Releasing Constraints:

Projecting the Economic Impacts of Increased Accessibility in Ontario

MARTIN Prosperity Institute

EXHIBITS

CONTENTS

ABOUT THE THREE COLLABORATING RESEARCH BODIES

The Martin Prosperity Institute (MPI) is the world's leading think-tank on the role of sub-national factors—location, place and city-regions – in global economic prosperity. It takes an integrated view of prosperity, looking beyond economic measures to include the importance of quality of place and the development of people's creative potential.

The overarching goal of the **Adaptive Technology Resource Centre** (ATRC) (soon to be reconstituted as the Inclusive Design Institute (IDI) at OCAD University, (http://inclusivedesign.ca), is to help ensure that emerging information technology and practices are designed inclusively from the very beginning. It defines inclusive design as design that enables and supports the participation of individuals and groups representing the full range of human diversity. It sees disability as a mismatch between the needs of the individual and the service, education, tools or environment provided, and accessibility as the adaptability of the system to the need's of each individual. The research, development, education and services of the ATRC/IDI are all grounded in this principle.

The Institute for Competitiveness & Prosperity (ICP)is an independent, not-for-profit organization that deepens public understanding of macro and microeconomic factors behind Ontario's economic progress. It is funded by the Government of Ontario and mandated to share its research findings directly with the public.

EXECUTIVE SUMMARY

This study, commissioned by the Government of Ontario, examines the potential economic impact of achieving substantially higher levels of accessibility. In 2010, the Province will introduce five proposed standards through which the Accessibility for Ontarians with Disabilities Act (AODA), 2005 will be implemented. These standards are intended to achieve substantially higher levels of acessibility. Our study reviews the economic impact of increased accessibility on individuals, on markets, and on social units. We find that there are opportunities at all three levels to realize non-trivial economic gains through enabling a higher number of Ontarians to participate fully in the province's economy.

The most significant potential gains could be realized in workplaces and schools. Enabling increased workforce participation among persons with disabilities (PwD) will not only increase their individual and family income, but it could also increase the GDP per capita in Ontario by up to $600 per annum. As new standards are implemented to enable PwD to achieve parity with average educational achievement in Ontario, there could be an additional boost to Ontario's GDP per capita of up to $200. While the study does not examine the relationship between specific policy inputs and these outcomes, our research clearly indicates that there are large pools of untapped human capital that could help drive Ontario's prosperity.

Ontario's businesses can benefit from these standards in three ways. First, increased access to retail and tourism opportunities would result in accelerated growth in these sectors. Second, a number of Ontario regions have the capacity to support significant clusters of accessibility-focused businesses able to serve global markets. Third, our universities, colleges and other institutions can help educate the next generation of workers and develop new intellectual property that can prepare businesses to compete in the growing number of markets defined by accessibility requirements.

Finally, we review research on the costs of social exclusion. We found that exclusion exacts significant costs from the entire province through increased health care demands and poverty related social problems. These costs are not entirely absorbed by PwD, but have a significant impact on the families and communities which provide support to them.

We do not have the capacity to evaluate the potential impact of specific policy initiatives or to recommend particular elements be included in the standards. What we have learned, however, leads us to conclude that every day that people who want to learn cannot, people who want to work do not, and businesses that wish to serve these markets must wait to see what will be required, Ontario is losing extremely valuable contributions from its citizens. Releasing the constraints that limit full participation in the economy will create a significant force for economic growth.

INTRODUCTION

The Province of Ontario is introducing five draft standards to provide a basis for the implementation of the Accessibility for Ontarians with Disabilities Act (AODA), 2005. While the government has received many valuable comments from interested parties on their specific concerns and desires, there has not yet been an evaluation of the potential economic impact that increased accessibility will have on the province as a whole.

In early 2009, the Government of Ontario approached three organizations with collective expertise in prosperity, accessible technology, and jurisdictional advantage to investigate the potential economic impact of five proposed standards through which the AODA will be implemented. Together, the Martin Prosperity Institute (MPI), the Adaptive Technology Resource Centre (ATRC) and the Institute for Competitiveness & Prosperity (ICP) present this report to the government and people of Ontario to aid in their consideration of these standards. It is comprised of three complementary sections, each of which provides a different perspective on the impact of increased accessibility.

Our study is wide ranging. We have reviewed the submissions of municipalities, industry groups, public transportation agencies, and citizen groups. We have examined Canadian census data, identified pertinent case studies, considered the demographics of ability, and projected the size of various markets. We have consulted with local and global experts on the demand for universal design. As a result, we have come to the conclusion that the demand for accessible goods, services, buildings, and employment is not just large but growing, and will overtake the demand for their conventional counterparts. Of further importance is our finding that the impact of increased employment accessibility for Ontarians with disabilities will increase the average income of all Ontarians.

These conclusions do not come as a surprise, given the history of access and prosperity in Ontario. For the last 50 years, Ontario has moved incrementally toward the inclusion of its entire people in its social and economic life. Ontario's Human Rights Code, the first in Canada, dates from 1962. Since that time, the government's role has shifted from being the custodian of Ontarians with disabilities to being the guarantor of the rights of all persons to employment, housing and services (Jongbloed, 2003).

The Province's path toward increased participation by a more diverse range of its citizens has led to increased demand for accessible workplaces, better signage, more reliable forms of public transportation, software that can be customized more easily, accessible social and recreational events, and facilities and businesses that are welcoming to all. Each of these demands drives new incremental gains in our prosperity, gains that will help to mitigate the costs associated with increasing accessible infrastructure in the coming years.

GLOBAL PERSPECTIVE: THE POSITION OF ONTARIO IN THE WORLD

Policies, programs, and laws are in place within the Province of Ontario to protect individuals from discrimination based on disability as well as to provide access to services. The cornerstone of disability rights in Ontario is the Ontario Human Rights Code. This code provides individuals with legal protection from discrimination. The Ontario Disability Supports Program promotes the inclusion and well-being of PwD by providing both income and employment supports. Since 2001, the Ontarians with Disabilities Act (ODA) has led to the development of standards for accessibility and provided for involvement of PwD in the development of these standards. The ODA recommended voluntary action and had no regulatory enforcement provisions or deadlines. With the advent of the *Accessibility for Ontarians with Disabilities Act* in 2005, Ontario committed to clear accessibility goals and deadlines (January 2025) for goods, services, facilities, employment, accommodation, and buildings. The standards and guidelines to support the AODA will be complete in 2010.

Ontario is uniquely situated to rapidly advance the area of inclusion. The Province is home to a number of internationally recognized centres and institutions that focus on inclusion and disability studies. These include the Adaptive Technology

Resource Centre at the University of Toronto, Ryerson's School of Disability Studies and York University's Disability Studies Graduate Program. In addition to these organizations, Ontario is also home to many researchers in the field, such as Geoff Fernie of the Toronto Rehabilitation Centre. Finally, the diverse population of Ontario supports media dedicated to access issues, such as *Abilities* magazine and *ZoomerMedia*.

Despite these exceptional resources, Ontario is quickly falling behind Japan, Sweden, Germany, Australia and parts of the United States when it comes to inclusion and the economic benefits that follow. The AODA provides an opportunity for Ontario to catch up to these peer economies.

One example of Ontario's unrealized potential is within the information and communication technology (ICT) sector. Ontario is home to both large information companies such as RIM and renowned training institutions such as Sheridan College. The Open Source Community, known for its track record in developing accessible technology, is extremely active in Ontario. Toronto is the annual host of the Free Software and Open Source Symposium (FSOSS) at Seneca College, and the province is widely known for its role in developing important web 2.0 languages such as AJAX. Ontario has been the incubator for numerous small and medium enterprise companies focused on web and software applications and services.

While Ontario has the knowledge, the capacity and the resources to host a leading creative ICT cluster in the inclusion economy, there are additional areas of economic gains that might be realized under new AODA standards. These standards can provide the momentum and mandate to connect and to extend the reach of diverse organizations already working on inclusion but lacking the momentum to capture mainstream markets. Individuals, municipalities, families and industries can all achieve economic gains from the proper implementation of AODA.

This study makes no recommendations about the specifics of AODA standards and their implementation. There is considerable evidence to suggest that by providing Ontarians with disabilities improved access to educational and employment opportunities they will generate higher economic activity. There is also evidence of considerable demand for more accessible goods and services, a demand that will be further fuelled by the increasing prosperity of PwD. As we cannot forecast how rapid or widespread the change in accessibility will be, we have projected the impact of AODA standards as a set of ranges, and not as specific targets.

A BRIEF COMMENT: THE IMPACT OF THE GLOBAL ECONOMIC TURMOIL SINCE 2008

This report has not incorporated the impact of the downturn into our models for two reasons: First, the specific impacts are still unclear. Ontario's economy was extremely hard hit by the downturn in the global economy in the months after September 2008. Forecasts made prior to the collapse of stock markets had little predictive power. The rapid fluctuations in interest rates, employment, exchange rates, exports, and other significant economic indicators have made it difficult to make accurate predictions in the short and medium term. The job losses of the early months of 2009 are being reversed rapidly in Ontario. The initial shock has been followed by many repercussions, few of which can be anticipated or modelled. No one inside or outside government can tell how this period will affect Ontario's long term trends: there is simply not enough data yet available at this early date.

Second, our models are based on longer term trends. In our report, we examine the trends in employment, education and spending for the last few decades and forecast them for coming decades. This long time horizon is consistent with the draft legislation, and it gives us a more reliable picture of the Province's future. We have not produced a precise figure for any of our projections, but rather a range of likely outcomes based upon previous decades. In effect, because the last decades have incorporated other economic shocks and recoveries, these events are part of our projections in the future. Our analysis uses over 30 years of data to determine the average growth rate of different sectors of Ontario's economy. This 30 year period includes several recessions, the impact of SARS in 2003 and the terrorist attacks of September 11, 2001. Because we do not know what will be the positive and negative forces on Ontario's economy in coming years, we have assumed that past experience is the best indicator of future performance.

ONTARIO'S PROSPERITY— A LONG TERM COMMITMENT

Ontario's economy has been impacted by two shocks. While the severe global recession of 2008–9 has taken its toll everywhere, Ontario has been especially hard hit by the decline in the North American auto industry. This report does not directly address the impact of the last eighteen months, nor does it propose mechanisms by which Ontario's manufacturing capacity can be restored. Instead, we have examined the trends in Ontario's

product and labour markets since 1983 and made projections consistent with the patterns that have emerged in the last three decades. While it is possible that the current recession may slow the realization of AODA-related benefits, it is also possible that new accessibility standards might help to generate renewed demand for capital goods, education, and other factors that drive higher economic activity.

