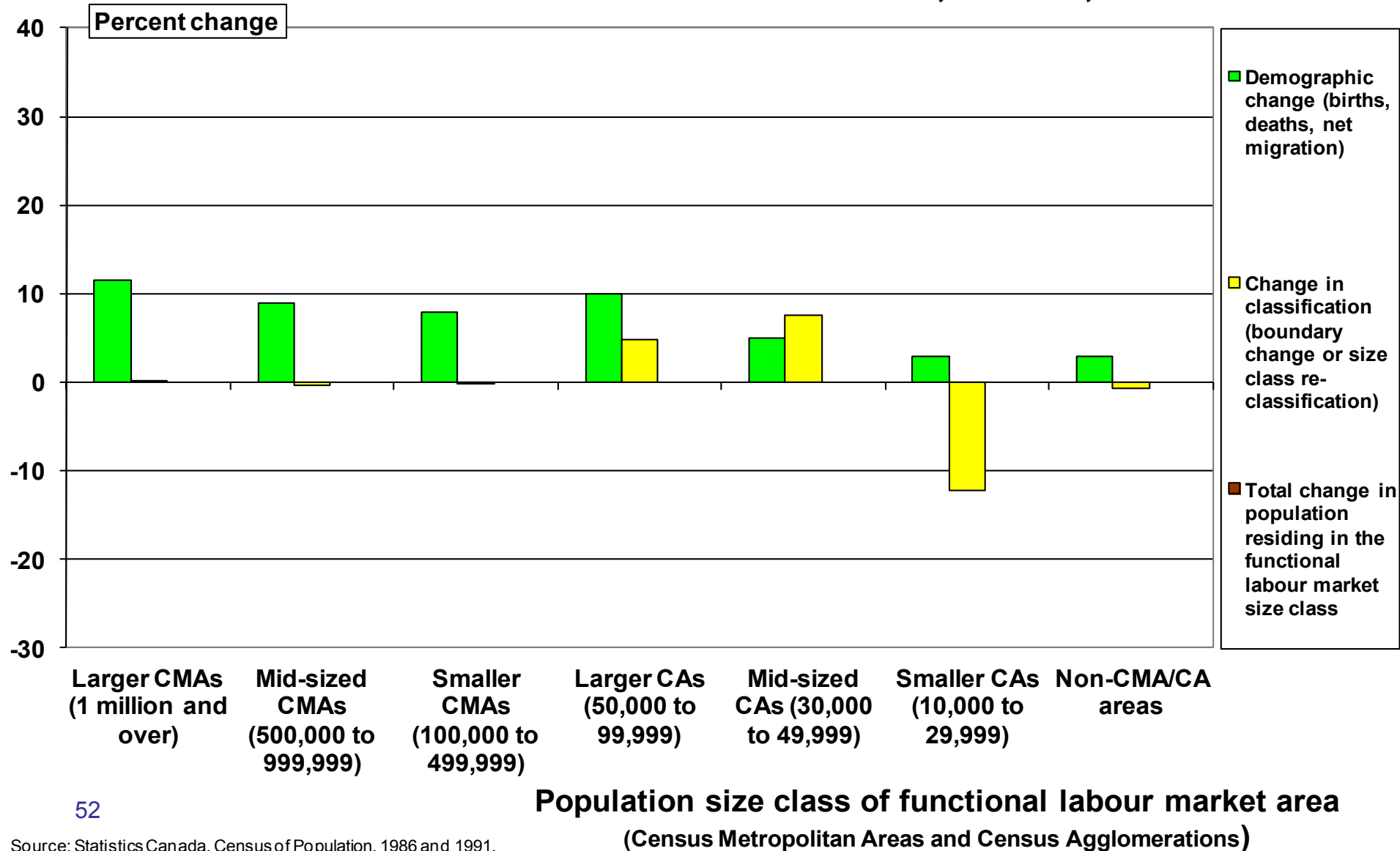


## Change in population living in each population size class of functional labour market