



Labour Market Trends and Outlooks for Regulated Professions in Ontario Appendix

Prism Economics and Analysis



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Appendix A: Data Sources and Methodology

Data sources

1. *Membership/Administrative data – Professional regulatory bodies*

The administrative data supplied by individual organizations provided information about the number and origins of graduates who are licensed and enter regulated occupations. Prism Economics consulted with the following bodies in order to obtain their membership data:

- College of Nurses of Ontario (CNO)
- College of Physicians and Surgeons of Ontario (CPSO)
 - Ontario Physician Human Resources Data Centre (OPHRDC)
- Ontario College of Teachers (OCT)
- Law Society of Upper Canada (LSUC)
- Professional Engineers Ontario (PEO)
- Ontario Association of Architects (OAA)

While some data we received were more detailed than others, overall the administrative data provide the annual numbers of total and new licences issued by the organization, data on attrition (including retirements, abandonment of the licence, moving out of the province, etc.) and practicing and non-practicing status.

2. *2011 National Household Survey (NHS)*

The National Household Survey (NHS) provides information about the demographic, social and economic characteristics of Canadians. A custom tabulation from the 2011 NHS was obtained that includes the cross tab of the following variables:

- Occupation – (NOC) 2011
- Highest certificate, diploma or degree
- 10-year age groups
- Labour force status
- Average wages and salaries
- Location of study compared with province or territory of residence
- Major field of study – Classification of Instructional Programs (CIP)

These data were used to compare occupational employment with postsecondary qualifications to determine the number of individuals with professional degrees working in related licensed occupations. The data also

help identify the proportion of Ontario graduates working in the regulated occupations in Ontario compared to graduates from outside Ontario and outside Canada.

3. 2013 National Graduate Survey (NGS)

The National Graduate Survey (NGS) is a sample survey with a cross-sectional design. The survey is conducted every five years and tracks graduates by professional program. The NGS provides information about the labour market experiences since graduation of graduates from public universities, community colleges and trade/vocational programs. The 2013 NGS results were analyzed to identify the mobility patterns and employment outcomes of recent graduates (class of 2009-10). Comparing respondents' location of postsecondary institution and current residence and employment status provided:

1. The proportion of program graduates who went on to obtain a licence to practice
2. The proportion of graduates employed in an occupation closely related to their field of study
3. The proportion of graduates who left the province to find employment

The NGS results obtained from Statistics Canada are in some cases suppressed to meet the confidentiality requirements of the Statistics Act and in some cases have to be used with caution.

4. Student Enrolment and Graduation Data

Student enrolment and graduation numbers for professional programs are obtained through customized data requests from Statistics Canada's Postsecondary Student Information System (PSIS), as well as the Ministry of Advanced Education and Skills Development (MAESD). PSIS is a national survey conducted by Statistics Canada to gather detailed information on enrolment and graduation from Canadian public postsecondary institutions.

Modelling Methodology

The following describes the modelling methodology used to estimate supply and demand for each of the six regulated professions.

Supply

A demographic model specific to each occupation under study was developed based on the membership data¹ acquired from the regulatory bodies. The starting point for calculating the supply is potential supply, which includes all active members in good standing with the regulatory body. Potential supply is then discounted to exclude licence holders who do not participate in the practising labour force, thereby

¹ Engineer and architect models were based on overall labour force statistics rather than membership data.

providing an estimate of the effective supply. The model then tracks additions and attritions from the effective supply pool year over year to estimate and project annual replacement demand, voluntary withdrawal and induced labour force change.

Demand

The demand side is comprised of the following three components:

Employment (expansion) demand: Change in employment is estimated using a variety of inputs and modelling techniques. Estimates in employment were derived using the Provincial Occupational Modelling System (POMS). POMS is a proprietary forecasting model maintained by Stokes Economic Consulting. The macroeconomic forecast that underlies POMS employment projections is derived from the quarterly forecasts produced by the Centre for Spatial Economics (C4SE). C4SE is one of the stakeholders included in the canvas of provincial forecasts by the Ontario Ministry of Finance.

Replacement demand: Replacement demand arises from workers leaving the labour force due to death or retirement. It was estimated using membership data and annual participation and mortality rates from the Labour Force Survey. Retirement age and rates are adjusted to reflect unique retirement behaviour related to each occupation.

Voluntary withdrawals: Voluntary withdrawal refers to the voluntary exit from the labour force of practising members. Voluntary or natural withdrawals are a permanent net change in the labour force related to child-rearing or occupational mobility, and are mostly related to demographic variables and differ by occupation. These differences are taken into account in the model specific to each occupation. Withdrawals were estimated using membership data and participation and mortality rates from the Labour Force Survey.

Appendix B: Glossary of Terms

Labour Economics Concepts

Replacement demand: The annual demand that arises from workers leaving the labour force due to death and retirement.

Voluntary withdrawal: The voluntary exit from the labour force of practising members. Voluntary or natural withdrawals are a permanent net change in the labour force related to child-rearing or occupational mobility, and are mostly related to demographic variables and differ by occupation.