Of greatest interest will be our core assumption: that the most valuable resource in the province is its people. The skills and talents of Ontarians are the basis of our prosperity. They attract foreign direct investment, they increase our productivity, and they closely correlate with Canada's high scores in global ratings of human development.

These resources are also scarce. The proportion of Ontarians of working age is beginning to decline steeply (**Exhibit 1**).

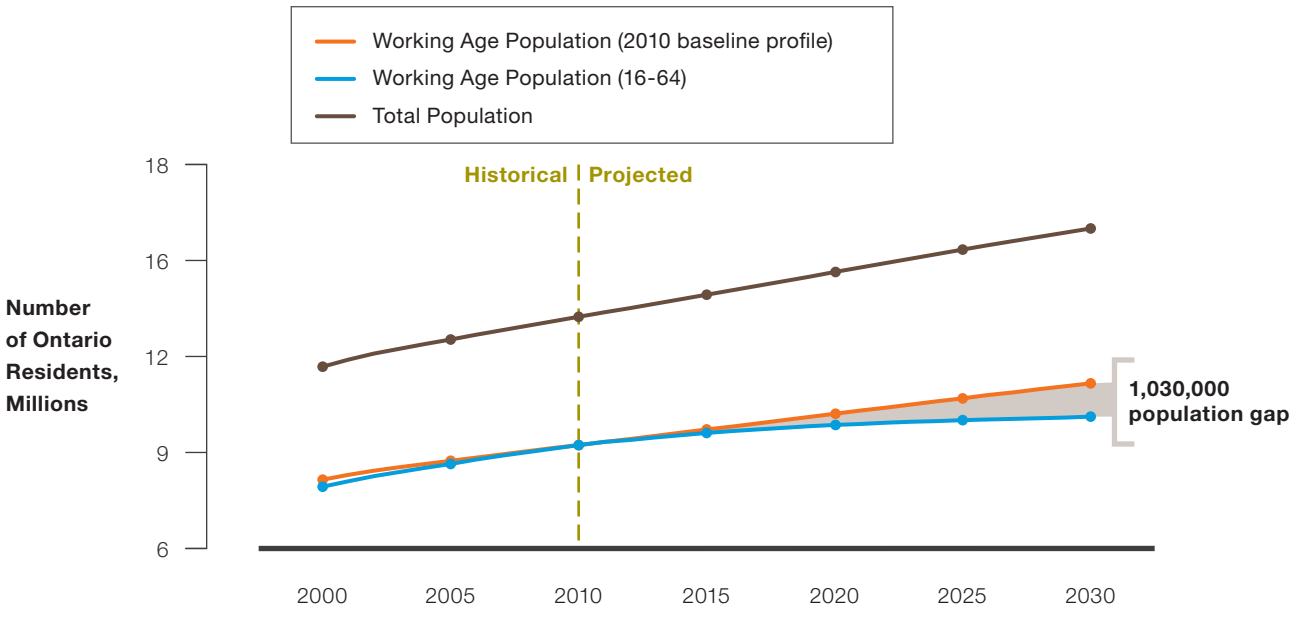
Over time, the dominant trend in Ontario's economy is toward increased economic activity that requires skilled labour. When the current downturn in Ontario's economy begins to reverse, the province will begin to face a shortage of human capital. Ontario will need more workers, and there is evidence that PwD can help to meet this shortfall.

WHERE THE REPORT WILL FOCUS AND WHY

Our research has identified three levels at which increased accessibility will have broad economic impacts. While individual companies and organizations are keenly aware of the possibility of new costs, many are seldom able to track demographic and economic trends, and do not have the resources to identify global patterns of industry development. Therefore, we have focused on the likely economic impacts of greater accessibility on Ontario's people, its markets, and its social institutions. We believe that the gains to our economy are likely to be widespread as we make it easier for everyone to get to work, to buy the goods, and services needed for all life stages, and to more fully participate in Ontario's communities.

By looking at the impact of demographic and economic trends, we can begin to estimate the size of markets available to Ontario producers of goods and services, and assess the potential for the creation of clusters of expertise. We can also project the impact of increased education and workplace participation levels on the prosperity of all Ontarians, and sketch

Percentage of overall population that is working aged, 1980–2030 — Exhibit 1



Source: Institute for Competitiveness & Prosperity analysis based on Statistics Canada Population Projections

the impacts of reducing some of the systemic barriers to full economic participation by PwD.[1]

These three areas of interest (people, markets and communities) complement our respective areas of expertise. The ICP has a long history of producing reports that pinpoint policy opportunities that can increase the prosperity of Ontarians. They used this expertise to lead the work on the individual impacts of access to employment and education. The MPI has expertise in the role of place or jurisdictional advantage in generating economic activity, and has been largely responsible for the section on market impacts. The ATRC is a global leader in the design and implementation of accessible technology. Their deep familiarity with the interplay between the economic and social aspects of accessibility is evident in the final section on social impacts of inclusion. Because we believe that each of the five standards can have a positive impact on the employment and education of Ontario residents and that they will have a larger impact in aggregate than each of them in isolation, we do not disaggregate the various standards. Instead, we focus on a single level of analysis at a time.

The AODA Definition of Disability

AODA defines a disability using the same definition as the Ontario Human Rights Code. According to the AODA a disability includes:

a) any degree of physical disability, infirmity, malformation or disfigurement that is caused by bodily injury, birth defect or illness and, without limiting the generality of the foregoing, includes diabetes mellitus, epilepsy, a brain injury, any degree of paralysis, amputation, lack of physical co-ordination, blindness or visual impediment, deafness or hearing impediment, muteness or speech impediment, or physical reliance on a guide dog or other animal or on a wheelchair or other remedial appliance or device,

b) a condition of mental impairment or a developmental disability,

c) a learning disability, or a dysfunction in one or more of the processes involved in understanding or using symbols or spoken language,

d) a mental disorder, or

e) an injury or disability for which benefits were claimed or received under the insurance plan established under the *Workplace Safety and Insurance Act, 1997*; ("handicap")

Service Ontario, e-Laws: Accessibility for Ontarians with Disabilities Act, 2005, Retrieved on May 31, 2010, from http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_05a11_e.htm#BK2

The WHO Definition of Disability

"Disabilities" is an umbrella term, covering impairments, activity limitations, and participation restrictions. An impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations. Thus, disability is a complex phenomenon, reflecting an interaction between features of a person's body and features of the society in which he or she lives.

The World Health Organization, Health Topics, Disabilities, Retrieved May 31, 2010, from http://www.who.int/topics/disabilities/en/

The Participation and Activity Limitation Survey (PALS) Definition of Disability

Disability is an activity limitation or participation restriction associated with a physical or mental condition or health problem.

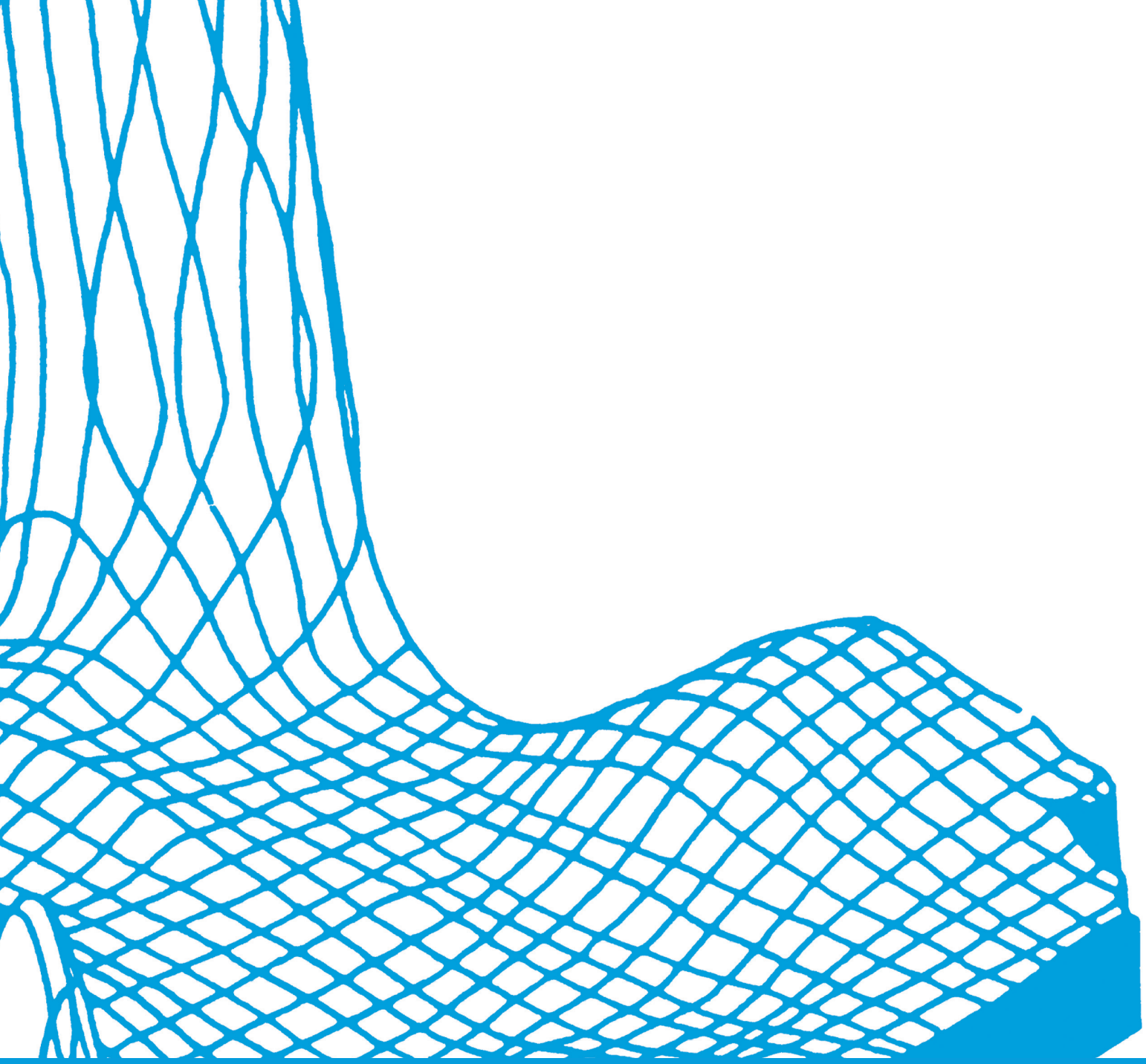
PALS uses the World Health Organization's (WHO) framework of disability provided by the International Classification of Functioning (ICF). This framework defines disability as the relationship between body structures and functions, daily activities and social participation, while recognizing the role of environmental factors.