areas, Canada, 1986 to 1991



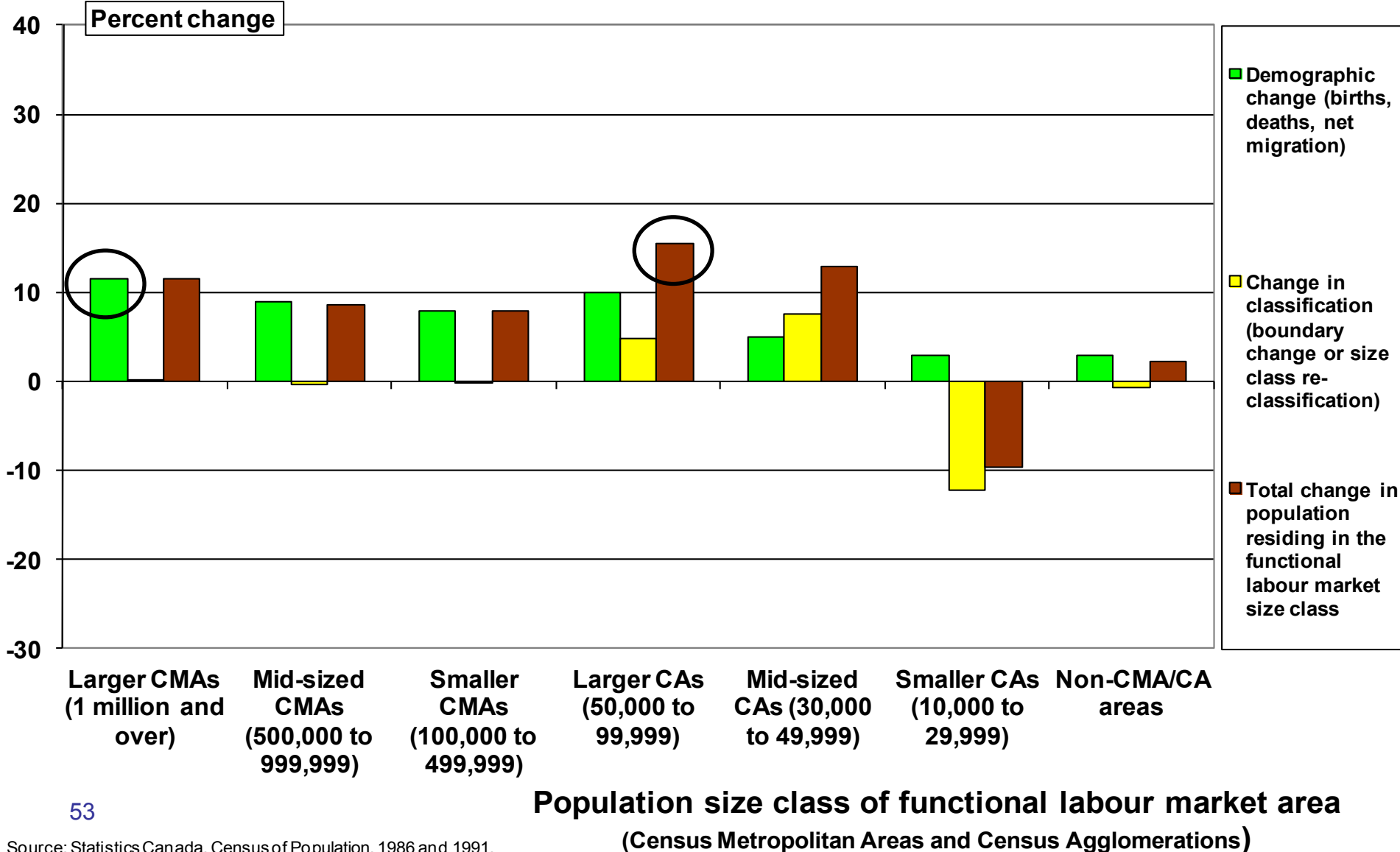


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