

Change in occupation mix: Manufacturing sector 2006 - 2016

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Highlights

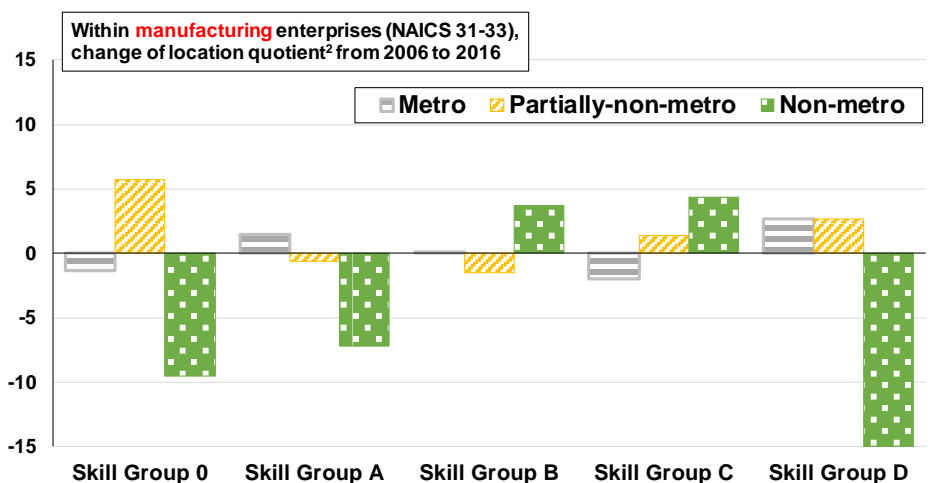
- From 2006 to 2016, there was a decline in manufacturing employment in each occupation group, except in occupations usually requiring a university degree (Skill Group “A”).
- In 2016, 81% of employment in non-metro manufacturing was in two employment groups (45% in occupations usually requiring a high school diploma or occupation-specific training (Skill Group “C”) and 36% in occupations usually requiring a college diploma or apprenticeship training (Skill Group “B”)).
- In terms of the share (or percent) of employment in each occupation group, the share of non-metro manufacturing employment in Skill Groups “B” and “C” increased (marginally), compared to the change for Ontario as a whole.
- Cautionary caveat: We are using a delineation of skills as delineated by Employment and Skills Development Canada that is based on the level of educational attainment usually required for a given occupation. However, non-metro workers know that heavy equipment mechanics (Skill Group “B”) are not less skilled than teachers (Skill Group “A”) – the required skills are simply different.

Why look at the mix of occupations?

For centuries, machines have been substituted for manual labour. There is an ongoing shift to more skilled workers (or knowledge workers) to design and to manage machines to perform the work of various occupations in each industry sector.

The objective of this Fact Sheet is to show the change in the mix of occupations (grouped into skill groups¹) in manufacturing² from 2006 to 2016³.

Figure 1 Among manufacturing enterprises, the share of non-metro employment in Skill¹ Groups “B” & “C” increased relative to the Ontario average, 2006 to 2016



1. Occupations are classified to Skill Groups based on: Employment and Skills Development Canada, **National Occupational Classification Matrix 2011** (<http://noc.esdc.gc.ca/English/NOC/Matrix2011.aspx?ver=11>). Group A usually requires a university education; Group B usually requires a college education or apprenticeship training; Group C usually requires a secondary school or occupation-specific training; Group D usually requires on-the-job training; Group O includes management occupations

2. A location quotient is a measure, for each industry sector, of the relative intensity of employment in a skill group in, say, non-metro census divisions, compared to the employment in the skill group for Ontario as a whole. It is calculated as the percent of employment in a skill group in an industry sector for, say, non-metro census divisions, divided by the percent of employment in the skill group in the industry sector for Ontario as a whole (and then multiplied by 100). Source: OMAFRA, EMSI ANALYST database.

Chart by Ray D. Bollman@sasktel.net

¹ Occupations are classified to Skill Groups based on:

Employment and Skills Development Canada. **National Occupational Classification Matrix 2011**

(<http://noc.esdc.gc.ca/English/NOC/Matrix2011.aspx?ver=11>). **Group A** usually requires a university education; **Group B** usually requires a college education or apprenticeship training; **Group C** usually requires a secondary school or occupation-specific training; **Group D** usually requires on-the-job training; and **Group O** includes management occupations & self-employed individuals

² Specifically, NAICS 31-33 in Statistics Canada. (2017) **North American Industry Classification System: 2017** (Ottawa: Statistics Canada, Catalogue no. 12-501)

(<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-501-X&objType=2&lang=en&limit=0>).

³ From 1991 to 2001 in most industries, the share of employment in higher-skilled jobs increased (slightly) more in urban areas than in rural areas. See Erik Magnusson and Alessandro Alasia. (2004) “Occupational patterns within industry groups: A rural-urban comparison.” **Rural and Small Town Canada Analysis Bulletin** Vol. 5, No. 6 (Ottawa: Statistics Canada, Catalogue no. 21-006-

Summary data for each sector is in an appendix⁴.

Findings

Employment in manufacturing declined by 21% in Ontario from 2006 to 2016 (Table 1). The decline was largest (24%) in non-metro⁵ census divisions (CDs) followed by a 21% decline in partially-non-metro CDs and a 19% decline in metro CDs.