The ICF is a multi-dimensional classification, encompassing both a medical and a social model of disability. The ICF is intended to have a number of applications as a statistical tool, a research tool, a clinical tool, a social policy tool, and as an educational tool.

For the purpose of PALS, PwD are those who reported difficulties with daily living activities, or who indicated that a physical or mental condition or health problem reduced the kind or amount of activities they could do. The respondents' answers to the disability questions represent their perception of the situation and are therefore subjective.

Statistics Canada, 2006 Census, Definitions by Question Number, Retrieved June 4, 2010, from http://www.statcan.gc.ca/pub/89-628-x/89-628-x2007001-eng.htm#4

[1] This report applies the AODA definition of disability, as well as the PALS definition that is in turn based on, and harmonizes, with the World Health Organization's definition. This report defines disability as including both visible and non-visible disabilities and views disability as an interaction between the accessibility needs of the individual and the context or goal they are situated within (e.g. someone may experience a disability in the workplace but not in a tourism context).



Section 1: The economic impact of AODA on individual Ontarians

How might an increase in access to education and employment affect the income of individuals in Ontario, both for PwD and persons without a disability (Pw/oD)? To answer this question, we identified two major determinants of income: employment and education (**Exhibit 2**). Our analysis models the impact of increased accessibility on both access to education, which increases employment income, and on access to employment itself.

We examine the current economic conditions of PwD and project the change that would result from increased access to education and income. To conduct this analysis we use data from Statistics Canada's Participation and Activity Limitation Survey (PALS),[2] a survey that provides rich data on the lives of Canadians with disabilities. We use Ontario data when there are a high enough number of respondents for the results to be reliable, and we use the pool of Canadian data when the data are divided into smaller shares by other variables.

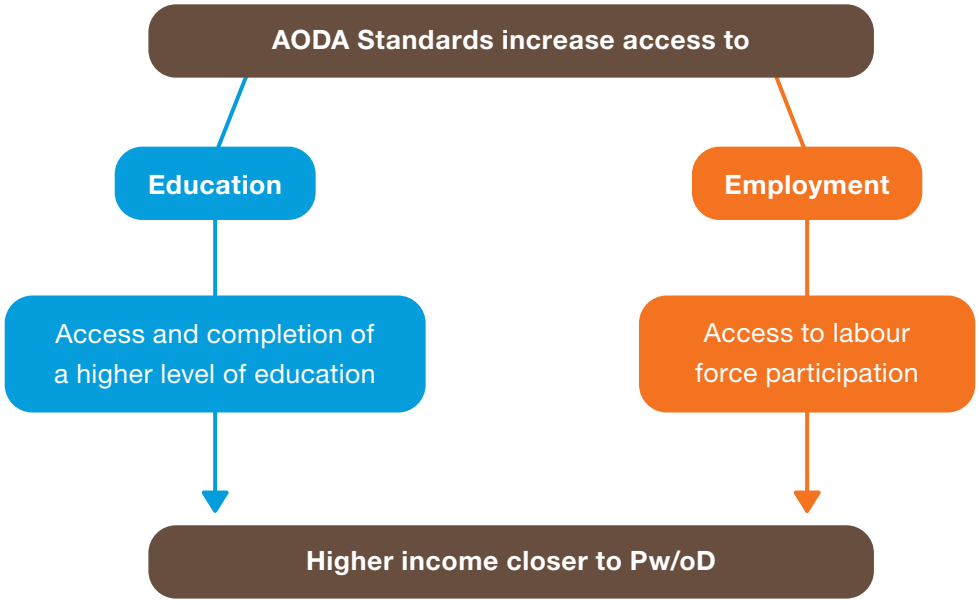
Around the world, disability and impairment are increasingly recognized as a problem of the interaction between people and their environments, rather than an individual condition. The World Health Organization's clinician form for the International Classification of Functioning, Disability and Health, assesses not only an individual's impairments and limitations of structures, functions and activities, but also reviews environmental and other contextual factors which limit individuals. Through AODA, Ontario will reduce the environmental constraints that help to define disability, potentially reducing the number of people who define themselves as disabled.

WHO ARE PERSONS WITH DISABILITIES?

The number of PwD is large and growing (Appendix A). While in 2001, 13.5 percent of Ontarians identified themselves as having a disability, by 2006, the rate had risen to 15.4 percent (**Exhibit 3**). Some of the increase in disability rates is due to our aging population (1.1 percentage points). The remaining 0.8 percentage point increase is the result of other factors. From 2001 to 2006, disability rates increased across Canada.

Not surprisingly, disability rates increase with age. In Ontario, in 2006, the disability rate for 15 to 24 year olds was 5.3 percent, 8.7 percent for 25 to 44 year olds, 20.6 percent for 45 to 64 year olds and 47.2 percent for 65 years and above (**Exhibit 4**). Of those respondents, 34.7 percent had a disability classified as mild, 23.5 were classified as moderate, 27.2 percent were classified as severe, and 14.5 percent were

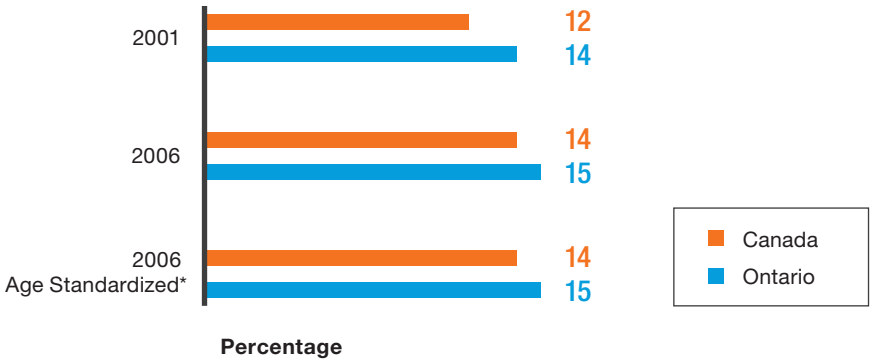
How standards can increase access to employment and education — Exhibit 2



[2] The Census includes two general questions on activity limitations and PALS, which is a post-censual survey, uses the census as a sampling frame to identify its target population. PALS provides information on types of disabilities, severity, labour force composition, educational attainment, etc. It is used to plan services and programs required by persons with disabilities to participate fully in our society. Statistics Canada, Description of Participation and Activity Limitation Survey. Available online: http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=3251&lang=en&db=imdb&adm=8&dis=2

Disability rates have increased in Canada and Ontario, 2001, 2006 and 2006 age standardized*

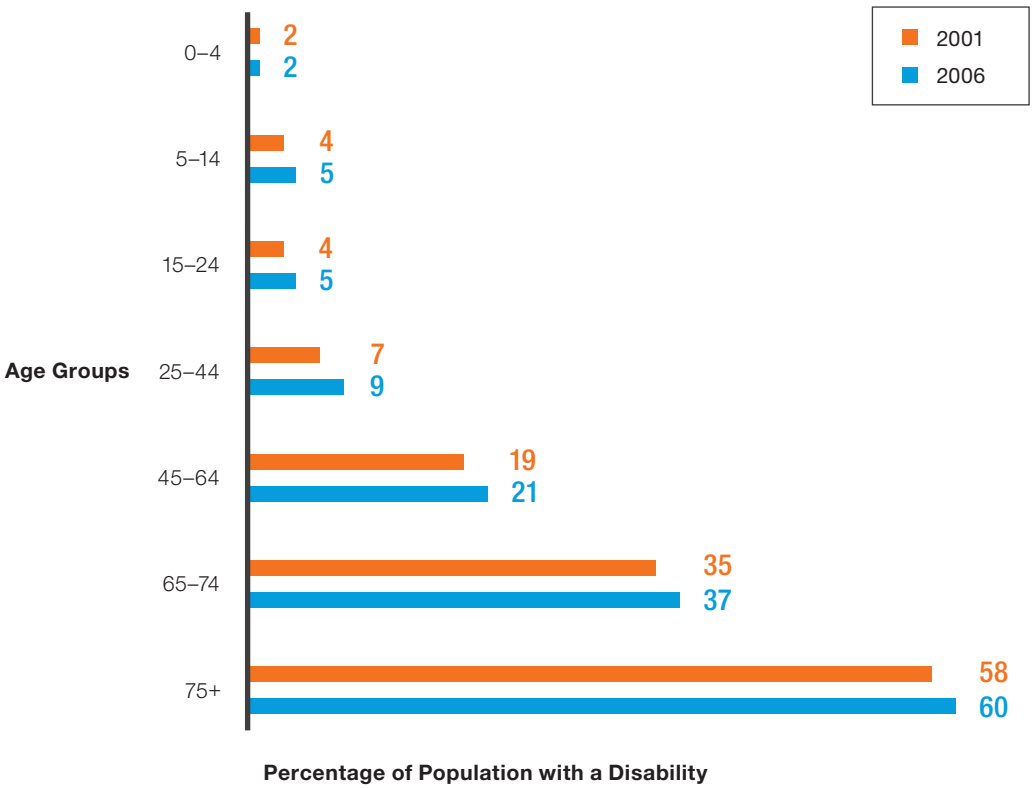
Exhibit 3



*Standardized to 2001 population
Source: Statistics Canada, Participation and Activity Limitation Survey, 2001 and 2006

Disability increases with age, Ontario, 2001 and 2006

Exhibit 4



Source: Statistics Canada, Participation and Activity Limitation Survey, 2001 and 2006

classified as very severe (See Appendix B for definitions of types of disabilities among adults). In Ontario, pain, mobility, and agility are the most prevalent types of disabilities among those 15 years of age and above.

In Ontario, PwD have lower participation rates in the labour force than those without. In 2006, 54 percent of PwD were in the labour force whereas 80 percent of Pw/oD were in the labour force (**Exhibit 5**). PwD who are in the labour force experience slightly lower unemployment rate than Pw/oD: 4 percent for PwD versus 5 percent for Pw/oD.

Because the adverse consequences of being excluded from the labour force are extremely serious, any shift in participation rates will improve the quality of life for PwD and their families. Later in this report, we investigate the positive effect of increasing the labour force participation of PwD.