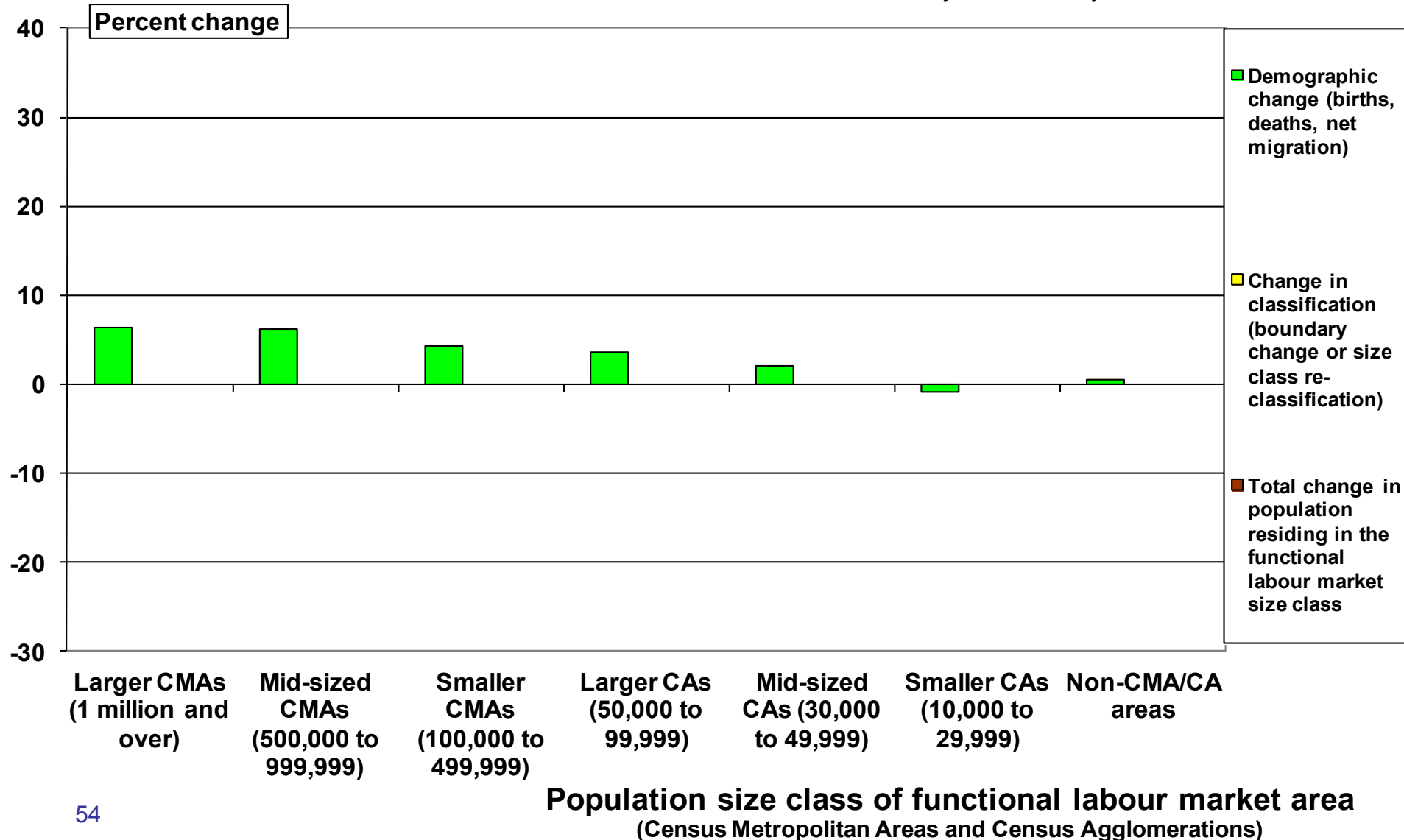


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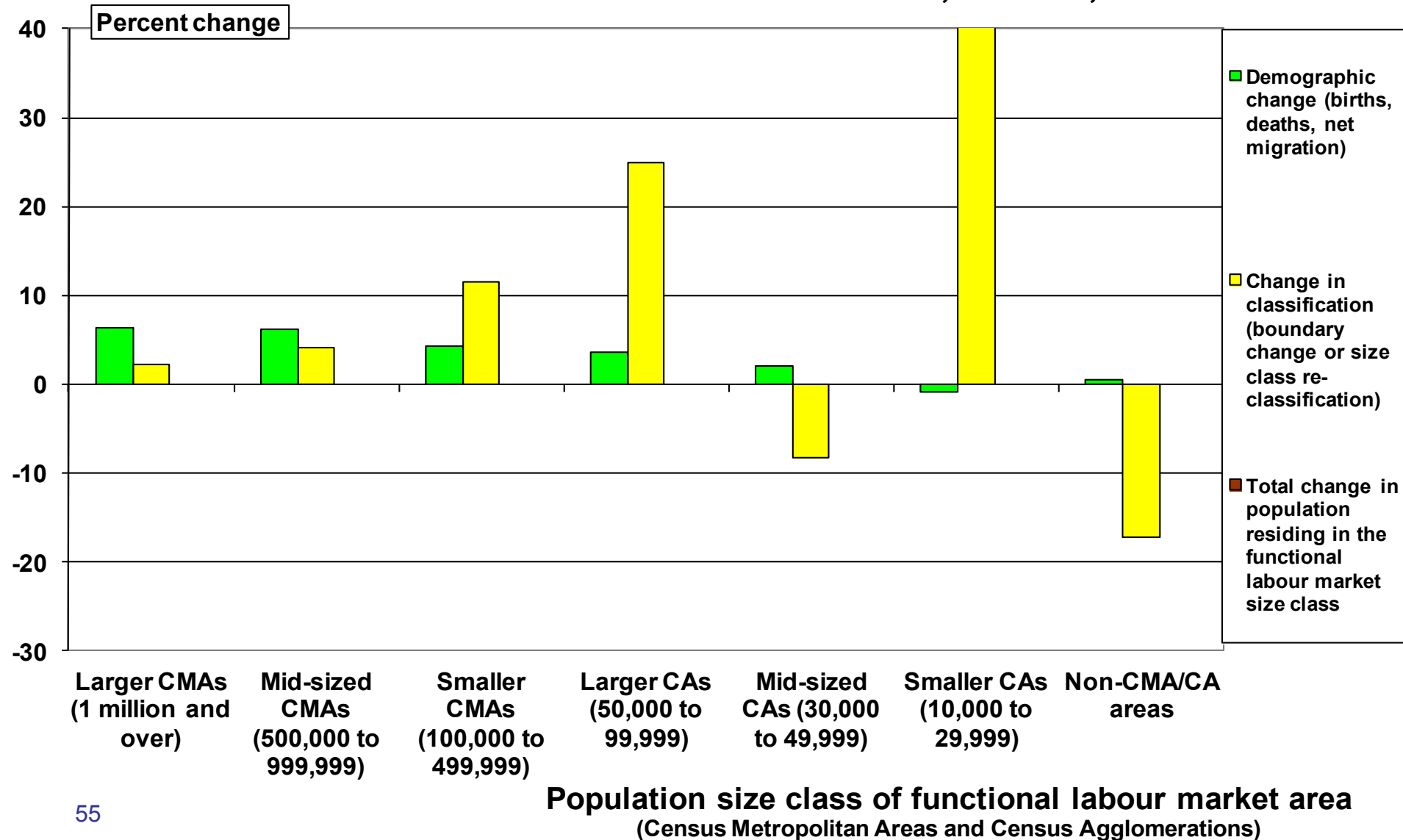