Induced labour force change (Induced withdrawal/reinstatement): Exits from or reinstatements to the labour force of the profession in reaction to changes in labour market conditions.

Expansion demand: The change in employment that is related to economic growth.

Total hiring requirement: The number of persons needed to meet replacement demand, voluntary exit and expansion demand.

Profession-specific Terms

Teachers

Teacher: A person employed or seeking employment as a teacher in elementary or secondary schools as defined in the National Occupational Classification (NOC) system. The NOC classifies persons based on the job they perform, not their qualifications.

Certified teacher: A person who is licensed by a provincial or territorial body with a statutory mandate to regulate the teaching profession. Teachers working in publicly funded schools in Ontario must be certified and be members of the Ontario College of Teachers (OCT) to teach in the province.

Professional degree: A post-bachelor's degree/certificate (BEd, master's or BEd/DipTechEd) in a teacher education program offered by an accredited faculty of education.

Lawyers

Lawyer: A person who is licensed by a provincial or territorial body with a statutory mandate to regulate the legal profession. In Ontario, lawyers must be licensed by the Law Society of Upper Canada (LSUC).

Practising lawyer: A member of the LSUC who practises law for the public or for their employer in Ontario.

Professional degree: Bachelor of Laws (LLB) or a Juris Doctor (JD) degree from an approved common law program offered by a university in Canada, or an international degree assessed for equivalency to accredited Canadian law degrees by the National Committee on Accreditation (NCA).

Articling program: One pathway to obtain the work experience required of the licensing process, designed to assist the candidate in becoming prepared for entry-level practice. Consists of a 10-month full-time placement with an approved articling principal.

Law practice program (LPP): A pilot program established by the LSUC to provide an alternative path to obtain the work experience required of the licensing process. The LPP consists of a four-month training course and a four-month work placement.

Physicians

Physician: A person who is licensed by a provincial or territorial body with a statutory mandate to regulate the medical profession. All doctors in Ontario must be members of the College of Physicians and Surgeons of Ontario (CPSO).

Practicing physician: A physician who is in active medical practice in Ontario.

Professional degree: A degree in medicine from a medical school accredited by the Committee on Accreditation of Canadian Medical Schools, by the Liaison Committee on Medical Education of the United States of America, or from an acceptable unaccredited medical school.

Postgraduate training (Post-MD training, residency): The final stage of medical education following the completion of an MD degree, prior to certification and practice as a fully licensed physician.

Nurses

Nurse: A person who is licensed by a provincial or territorial body with a statutory mandate to regulate the nursing profession. In Ontario, only a person with a valid certificate of registration from the College of Nurses of Ontario (CNO) can practise as a nurse.

Registered nurse: A nurse in the CNO's general class with at least a bachelor's degree in nursing from an approved nursing program.

Registered practical nurse: A nurse in the CNO's general class with at least a college diploma from an approved practical nursing program.

Nurse practitioner: A registered nurse with additional education, usually at the master's or post-master's level, from an approved program registered in the CNO's extended class.

Scope of practice: The statutory definition of the practice of nursing, the performance of which is restricted to licensed nurses. Defined by the profession’s scope of practice statement in the Nursing Act, 1991.

Architects

Architect: A person employed or seeking employment as an architect as defined in the National Occupational Classification (NOC) system. The NOC classifies persons based on the job they perform, not their qualifications.

Professional degree: A master’s degree in architecture in a program recognized by the Canadian Architectural Certification Board or one of the other national accrediting bodies that is party to the Canberra Accord on mutual recognition of architectural educational qualifications.

Licensed architect: A person who is licensed by a provincial or territorial body with a statutory mandate to regulate the architectural profession. In Ontario, the regulatory body is the Ontario Association of Architects. Only individuals licensed by the OAA can use the title “architect” in Ontario.

Scope of practice: The statutory definition of the practice of architecture, the performance of which is restricted to licensed architects or to persons supervised by a licensed architect, except where there are specific exemptions to the requirement for licensure.

Certificate of Practice: A certificate issued by the regulatory association permitting the individual to provide architectural services to the public. In Ontario, provision of such services is restricted to the holder of a Certificate of Practice registered with the OAA.

Engineers

Engineer: A person employed or seeking employment in an engineering occupation as defined by the National Occupational Classification (NOC) system. The NOC classifies persons based on the job they perform, not their qualifications.

Engineering graduate: A person with a bachelor’s degree or higher in engineering. This degree may or may not be recognized as a “professional degree” by the regulatory bodies.

Professional degree: A bachelor’s degree in engineering in a program recognized by the Canadian Engineering Accreditation Board or one of the other national accrediting bodies that is party to the Washington Accord on mutual recognition of engineering educational qualifications.

Professional engineer: A person licensed by a provincial or territorial body with a statutory mandate to regulate the engineering profession. In Ontario, the regulatory body is Professional Engineers Ontario.

Scope of practice: The statutory definition of the practice of engineering, the performance of which is restricted to licensed engineers or to persons supervised by a licensed engineer, except where there are specific exemptions to the requirement for licensure.



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