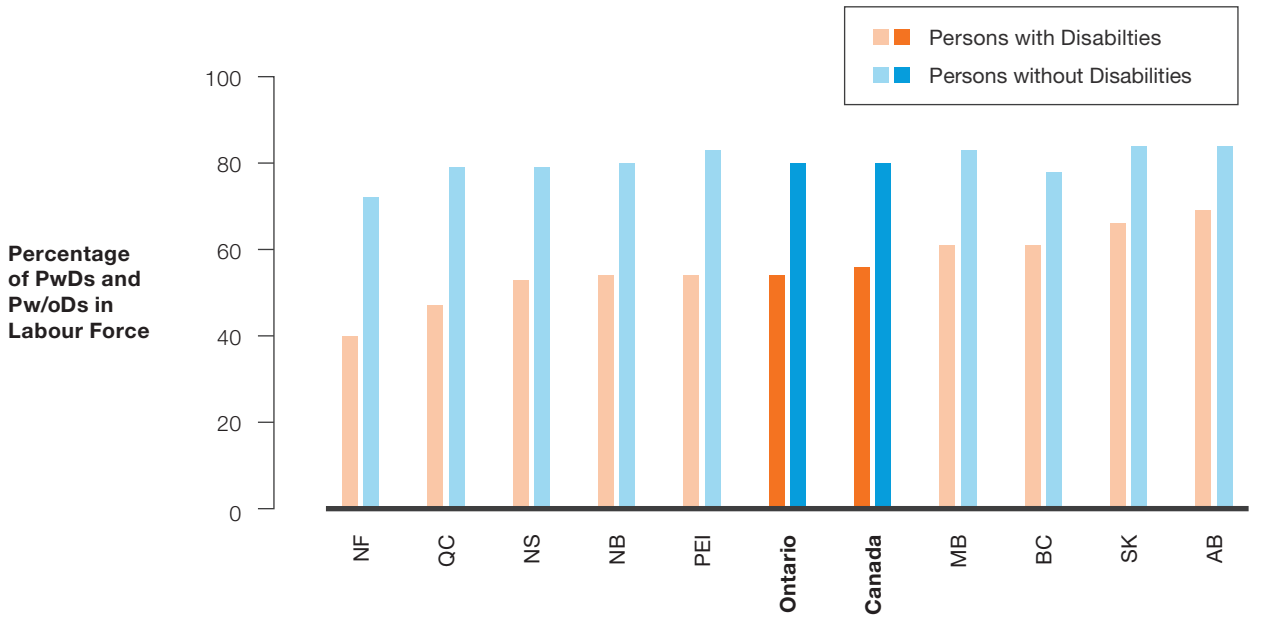
EMPLOYMENT INCOME[3]

In 2006, Pw/oD in Ontario earned approximately $40,500 in employment income, while PwD earned only $29,000, which is 28 percent lower than Pw/oD (**Exhibit 6**). Furthermore, the employment income of PwD *declined* 3.7% from 2001 to 2006, from $30,300 to $29,200. From 2001 to 2006 the income of Pw/oD increased by 2.3% from $39,500 to $40,500 (**Exhibit 7**). In every province except Newfoundland and Labrador and Alberta, the employment income of PwD is lower than Pw/oD (Appendix C). The gap for both Ontario and Canada has increased between 2001 and 2006 (**Exhibit 8**; Appendix D). This large and growing disparity in income levels provides another setting in which new standards may reduce inequality and increase income.

Risk factors contributing to the poverty of persons with disabilities

PwD are more likely to be in lower income quintiles.[4] The reasons for this disadvantage are complex. The physical condition of PwD might limit the amount or kind of work they do, and they might not be able to work longer hours or may require breaks and flexible hours. As well, their education levels are often lower, workplace training or assistive

Persons with disabilities are less likely to be in the labour force due to participation rates — Exhibit 5



Source: Statistics Canada, Participation and Activity Limitation Survey, 2006

[3] The employment income numbers for the both year 2001 and 2006 are in 2005 constant dollars.
[4] Institute for Competitiveness & Prosperity, Working Paper 10, *Prosperity, inequality, and poverty*, September 2007, pp 28-30.

technology might not be available, and there may be systemic discrimination effects.

To understand further the reason for lower income levels of PwD, we investigated in detail the 'Employment Module in PALS'. In Canada, 45 percent of PwD say that their condition limits them in the amount and kind of work they do; this number is higher for persons with severe disabilities.[5] Furthermore, 51 percent of PwD have changed the type of work they do after experiencing new limitations and of these, 77 percent say they changed the type of work they do because of their condition. PwD also find it difficult to progress in their career; when asked this question, 38 percent report that their condition makes it harder to advance in their work. Factors such as these may be addressed by many of the new AODA standards, allowing PwD the opportunity to do the jobs for which they are best suited and to work as hard and as long as they are able.

EDUCATIONAL ATTAINMENT

On average, PwD have lower educational attainment than Pw/oD. The factors behind this difference are not unlike those behind the employment gaps. A wide variety of barriers to educational attainment prevent PwD from getting to and into school buildings, reading textbooks, or hearing the teacher's voice.

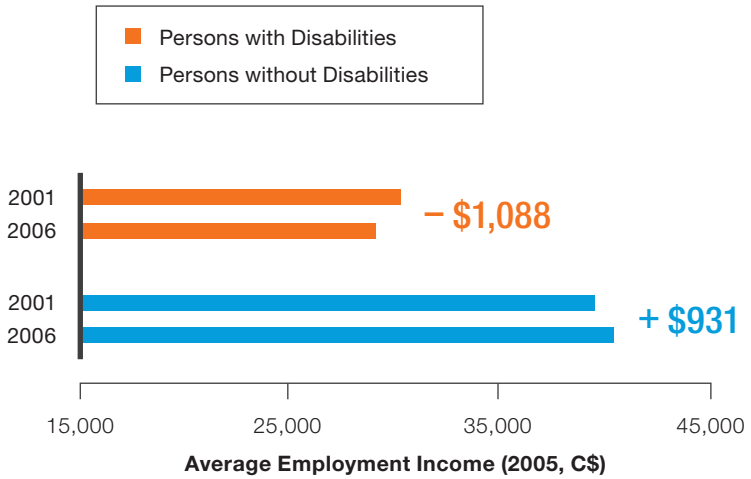
The severity of a disability has a considerable impact on educational attainment. Only 34.0 percent of people between the ages of 15 and 64 with disabilities have college or university degrees, 10.5 percentage points lower than Pw/oD (**Exhibit 9**). High school completion varies considerably by severity of disability: 18.3 percent of Pw/oD have not completed high school; this increases to 27.4 percent for PwD, with 34.1 percent of persons with very severe disabilities having not completed high school. We see greater concentrations of PwD among trade certificate holders (14.0%) as their highest level of educational attainment, compared to only 10.3 percent of Pw/oD.

PALS data reveal that 21.5 percent of PwD report having their condition before the completion of their formal education. As well, 22.2 percent of PwD say that they discontinued their education because of their condition, a rate that varies from 9.4 percent of persons with mild disabilities to 46.2 percent of persons with very severe disabilities. This factor alone explains much of the difference between the educational achievements of PwD and Pw/oD. Those who did not discontinue their education often report taking fewer classes, taking longer to complete their program of study, and having their choice of courses or careers influenced by their condition.

The implementation of the AODA will have significant impacts on access to the education system. Changes to the build standard are aimed at ensuring that schools and classrooms are accessible to everyone. The transportation standard is aimed at ensuring that getting to a campus, rather than studying off-site, will be possible for those with disabilities. The

Average employment income in Ontario for 15 years of age or older, by disability status, 2001 and 2006

Exhibit 6

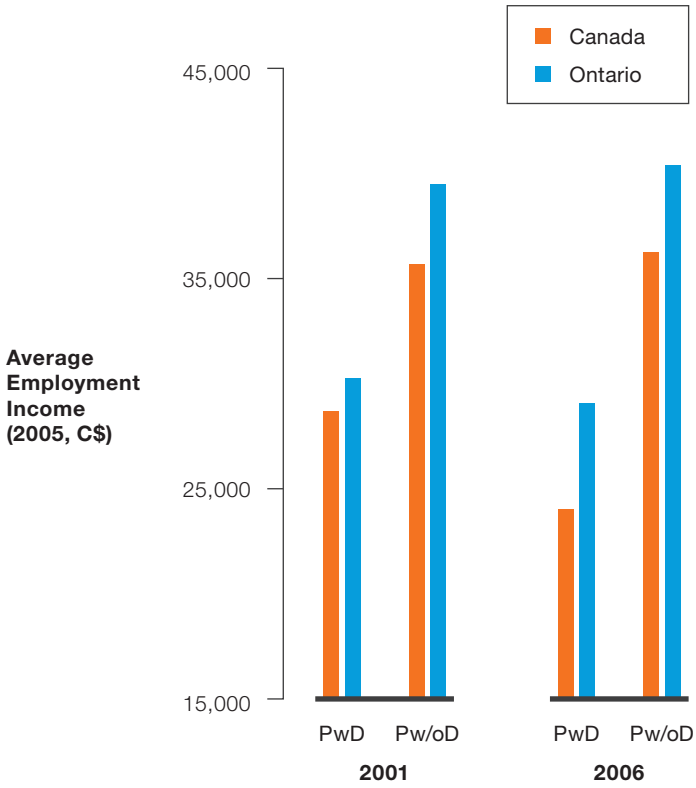


Source: Statistics Canada, Participation and Activity Limitation Survey, 2006

[5] This data was retrieved from micro data files of *Participation and Activity Limitation Survey*, which does not contain data at the provincial level.

Average employment income of persons with disabilities is lower than persons without disabilities and declining for adults 15 years of age or older, Canada and Ontario, 2001 and 2006

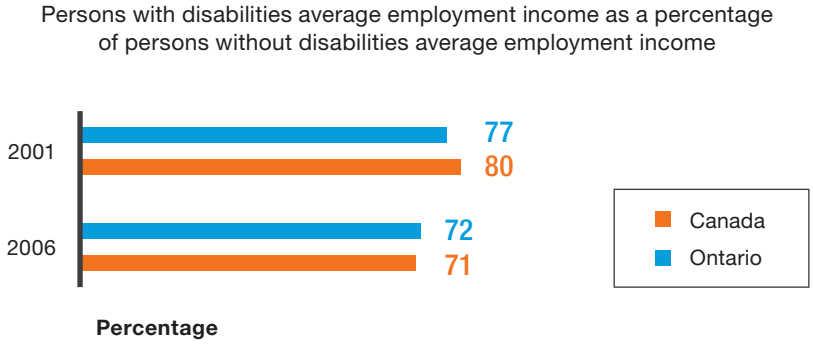
Exhibit 7



Source: Statistics Canada, Participation and Activity Limitation Survey, 2001 and 2006

The gap in average employment income of persons with disabilities and persons without disabilities increased in Canada and Ontario in 2006

Exhibit 8



Source: Statistics Canada, Participation and Activity Limitation Survey, 2001 and 2006

information and communication standard aims to ensure that access to course materials and information are not denied. As well, the removal of multiple barriers may provide a more encouraging and welcoming environment for all students, promoting school adherence more broadly.