XIE) (www.statcan.gc.ca/bsolc/english/bsolc?catno=21-006-X&CHROPG=1).

⁴ **Appendix: Tables and Charts showing the Level and Change of Employment by Skill Group for each Industry Sector, by Type of Census Division, Ontario, 2006 – 2016.**

⁵ Defined in “Rural Ontario’s Demography: Census Update 2016.” **Focus on Rural Ontario** (Guelph: Rural Ontario Institute, March) (<http://www.ruralontarioinstitute.ca/focus-on-rural-ontario.aspx>).

Employment declined in each skill group – except there was an increase (16%) in employment in Skill Group “A” (i.e., occupations usually requiring a university education). The increase in this skill group was greater in metro CDs (20%) followed by an increase of 15% in partially non-metro CDs and followed by no change in non-metro CDs.

Given that employment declined in each other skill group, the increase (or no change) for Skill Group “A” meant that the share of manufacturing employment in Skill Group “A” increased from 2006 to 2016 – from 5% to 7% of manufacturing employment in Ontario as a whole, and from 4% to 5% in non-metro CDs.

A location quotient (LQ) calculates a relative intensity (Columns 6 and 7 in Table 1). For example, Skill Group “A” represented 5% of manufacturing employment in non-metro CDs in 2016. When we take this 5% share and divide by the 7% share at the Ontario level (and multiply by 100), we generate an LQ (or relative intensity) of 67 (in Column 7) as a measure of the relative intensity of non-metro manufacturing employment in Skill Group “A”, relative to 100 for Ontario as a whole. A figure less than 100 indicates that this group has a lower share (or is less intensive) compared to Ontario as a whole. From 2006 to 2016, the non-metro LQ for employment in Skill Group “A” declined by 7 points (Figure 1). This decline indicates a relative shift to a lower share of employment in this skill group, compared to the change for Ontario as a whole.

From 2006 to 2016, the positive change in Figure 1 for the non-metro LQ for Skill Group “B” and Skill Group “C” indicates a relative increase in the share of these occupations in non-metro

manufacturing, compared to Ontario as a whole. Note also the relative decline in the share of non-metro employment in Skill Group “D”.

Summary

In non-metro manufacturing from 2006 to 2016, there was an increase in the relative intensity of employment in the core occupation groups of Skill Group “B” and “C”, compared to the change for Ontario as a whole.

Table 1. Level and change in skill¹ structure of employment in manufacturing enterprises (NAICS 31-33), by type of census division in Ontario, 2006 and 2016

Skill group ¹	Number employed (,000)		Percent change, 2006 to 2016	Number employed as percent of total		Location quotient ²		
	2006	2016		2006	2016	2006	2016	Change ³
Metro census divisions⁴								
O	34	29	-13	7	8	114	113	-1
A	27	33	20	6	9	120	121	2
B	139	119	-14	30	32	96	96	0
C	220	156	-29	47	42	98	96	-2
D	43	37	-14	9	10	103	106	3
Total	464	375	-19	100	100	100	100	0
Partially-non-metro census divisions⁴								
O	15	14	-8	5	6	83	89	6
A	11	12	15	4	6	79	78	-1
B	91	75	-17	33	34	105	103	-1
C	139	100	-28	50	45	104	105	1
D	22	19	-16	8	9	88	91	3
Total	277	219	-21	100	100	100	100	0
Non-metro census divisions⁴								
O	7	5	-27	6	5	87	77	-10
A	5	5	0	4	5	74	67	-7
B	43	35	-17	33	36	105	109	4
C	62	44	-29	48	45	99	103	4
D	13	9	-33	10	9	113	98	-16
Total	130	98	-24	100	100	100	100	0
All census divisions								
O	56	48	-14	6	7	100	100	0
A	43	50	16	5	7	100	100	0
B	273	230	-16	31	33	100	100	0
C	421	300	-29	48	43	100	100	0
D	79	65	-18	9	9	100	100	0
Total	872	693	-21	100	100	100	100	0

1. Occupations are classified to Skill Groups based on: Employment and Skills Development Canada. **National Occupational Classification Matrix 2011** (<http://noc.esdc.gc.ca/English/NOC/Matrix2011.aspx?ver=11>). **Group A** usually requires a university education; **Group B** usually requires a college education or apprenticeship training; **Group C** usually requires a secondary school or occupation-specific training; **Group D** usually requires on-the-job training; **Group O** includes management occupations and self-employed individuals.

2. A location quotient is a measure, for each industry sector, of the relative intensity of employment in a skill group in, say, non-metro census divisions, compared to the employment in the skill group for Ontario as a whole. It is calculated as the percent of employment in a skill group in an industry sector for, say, non-metro census divisions, divided by the percent of employment in the skill group in the industry sector for Ontario as a whole (and then multiplied by 100).

3. The change in the location quotient indicates whether a given geographic group (e.g., non-metro census divisions) reported an increase or decrease in the percent of their employment in a given skill group, relative to Ontario as a whole.

4. The classification of census divisions is shown in Table 2 in "Rural Ontario's Demography: Census Update to 2016" **Focus on Rural Ontario** (March, 2017).

Source: OMAFRA, EMSI ANALYST database.