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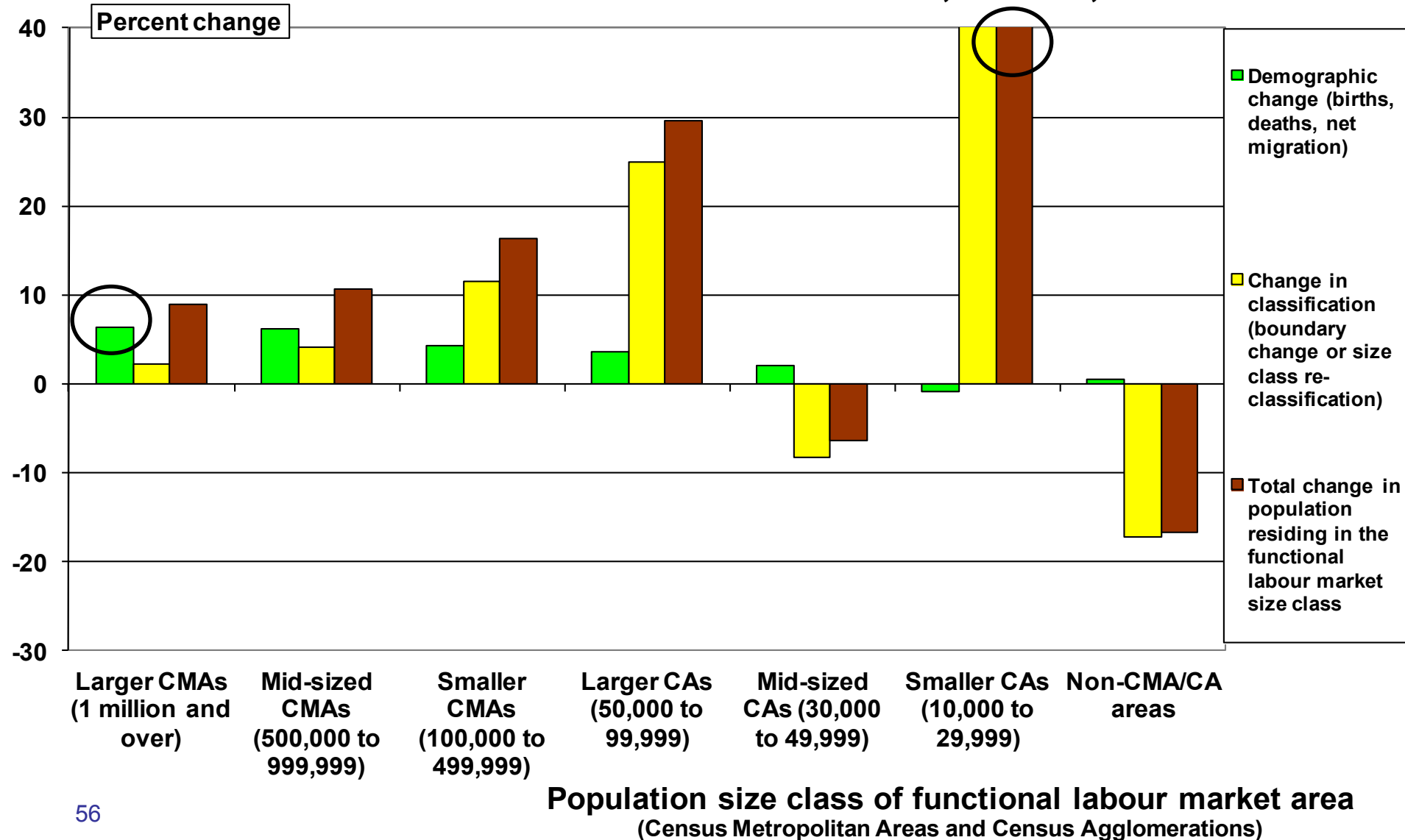