THE ECONOMIC IMPACT OF AODA: WHAT-IF ANALYSIS

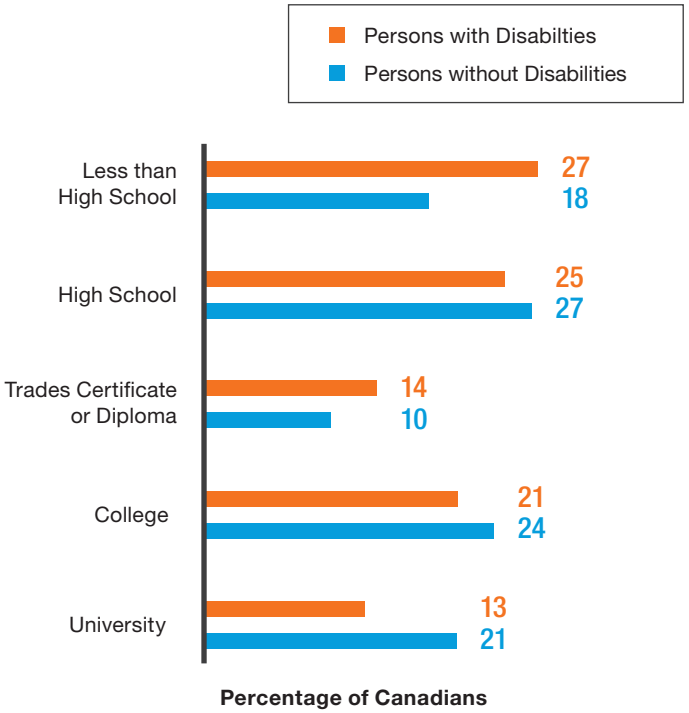
To determine the possible effect of AODA standards on individuals in Ontario, we first identified the two highest potential areas of change: employment and education. We then set an upper and lower estimate of the number of persons who might be most affected by the new standards. Finally, we looked at two levels of impact on each population. We asked "what if" questions using each assumption about the impact and the population, projecting the results as changes in individual income and in GDP per capita.

There are three significant caveats in our work. First, there is no authoritative modelling of the long term impact of the 2008-9 global recession. As a result, we have used a baseline of the economic trends of the last thirty years rather than the most recent 16 months. If the recent economic conditions become a "new normal", our projections will need to be revisited. Second, we have projected the economic impact on individuals if the new standards were to substantially reduce the barriers to education and work for all persons with mild and moderate disabilities. Clearly, the effectiveness of the standards and their implementation are a key success factor. Our projections assume that the standards will be well designed and widely adopted and will result in a marked increase in employment and education. Finally, we do not anticipate that the standards will remove the need for targeted supports to PwD.

Further, our modelling does not indicate that new AODA standards will provide Ontario with a social policy panacea. There will be challenges and limitations we are unable to clearly foresee. We do not project the costs related to ensuring that the standards are

Highest level of educational attainment of persons with disabilities and persons without disabilities, 15 to 64 Years of Age, Canada, 2006

Exhibit 9



Source: Statistics Canada, Participation and Activity Limitation Survey, 2006

met, the difficulty organizations will have in meeting these standards, or the ongoing impact of systemic discrimination. Schools and universities may incur costs to ensure equal access, governments will certainly need to retain supportive programmes, and advocates will have to continue to fight for equal opportunities in education and employment.

Impact on employment

In this section, we look at different scenarios to quantify the benefits of successfully increasing access to employment. This methodology allows us to test a number of possible conditions to determine their economic consequences. We test two possible outcomes. We generate the results of each outcome using two different numbers for the incidence of PwD: as a lower bound, the PALS level of 14.8 percent, and as an upper bound, the Canadian Community Health Survey (CCHS) level of 32 percent of the total population of Ontario. This approach generates four different scenarios that can help us estimate some of AODA's potential impact on Ontario's economy.

What would happen if?

Using PALS levels of incidence as a lower bound:

1. Workforce participation rates for persons with mild and moderate disabilities converge to parity with Pw/oD?
2. The people who are not now working because of their disability but who would like to return to work if they were accommodated, did return to work?

Using CCHS levels of incidence as an upper bound:

3. Workforce participation rates for persons with mild and moderate disabilities converge to parity with Pw/oD? and
4. The people who are not now working because of their disability but who would like to return to work if they were accommodated, did return to work?

In each scenario the overall workforce participation rates increase to levels similar to those found among Pw/oD (**Exhibit 11**).

How many people in Ontario live with disabilities?

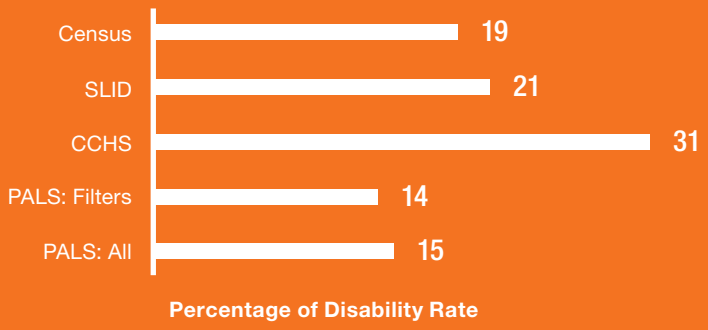
The answer to this question is not straightforward. In fact, John Rietschlin of Social Development Canada and Andrew MacKenzie of Statistics Canada wrote a paper in 2004 that indicates how to work with disability data. Using their research, we determined that instead of using one figure for the number of people in Ontario who have a disability, we should use a range. Our lower estimate is 14.8%, the number of Ontarians who identified themselves to Statistics Canada as having a disability. The upper estimate is 31.3%, that of the Canadian Community Health Survey, which asks people "Do you have any difficulty hearing, seeing, communicating, walking, climbing stairs, bending, learning or doing any similar activities?" and "Does a physical condition or mental condition or health problem reduce the amount or the kind of activity you can do at home? At work or at school? In other activities, for example, transportation or leisure?".

If AODA standards can substantially improve the education and employment of the larger estimate, they will have a much greater impact than if they are only beneficial for the smaller estimate. Because we cannot tell which is more likely, we provide both as a lower and upper bound.

We reproduce the Rietschlin and MacKenzie chart below (**Exhibit 10**).

Disability rates for major surveys, age 16-102, Canada, 2001

Exhibit 10



Reproduced from: Rietschlin, J. and A. MacKenzie. (2004) Variation in Disability Rates in Statistics Canada National Surveys: Building Policy on a Slippery Foundation *Statistics Canada*. No. 11-522-XIE

This disparity makes estimating the effect of new AODA standards more difficult.

SO, WHAT IS "WHAT IF"?

The challenge with undertaking the kind of analysis presented in this report is that there is limited precedent since Ontario has not implemented legislation like AODA in the past. While other jurisdictions have implemented legislation and regulations targeted at improving accessibility for PwD, those jurisdictions are very different from Ontario in terms of their different economy, demography, geography, culture, climate, and so on. As well, the legislation and regulations implemented in these other jurisdictions are dissimilar to those for Ontario. In order to try to use history as a way to understand the potential impact of AODA on Ontario's economy, we would first have to determine the impact that other legislation has had in other jurisdictions, assess how that legislation differed from AODA, and then measure how these other jurisdiction varied from Ontario. Finally, we would either have to assume that all those differences were inconsequential or somehow "adjust" the original impacts to account for the differences and estimate the impact on Ontario.

Rather than try to follow such a convoluted series of analysis and assumptions, this analysis takes a more simplified approach: instead of researching previous implementations in other jurisdictions to try to develop predictive models for Ontario, this analysis makes some very simple, clear and identifiable assumptions about the potential impacts of the implementation of AODA. The analysis then uses those impacts to predict what would happen to the Ontario economy. It is a predictive application of *Occam's Razor* — the simplest solution is generally the best. By making a few specific assumptions, the economy-wide impact can be estimated.

We are calling this our "What If" analysis for two reasons. First, it is forward-looking. We are predicting what could happen if these other events occur. Second, it considers multiple scenarios. We do not ask the question under a single set of assumptions; the inquiry goes a level further and asks, "what if your assumptions are wrong? Suppose education levels are not increased to the level you assumed? What if they are at less than your analysis shows? What if they are more?" Because the analysis follows a carefully planned and limited set of assumptions, it is possible to undertake a "sensitivity analysis" of those assumptions. This allows us to ask how varying levels of those basic assumptions can change the outcomes.

The "What If" analysis presented in this report starts with a minimal but fundamental set of assumptions. First is the assumption that the AODA implementation and all of the various regulations are correct to successfully achieve AODA's inclusionary goals. "Correct and successful" are completely and intentionally undefined as part of this analysis. This analysis assumes such an implementation and analyzes the following impacts on the economy of Ontario. Second, we assume that the implementation of AODA will impact the Ontario economy in three distinct but related ways: (1) it would impact accessibility to job markets and education for people who currently have a disability and for those who do not; (2) it would impact the markets of Ontario by improving access to retail establishments and tourist destinations and creates the potential to establish an "inclusive design" cluster in the province; (3) it would have general and more broadly defined impacts on Ontario's families and society. By making a limited number of additional assumptions specific to each of these three domains, the "What If" analysis is able to predict the impact of AODA on Ontario's prosperity.

For a recent report that identifies some of the challenges that must be addressed see the report titled "Charting a Path Forward: Report of the Independent Review of the Accessibility for Ontarians with Disabilities Act, 2005" by Charles Beer (February, 2010). This report can be accessed through the Ministry of Community and Social Services website at: http://www.mcss.gov.on.ca/en/mcss/publications/accessibility/charles_beer/tableOfContents.aspx

Key considerations

This analysis examines the supply of labour to the Ontario economy. With an aging population in Ontario, there are numerous projections depicting a shortage in the labour force, with other studies having identified a significant demand for additional workers in the future (**Exhibit 1**). Some of this shortage can be filled by PwD if the supports mandated by the proposed AODA standards are implemented successfully. We use a basic regression to calculate the relationship between GDP and wages in Ontario. This helps us estimate the multiplier effect of increasing the employment level of PwD. All increases are for one year and increased employment participation assumes the (lower) employment income for PwD.

Scenario 1.1

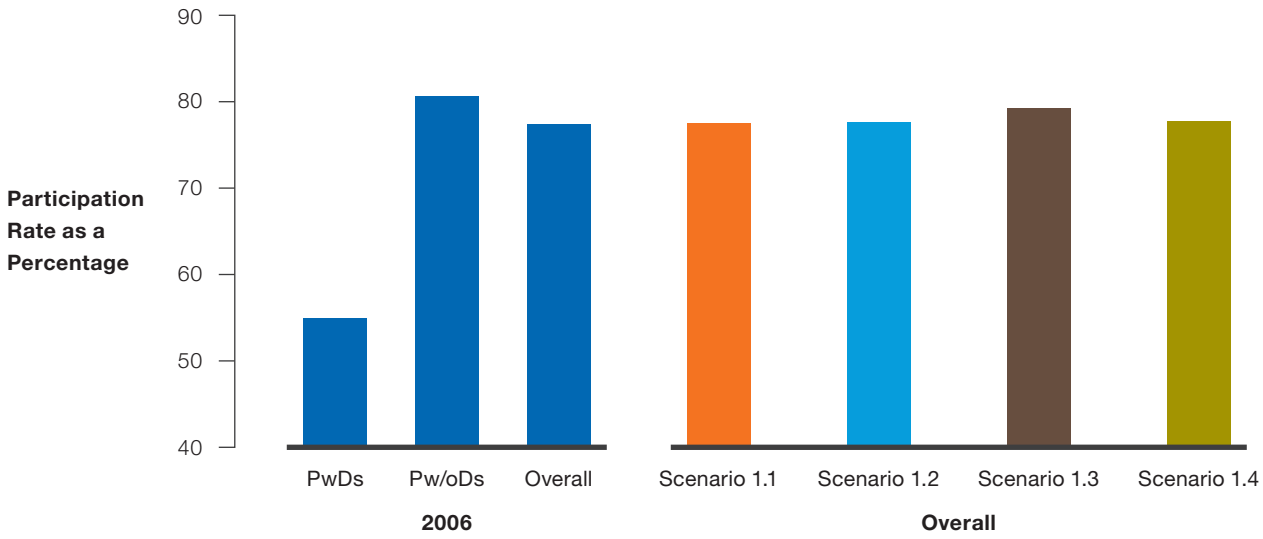
We assume here that under the new standards the percentage of persons with mild and moderate disabilities who are not in the labour force will be the same as that of Pw/oD.[6] We make a broad assumption that there are jobs available to be filled by this new in-flux of people, which would result in an increase in the number of PwD that are employed by 12,316. This would change the share of PwD employed from 50 to 52 percent (**Exhibit 12**). A mere 2 percentage point increase in PwD that are employed would change employment income in Ontario by $359 million (**Exhibit 13**). Ontario Disability Support Program (ODSP) payments made by the Government of Ontario would decrease by $151 million[7] and the total combined benefit to Ontario from the increase in employment income and decrease in ODSP payments would be $510 million (**Exhibit 14**).

To estimate the impact of an increase in employment income on GDP, we use a simple regression between Ontario's GDP and wages, salaries and supplementary income for the years 1981 to 2008. Using this equation, we find that GDP would increase by $4.1 billion with an associated increase in employment income. The increase in GDP per capita across Ontario would be $49 (**Exhibit 15**).

Scenario 1.2

Here we take a detailed look at the PALS 'Not in Labour Force Module' to understand the barriers to employment for PwD and how workplace modifications can increase the number of people employed. In this module, detailed questions are asked to determine if the condition of being disabled limits individuals from working. PwD are then asked if workplace arrangements will enable them to work and 14.3 percent (14,160) in Ontario, answered yes. PwD who have retired are excluded from this calculation. We now assume that the new AODA standards would be successfully implemented, enabling these 14,160

Overall participation increases — Exhibit 11



[6] We postulate that the participation of persons with severe and very severe disabilities will not be affected by the standards and therefore do not project substantial gains for this group or include this population in our analysis.

[7] To be conservative we use the minimum payment. A basic needs allowance of $566 and shelter allowance of $454 per month. Statistics and Analysis Unit Policy Research and Analysis Branch Social Policy Development Division Ministry of Community & Social Services, *Social Assistance, Pension, and Tax Credit Rates*, Jan–Mar 2009.

individuals to work. As a result, employment income would increase by $441 million and GDP per capita would increase by $60.

Scenario 1.3

Research has shown that disability rates based on self-disclosure are often underestimated and identify on average only 48 percent of PwD. This might be due to the stigma associated with disability, or, as is often the case, that people are unaware of their disability.[8] In our next scenario we take this into account by increasing the number of PwD by twice as many as the PALS data suggests. We assume that this underestimated population would have the same characteristics as that of persons with mild or moderate disabilities, and persons with severe or very severe disabilities would not be able to "hide" their disability. The rest of the assumptions are the same as scenario 1.1. The increase in the number of people employed in this scenario is 153,057. As a result, employment income increases by $4.8 billion and GDP per capita increases by $653.

Scenario 1.4

Finally, we use the same assumptions as in scenario 1.2 but take the underestimated population of PwD into account.[9] In scenario 1.4, the number of people that would now start working is 32,209, which would v increase employment income by $1 billion and increase GDP per capita by $137.

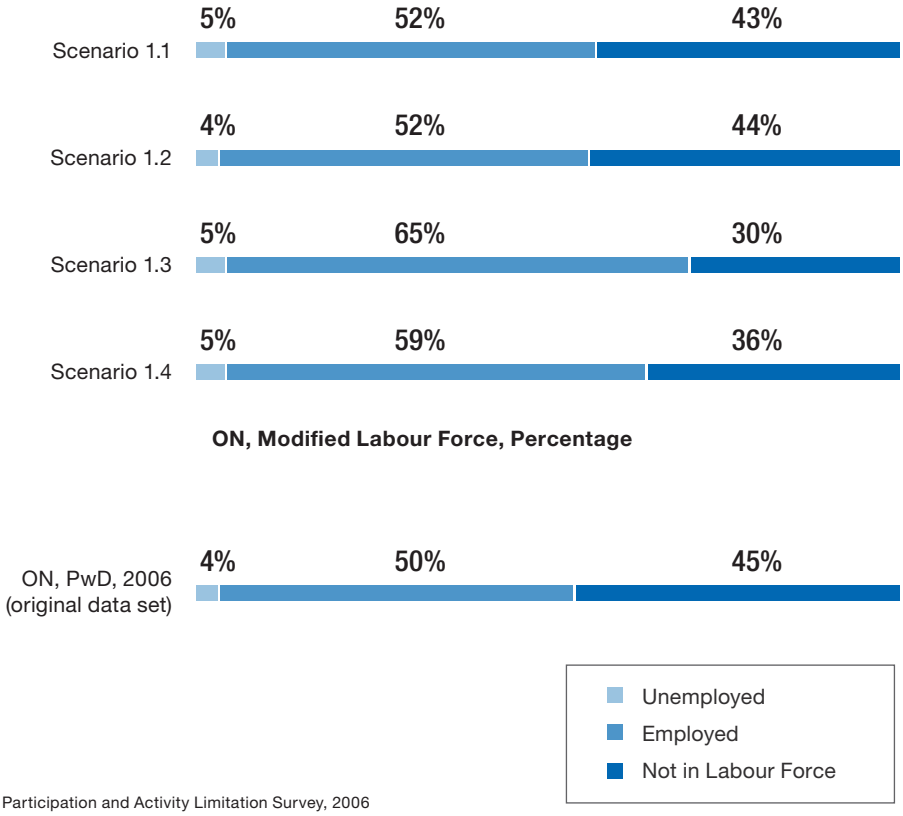
As we can see from the above analysis, increasing access to employment could enable the province to reduce the severity of our projected labour shortage. The resultant wages earned will not only increase the income of individuals, but the GDP per capita in Ontario.

Impact on education

We also investigated the impact of greater accessibility on the educational attainment of PwD. As was demonstrated earlier, PwD have, on average, lower levels of educational

What-if analysis: modified labour force, labour force participation for persons with disabilities, 2006

Exhibit 12



Source: Statistics Canada, Participation and Activity Limitation Survey, 2006

[8] For further discussion of underreporting of disability in census data and its consequences for public policy development, see http://www.unescap.org/stat/disability/manual/Chapter1-Disability-Statistics.asp

[9] *Ibid.*

attainment than Pw/oD (see **Exhibit 9**). With the implementation of effective standards, we project the size of the gap can be reduced for persons with mild or moderate disabilities.

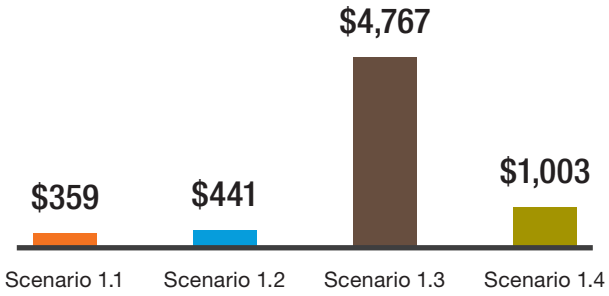
To investigate the positive benefits to the economy from this increased level of education, we looked at the impact that would result, after the implementation of the standards, if PwD were able to reach the same level of education as Pw/oD. We looked at two scenarios: the change in income for those persons who identify as having disabilities, and the change in income including those additional PwD who do not identify themselves in the census.

We use a relationship between educational attainment and wages[10] to estimate the potential increase in wages if education levels of PwD matched that of Pw/oD. From this relationship, we find that in the first scenario employment income would increase by $618 million (**Exhibit 16**). We then use our relationship between GDP and wages that estimates the increase in GDP per capita to be $85 (**Exhibit 17**).

In our second scenario, we again look at the impact of greater access to employment, but this time we project its impact on a population the size of that identified in the CCHS survey.[11]

Total increase in employment income due to higher participation of persons with disabilities, Ontario (C$ Millions), 2006

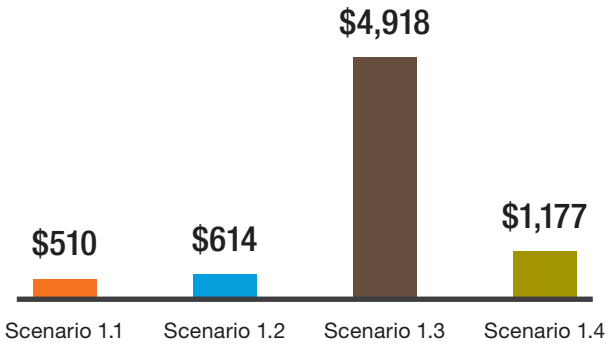
Exhibit 13



Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada, Participation and Activity Limitation Survey, 2006

Total benefit to Ontario's economy: Increase in employment income and decrease in ODSP payments due to higher participation of persons with disabilities, Ontario (C$ Millions), 2006

Exhibit 14



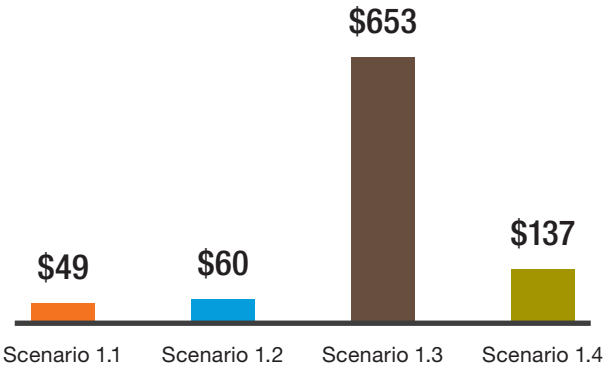
Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada, Participation and Activity Limitation Survey, 2006

[10] Task Force on Competitiveness, Productivity and Economic Progress. Fifth Annual Report, *Agenda for our prosperity*, November 2006, pp. 35–37.