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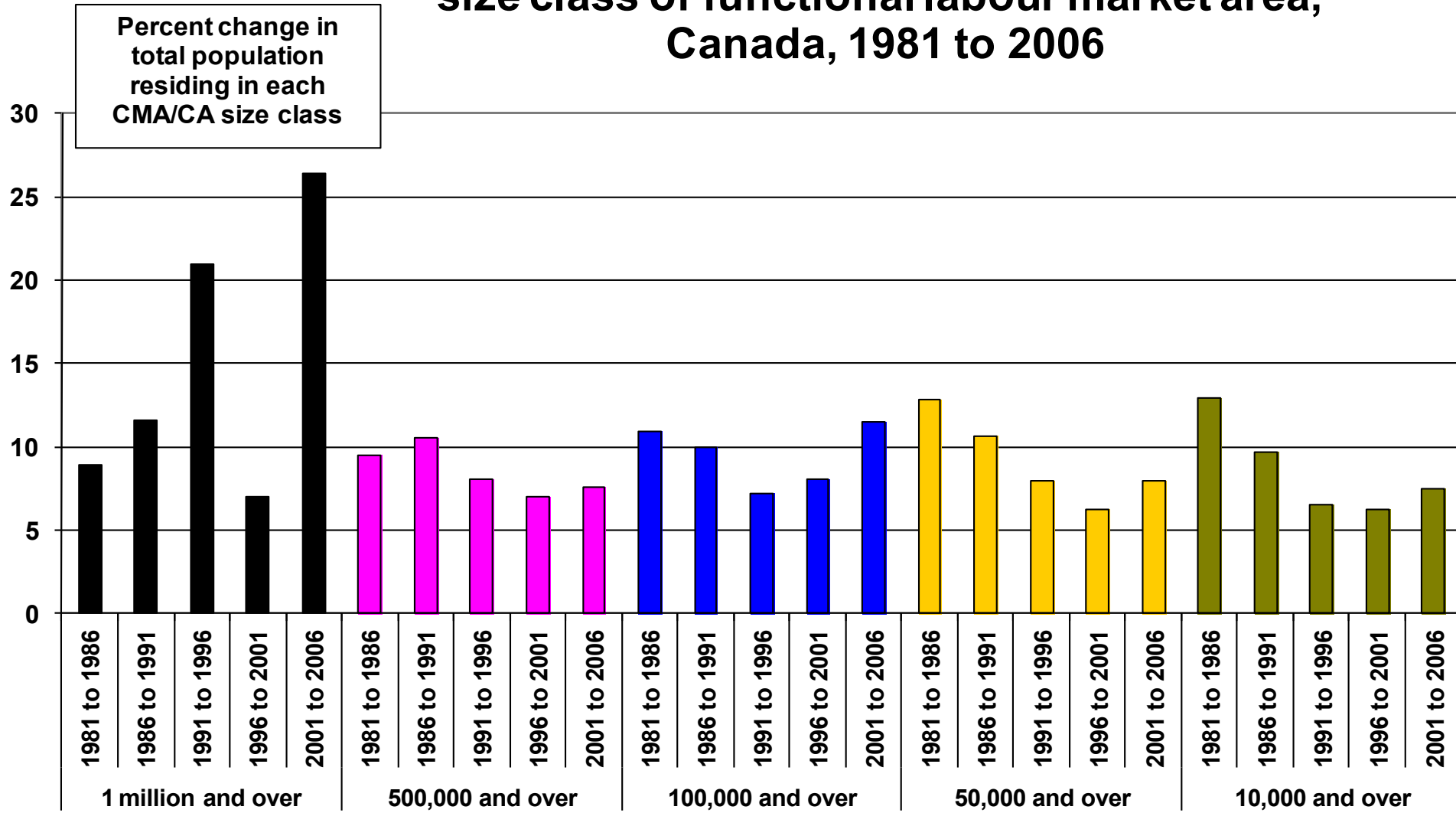
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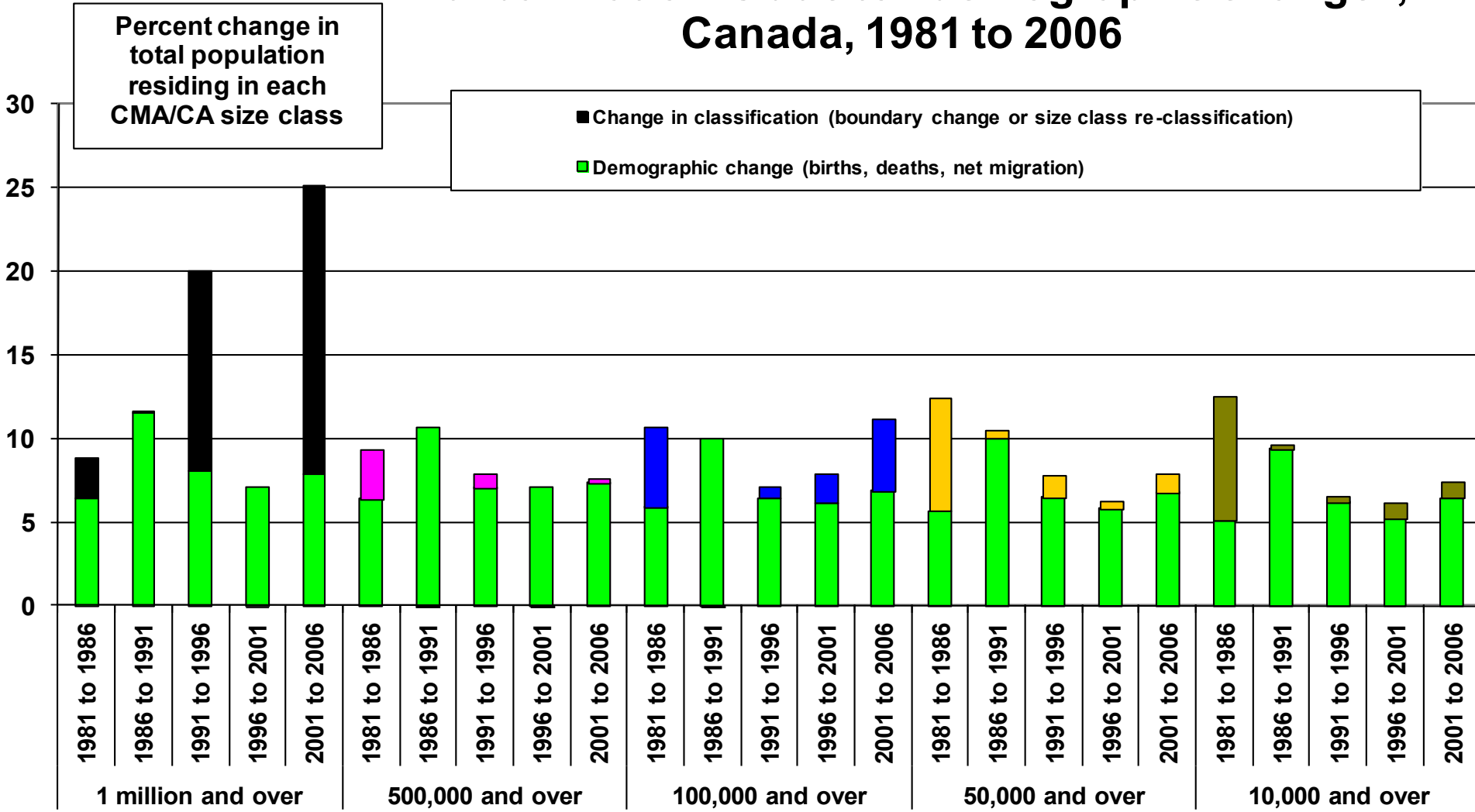