[11] Rietschlin, J., and A. MacKenzie. "Variation in disability rates in Statistics Canada national surveys: Building policy on a slippery foundation." In Proceedings of Statistics Canada Symposium 2004: Innovative Methods for Surveying Difficult-to-Reach Populations, 2004.

Impact on Ontario's economy: Increase in GDP per capita due to higher participation of persons with disabilities (using wages and GDP relationship) (C$), 2006

Exhibit 15



Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada, Participation and Activity Limitation Survey, 2006

Total increase in employment income due to higher educational attainment of persons with disabilities, Ontario (C$ Millions), 2006

Exhibit 16

Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada, Participation and Activity Limitation Survey, 2006

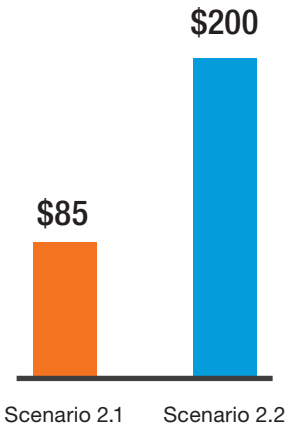
We assume this larger pool has the same characteristics as that of persons with mild disabilities. In this scenario, we estimate that the increase in employment income would be $1,458 million and in GDP per capita would be $200.

The projected increase in employment income and GDP per capita due to higher educational attainment of PwD would not be seen immediately. Any effect AODA standards may have on access to education will take time, and the resulting increase in educational attainment by PwD will be similarly lagged.

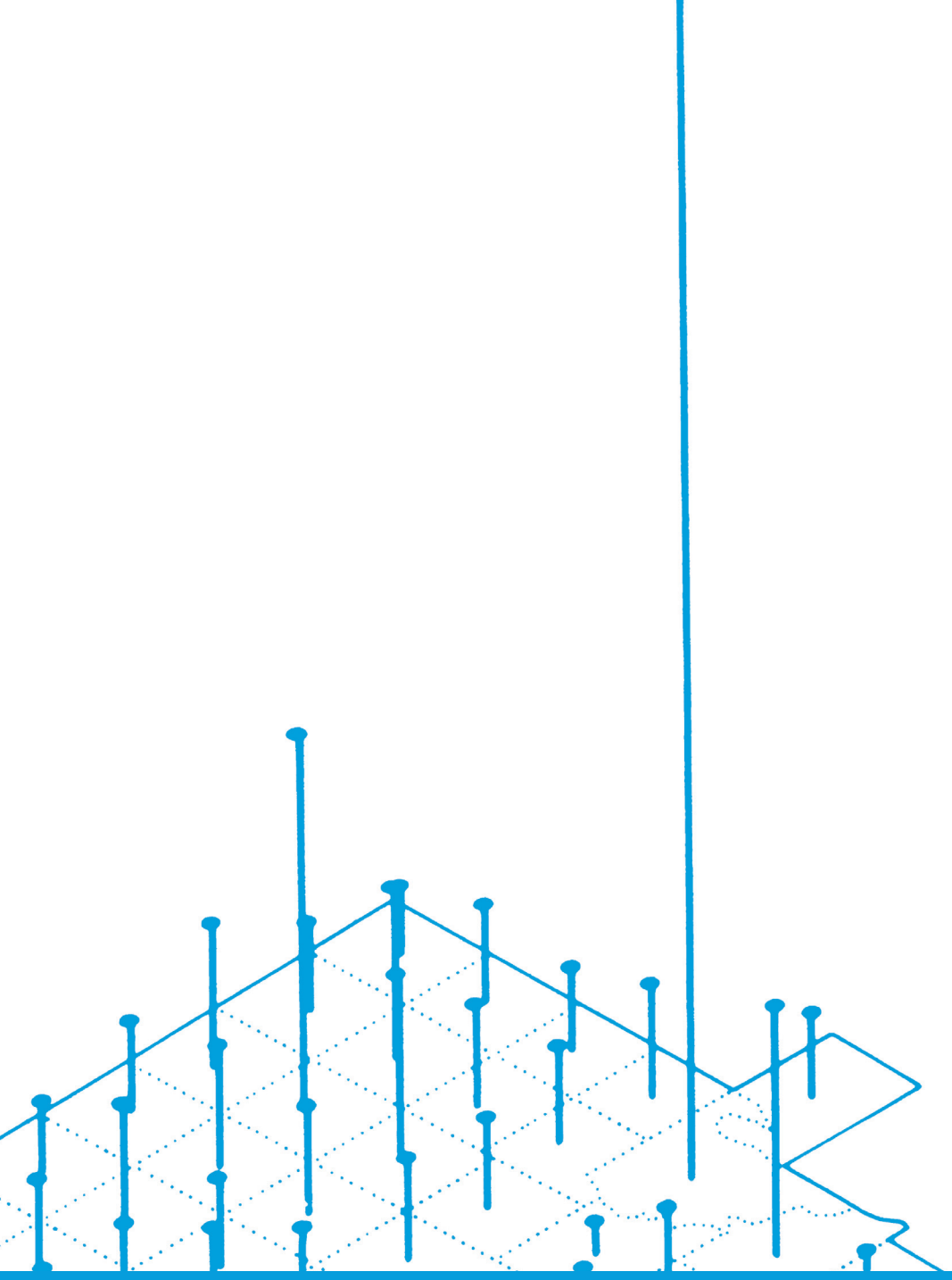
The combined effect of increased employment income and increased educational attainment could be substantial. With the implementation of the standards, the increase in employment income could raise GDP per capita from $49 to $653. The change in educational attainment could drive an increase in GDP per capita by $85 to $200. These positive changes would also move Ontario's economy to a better position with a more educated workforce. This in turn will attract more businesses, further increasing employment and make Ontario's economy more prosperous.

Increase in GDP per capita due to higher educational attainment of persons with disabilities, Ontario (C$), 2006

Exhibit 17



Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada, Participation and Activity Limitation Survey, 2006



Section 2: Impact of AODA on Ontario's markets

AODA has the potential to help strengthen Ontario's economy by accelerating the development of inclusively designed places, products and services. Through AODA, the Ministry of Community and Social Services (MCSS) has proposed measures to address the long-term social and economic challenges Ontario faces when the goods and services available do not match the preferences and needs of its residents. In Ontario, we believe that the demand for inclusively designed goods and services is larger than the supply. The AODA standards mandate product and service delivery that allow a much broader cross section of Ontarians to purchase the goods and services they need. As a result, the standards will allow Ontario's businesses to achieve new economies of scale possible through Inclusive Design (ID).

The demand for goods and services that can be used by PwD is increasing. The number of people who identify themselves as having disabilities and the number of persons aged 55 and over are growing. This has an impact on the consumer markets that Ontario businesses face (Burnett and Bender Baker, 2001; Huh and Singh, 2007; Lach, 1999; Newell and Gregor, 2002; Pühretmair, 2006; Yau, McKercher and Packer, 2004). This growing segment of the consumer market that remains largely untapped by a wide range of businesses, particularly in Canada and the United States (Burnett and Bender Baker, 2001; Pühretmair, 2004; Yau, McKercher and Packer, 2004). To fully realize the benefits of this growing market segment, businesses can adopt a framework that is informed by ID principles. In doing so, Ontario businesses will be better positioned to both serve and capture the benefits of this growing market segment.

The implementation of ID in the workplace can also improve Ontario's productivity. Design is an increasingly important factor in the competitiveness of businesses in the global market (Martin, 2009). The methods and thinking of the design professions are altering the processes and organization of businesses as they adapt to the rapid pace of economic activity in the Creative Age. Done properly, well-designed products, services and environments begin to be more broadly useful, blurring the line between what is just "good design" and what is ID. This has an impact on sales, allowing a wider segment of consumers to make purchases. Its implementation in transportation and built form can prolong the length of our active lives. Its widespread use can make Ontario a pioneering jurisdiction.

In this section, our projections of gains to sales are based on the growth trends in Ontario's economy over the last thirty years. The recent recession has shifted the current demand for goods and services, and it is too soon to know the rate at which the economy will return to prior levels of activity. We believe that Ontario's demographic trends will drive a shift toward inclusively designed products and services, no matter the level of aggregate demand. We estimate this demographically-induced deflection from trends established over decades, but do not estimate the impact of macroeconomic factors on current or future sales. Companies will calculate the return on accessibility investments and innovations using both macroeconomic data and their own estimates.

What is Inclusive Design?

Inclusive Design (ID) focuses on the humanization of technologies for as broad a user group as possible. Such an approach directs managers and designers to consider how their products may be exclusionary and to understand the social and individual impacts of their work. Companies like IBM, Home Depot and Toyota have all made inclusion of people with all types of physical and mental impairments and disabilities an important part of their businesses. A design focus on inclusion leads management and designers to develop products, services and environments that offer tangible improvements to the daily lives of many. Inclusive design is therefore also described as socially responsible design.

ID is an investment that strengthens the relationships businesses maintain among suppliers, customers, employees and the providers of capital by focusing on practical creative resolutions to problems and issues that look for an improved future result (Simon, 1996). Investment in ID may lead to three main results for Ontario's economy and its businesses: improved productivity, increased innovation, and extended workforce participation. By exploring these three potential results, we can assess the potential outcomes of ID for Ontario's economy. We focus on the way in which ID affects innovation, productivity and business performance in Ontario's economy.