## Quinquennial percent change in population within each size class of functional labour market area, Canada, 1981 to 2006





## Within each population size class, most of the increase in urbanization is due to "demographic change", Canada, 1981 to 2006



Population size class of functional labour market area (Census Metropolitan Areas and Census Agglomerations)



# Summary

- **In general, larger functional areas have a larger demographic growth than smaller functional areas.**
- **In the case of functional areas, most ( $\frac{1}{2}$  to  $\frac{3}{4}$ ) of the increased in urbanization is due to demographic growth.**



## Outline

### 1. Introduction

### 2. Three ways of describing a city

#### a) Form or Morphology – Population Centres

- Level of urbanization
- Rate of urbanization

#### b) Administrative units – Census Subdivisions

- Level of urbanization
- Rate of urbanization

#### c) Functional areas – CMAs and CAs

- Level of urbanization
- Rate of urbanization

### 3. So



- **To summarize the situation, we will concentrate on the 100,000 and over size class because:**
  - **Mendelson and Lefebvre (2003) have shown that localities with a total population of 100,000 or more have most of the “functions” expected of a metropolitan centre**
    - Mendelson, Robert and Janet Lefebvre. (2003) **Reviewing Census Metropolitan Areas (CMA) and Census Agglomerations (CA) in Canada According to Metropolitan Functionality** (Ottawa: Statistics Canada, Geography Working Paper Series No. 2003-001, Catalogue no. 92F0138MIE)
- **However, the charts above have shown various city size classes so that you can choose:**
  - **your preferred definition of a “city”;**
  - **your preferred size cut-off to be a “city”**



## Level and change in urbanization as indicated by share of population living in a "city" of 100,000 or more, for three alternative ways of defining a city, Canada, 1981 to 2006

Alternative ways of defining a "city"	Degree or level of urbanization						Change in level of urbanization or rate of urbanization									
	1981	1986	1991	1996	2001	2006	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	2001 to 2006	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	2001 to 2006
	percent of population living in a "city" of 100,000 or more						percentage point change in the share of population living in a "city" of 100,000 or more					percent change in share of population living in a "city" of 100,000 or more				
Population centres <sup>1</sup>			54	55	58	59	..	..	1	3	1	..	..	3	6	1
Census subdivisions <sup>2</sup>			38	41	46	52	..	..	3	5	7	..	..	7	11	15
CMA and CAs <sup>3</sup>	56	60	61	62	64	68	4	1	1	2	4	7	2	1	4	6

1. Population centres: form or morphology or built-up area (any locality with a population density of 400 inhabitants per km<sup>2</sup> or more – delineated for localities with a total population of 1,000 more).

2. Census subdivision: administrative unit (an incorporated city, town or municipality).

3. CMA or CA: functional labour market unit (Census Metropolitan Areas and Census Agglomerations -- with an urban core of 10,000 or more and includes all neighbouring census subdivisions where 50% or more of the employed residents commute to the urban core).



## Level and change in urbanization as indicated by share of population living in a "city" of 100,000 or more, for three alternative ways of defining a city, Canada, 1981 to 2006

Alternative ways of defining a "city"	Degree or level of urbanization						Change in level of urbanization or rate of urbanization									
	1981	1986	1991	1996	2001	2006	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	2001 to 2006	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	2001 to 2006
	percent of population living in a "city" of 100,000 or more						percentage point change in the share of population living in a "city" of 100,000 or more					percent change in share of population living in a "city" of 100,000 or more				
<b>Population centres<sup>1</sup></b>	..	..	54	55	58	59	..	..	1	3	1	..	..	3	6	1
<b>Census subdivisions<sup>2</sup></b>	..	..	38	41	46	52	..	..	3	5	7	..	..	7	11	15
<b>CMAs and CAs<sup>3</sup></b>	56	60	61	62	64	68	4	1	1	2	4	7	2	1	4	6

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	percent of population living in a "city" of 100,000 or more						percentage point change in the share of population living in a "city" of 100,000 or more					percent change in share of population living in a "city" of 100,000 or more				
<b>Population centres<sup>1</sup></b>	..	..	54	55	58	59	..	..	1	3	1	..	..	3	6	1
<b>Census subdivisions<sup>2</sup></b>	..	..	38	41	46	52	..	..	3	5	7	..	..	7	11	15
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## Which population size class reported the fastest growth in population? -- for 3 ways of delineating a "city", 1976 to 2006, Canada

Alternative delineation of a "city"	Intercensal period					
	1976 to 1981	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	2001 to 2006
	<p><b>Which size class grew the fastest in terms of demographic change<sup>1</sup>?</b> This indicates where people were preferring to live, as indicated largely via immigration and migration within Canada -- i.e., voting with one's feet.</p>					
Population centres	..	..	50,000 to 99,999	1 million and over	(3)	30,000 to 49,999
Census subdivisions	..	..	..	250,000 to 499,999	500,000 to 999,999	250,000 to 499,999
CMAAs and CAs	500,000 to 999,999	1 million and over	1 million and over	1 million and over	500,000 and over <sup>4</sup>	1 million and over
	<p><b>Which size class grew the fastest in terms of total population change<sup>2</sup>?</b> This indicates the urbanization size class with the biggest increase in the number of Canadians living in a given urbanization size class.</p>					
Population centres	..	..	..	100,000 to 499,999	100,000 to 499,999	30,000 to 49,999
Census subdivisions	..	..	500,000 to 999,999	500,000 to 999,999	1 million and over	100,000 to 249,999
CMAAs and CAs	..	10,000 to 29,999	500,000 to 999,999	100,000 to 499,999	100,000 to 499,999	1 million and over

1. Demographic change includes births, deaths, international immigration and emigration and internal migration within Canada. The major differences among localities are immigration and net migration -- i.e., voting with one's feet.

2. Total population change includes demographic change plus the change in the count of population living in a given population size class due to the re-classification of the size group for a given locality and due to boundary changes causing a gain or loss of population assigned to a given locality.

3. Population data for 1996 within 2001 boundaries are not available. "Since 2001 blocks did not necessarily respect 1996 enumeration areas, it was not possible to recreate 1996 urban areas based on 2001 blocks with 100% accuracy." See Matier, Kelly. (2008) **Delineation of 2006 Urban Areas: Challenges and Achievements** (Ottawa: Statistics Canada, Geography Working Paper Series No. 2008001, Catalogue no. 92F0138), p. 5.

4. The rate of growth for 500,000 to 999,999 and 1 million and over was the same in this period.



## Outline

### 1. Introduction

### 2. Three ways of describing a city

- a) **Form or Morphology – Population Centres**
  - Level of urbanization
  - Rate of urbanization
- b) **Administrative units – Census Subdivisions**
  - Level of urbanization
  - Rate of urbanization
- c) **Functional areas – CMAs and CAs**
  - Level of urbanization
  - Rate of urbanization

## 3. How many Canadians live in a city?

- **If you define a “city” as having 100,000+ inhabitants, the answer is (in 2006):**
  - **59% in population centres 100,000+ ;**
  - **52% in census subdivisions of 100,000+ ; and**
  - **68% in CMAs of 100,000+ .**
- **The answer depends upon to whom you are talking:**
  - **59% if you are talking to public transit planners;**
  - **52% if you are talking to mayors; and**
  - **68% if you are talking to economic development analysts.**



## How many Canadians live in a "city"?

.. For alternative population size classes to be a "city"

.... For alternative ways of defining a "city"

Alternative size classes	Alternative definitions	1981	1986	1991	1996	2001	2006
		percent of total population					
1 million and over	Population centres <sup>1</sup>	..	..	29	30	31	32
	Census subdivisions <sup>2</sup>	..	..	4	4	12	13
	CMA and CA <sup>3</sup>	29	31	32	36	37	45
500,000 and over	Population centres <sup>1</sup>	..	..	43	44	46	46
	Census subdivisions <sup>2</sup>	..	..	17	20	25	29
	CMA and CA <sup>3</sup>	44	47	48	49	50	51
100,000 and over	Population centres <sup>1</sup>	..	..	54	55	58	59
	Census subdivisions <sup>2</sup>	..	..	38	41	46	52
	CMA and CA <sup>3</sup>	56	60	61	62	64	68
50,000 and over	Population centres <sup>1</sup>	..	..	59	61	63	64
	Census subdivisions <sup>2</sup>	..	..	51	53	58	62
	CMA and CA <sup>3</sup>	62	68	69	71	72	74
30,000 and over	Population centres <sup>1</sup>	..	..	63	64	67	68
	Census subdivisions <sup>2</sup>	..	..	58	60	64	67
	CMA and CA <sup>3</sup>	67	72	74	75	76	78
10,000 and over	Population centres <sup>1</sup>	..	..	68	70	72	73
	Census subdivisions <sup>2</sup>	..	..	73	75	78	80
	CMA and CA <sup>3</sup>	70	76	77	78	79	81

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- Rate of urbanization

## 3. How many Canadians live in a “city”?

## 4. Summary



# Summary

- a) Which definition shows a higher **level** of urbanization?
1. Functional areas (CMAs & CAs)
  2. Population centres (built-up areas)
  3. Census subdivisions (incorporated towns and cities)
- b) What definition shows a higher **rate** of urbanization?  
(i.e. a higher change in the level of urbanization)
1. Census subdivisions (due to amalgamation);
  2. Population centres & functional areas



## Outline

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#### c) Functional areas – CMAs and CAs

- Level of urbanization
- Rate of urbanization

### 3. Summary – Questions and Discussion