INCREASED PRODUCTIVITY AND ID

Work authored by the ICP has shown that Ontario trails the median GDP per capita of its peer regions by $7,000 (C$, 2008) (Task Force on Competitiveness, Prosperity and Economic Progress, 2009). This gap reflects that the province is not as productive as other regions. We believe that ID is an investment that improves the productivity of services, products and

environments, and that ID can increase economic productivity in Ontario by better utilizing Ontario's labour force. A focus on more ID can make Ontario more productive and competitive, helping to close this prosperity gap and raise GDP per capita.

More productive spaces

ID is not only for PwD. It can make the work life of all persons less stressful and more productive. Buildings and environments designed poorly act to confuse and add stress, which creates disabilities (Bowen and Ostroff, 2004). ID alters the use of space in the places where economic activity occurs (Murphy, 2003), seeking to mitigate these effects, eliminating the occurrence of disability that is the result of artificial barriers.

For instance, ID can be related to ergonomics, which is the science of ensuring that all parts of the workplace suit each other to prevent and eliminate work related disorders. The design of ergonomic workplaces is an important issue in the Province of Ontario, where 40% of workplace injuries that result in time lost are ergonomic-related injuries (Ministry of Labour, Government of Ontario, 2008). This is significant for Ontario, where the direct and indirect cost of these ergonomic related injuries were estimated to be $19 billion between 1996 and 2006 (Ministry of Labour, Government of Ontario, 2008). Other studies have found that improved ergonomics in workplaces can have positive effects not only on health but on performance (Brewer, Eerd, Amick, Irvin, Daum, Gerr, Moore, Cullen and Rempel, 2006).

Ergonomics and ID can have similar impacts on the workplace. In the same way that ergonomically designed products in the workplace augment the productivity of workers without a disability by making it easier for them to perform their job, more inclusively designed workplaces can allow workers with a disability to also generate increased productivity gains. With an aging population and shrinking labour pool, there are strong incentives to design more inclusive workplaces. In the future, ergonomics and ID will be of great importance in helping businesses remain productive. Steelcase, a company that designs and sells ergonomic furniture, has already found that its Leap chair and ergonomic training can increase the productivity of knowledge workers by up to 17.8% (Steelcase, 2003).

Similar gains may be realized through inclusive workplace design. A variety of changes and modifications can be made to workplaces, improving the ability of PwD to navigate and use the space. For example, inclusive building, way-finding, interior design and architecture can enhance the productivity of all users. Better access to equipment, greater comfort and mobility and a working environment where people feel valued through their inclusion all make Ontario's labour force more productive (CNIB, 2009a; b; Hendricks, Batiste and Hirsh, 2005; Hernandez, McDonald, Lepera, Shahna, Wang and Levy, 2009).

Scotiabank and Inclusive Design

"In one of our major international customer-facing applications, we ensured that accessibility requirements were included in the business case phase, bringing it down to the requirements documents, the designs and development. The incremental resources or cycles to do this to ensure the coding was accessible were insignificant but the results were great. The application was released and available through different delivery channels with minimal remediation, allowing the multiple deployment of the application as planned.

Integrating accessibility requirements throughout the life cycle is very cost effective and ensures you have a product that is accessible by customers and employees alike.

From an accommodation perspective, the ability to work with an application that is fully accessible significantly reduces work-arounds or the learning curve and customization for the individual.

Incorporating accessibility in our documents, for example, reduces the need to have duplicate forms of the documents to manage. This reduces efforts, errors and bandwidth and provides us the ability to readily convert documents to other alternate formats. In a global and international organization located in more than 50 countries where we process millions of transactions and serve thousands of customers, this translates in huge savings."

Pina D'Intino, (2009) Senior Manager, Enabling Solutions and Support Management, Scotiabank

More productive products

Flawed design can impair productivity. While even small details like the shape of a grip or the size of typed font can unnecessarily prevent employees from performing an action, better design can allow them to become more productive. For instance, according to a recent study called The Cost of Vision Loss (2009) conducted by the Canadian National Institute for the Blind (CNIB), vision loss alone costs Canadians an estimated $15.8 billion every year, of which $4.4 billion comes from lost productivity due to underemployment and unemployment (CNIB, 2009a; b)

Oxo Good Grips®

Oxo Good Grips is an example of a consumer products company that has increased its sales and the size of its target market by designing inclusively. Based on a few simple question, *"Why do ordinary kitchen tools hurt your hands?"* and *"Why can't there be wonderfully comfortable tools that are easy to use?"*, Oxo launched its first product line in 1990 with 15 Good Grip kitchen tools. Today Oxo offers more than 500 innovative products and experienced greater than 35% annual growth in sales from 1991–2002 (Oxo Good Grip, 2008).

INCREASED INNOVATION

To be competitive, regions must find ways to increase the productivity of all workers and pioneer products and services that attract global demand. Innovation plays a central role in determining the long-run economic growth of regions. Without a sustained level of innovation, gains to productivity and prosperity eventually fall to zero (Porter, 1999). There are three essential characteristics of innovative jurisdictions. They: a) constantly explore new frontiers of knowledge—challenging standardization and routine; b) have low barriers to entry; and c) possess business and financial resources that support the development of new goods, services and businesses. If they are well implemented and supported, regulatory changes that demand innovation, such as the ID opportunities embedded in AODA, can strengthen existing businesses and provide entrepreneurs with the incentives to create new ones.

With the implementation of AODA, Ontario has the potential to become a leader in issues pertaining to social and human centred design. This requires that Ontario redefine what it means to produce high quality goods and services. Driven by sophisticated local demand, some of Ontario's industries can develop a specialization in ID. In response to this demand, Ontario's existing industries can develop more sophisticated products and services, and could see new businesses emerge in areas such as inclusive training and consulting. Moving forward, this requires that Ontario's designers, managers, policy makers and citizens gain an understanding of the beneficial effects of ID, and begin to use it as a differentiation and branding opportunity. With extensive public education and consultation programmes similar to those found in Japan and the United Kingdom, Ontario could surpass these first movers in developing innovative projects that promote inclusivity.

EXTENDED WORKFORCE PARTICIPATION

Increased productivity and an innovative jurisdiction are important supply side determinants of business performance, but are only effective if they lead to involvement for the entire lifecycle for aging consumer markets. In most developed countries, people are living longer and healthier lives, resulting in significant upward shifts in age distributions. From 1970 to 2006, the life expectancy of a Canadian male increased from 69 to 78 years (Statistics Canada, 2010). Prolonged life expectancy results in what Peter Laslett calls the "Third Age", a phenomenon that emerged in England in the 1950's (Laslett, 1987). Prior to the Second World War, most people worked until their death. Those who were lucky enough to retire, often suffered from decreased health and limited physical ability. People who live into their "Third Age" are characterized by their desire for personal achievement and fulfillment, even if they suffer from physical impairments or disabilities. Today, society faces the challenge of providing goods and services for an aging population of unprecedented size.

Over the next 25 years, the size of Ontario's mature population is going to increase significantly. Between 2006 and 2031, the average age of Ontario's population is projected to increase from 38 to 42 years of age, with the mature (55 years of age or older) market increasing from 23% to 33% of the population.[12] Globally the population over the age of 65 is expected to increase by nearly 550 million people to 973 million by 2030.[13] There have been numerous studies that have documented the positive correlation between increased age and increased rates of disability (Freedman, Martin and Schoeni, 2002; Knickman and Snell, 2002; and Jagger, Arthur, Spiers, and Clarke FRCP, 2001). One result of the increasing average age of the population will be a growing demand for products and services that help individuals maintain their regular daily activities as they live with increasing levels of disability or face new impairments. It is essential that businesses in Ontario recognize the growing and powerful consumer segment of those with a disability or 55 years of age and over.

According to Canadian census data for 2006, Ontarians generated $380 billion in total income (wages, investments and government transfers) in 2005.[14] On the basis of Statistics

[12] Ontario Population Projections Update, 2007–2031: Ontario and Its 49 Census Divisions. Spring 2008. Ontario Ministry of Finance http://www.fin.gov.on.ca/en/economy/demographics/projections/#s3c

[13] "Public Health and Aging: Trends in Aging—United States and Worldwide". Morbidity and Mortality Weekly Report, Centers for Disease Control and Prevention. 52(06);101-106, February 14, 2003

Canada's population projections, and assuming the average income of people 15 years of age and older remains constant for each group, we can predict that by 2031 the income controlled by PwD and at risk of disability (those above the age of 55 without disability) will increase by 33% to $536 billion in 2005 dollars (**Exhibit 18**).

Using population tables and information from the PALs survey, the three groups that we expect to benefit the most from ID and AODA standards include those under 55 years of age with a disability, those 55 years of age and over with a disability and finally those 55 years of age and older without a disability. In 2006, these three groups represented 3.75 million people and one third of all income in the province. By 2031, over 6 million people in Ontario will be either living with a disability or be 55 years of age and over, accounting for 40% of all income (**Exhibit 18**). While the ratio of spending

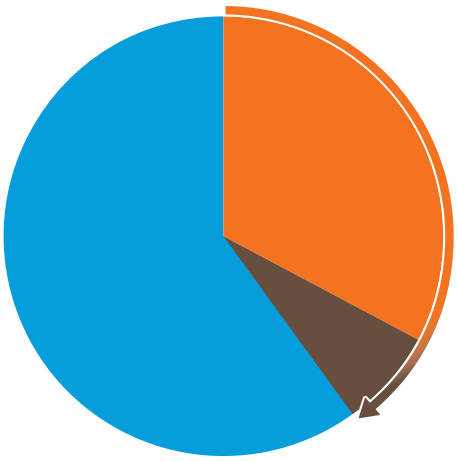
First Age:
Period of youth characterized by dependency, education and maturation

Second Age:
Characterized by maturity, responsibility and earning

Third Age:
Characterized by personal achievement and fulfillment—the crown of individual life.
— Laslett, 1987

Forecast change in share of Ontario's total income from 2006 to 2031 for persons with disabilities and people over 55

Exhibit 18



2031

	2006	2031
Inclusive design target group	33%	40%
Pw/oDs under the age of 55	67%	60%

Change of Inclusive design target group's share of Ontario's total income	+ 7%
Change of non-target group's share of Ontario's total income	– 7%

Source: Participation and Activity Limitation Survey, 2006

[14] Calculated using: Statistics Canada. (2006) "Presence of Income, Age Groups and Sex for the Population 15 years and over of Canada, Provinces, Territories, Census Metropolitan Areas and Census Agglomerations, 2005-20% Sample Data" File 97-563-xcb2006013; and Statistics Canada. (2006) "Age Groups and Sex for the Population of Canada, Provinces and Territories, 1921–2006 Censuses-100% Data" File 97-551-xcb2006005.

power between those less likely to require inclusive deign and those more likely to require it is currently 2:1, this will shift to 3:2 by 2031.

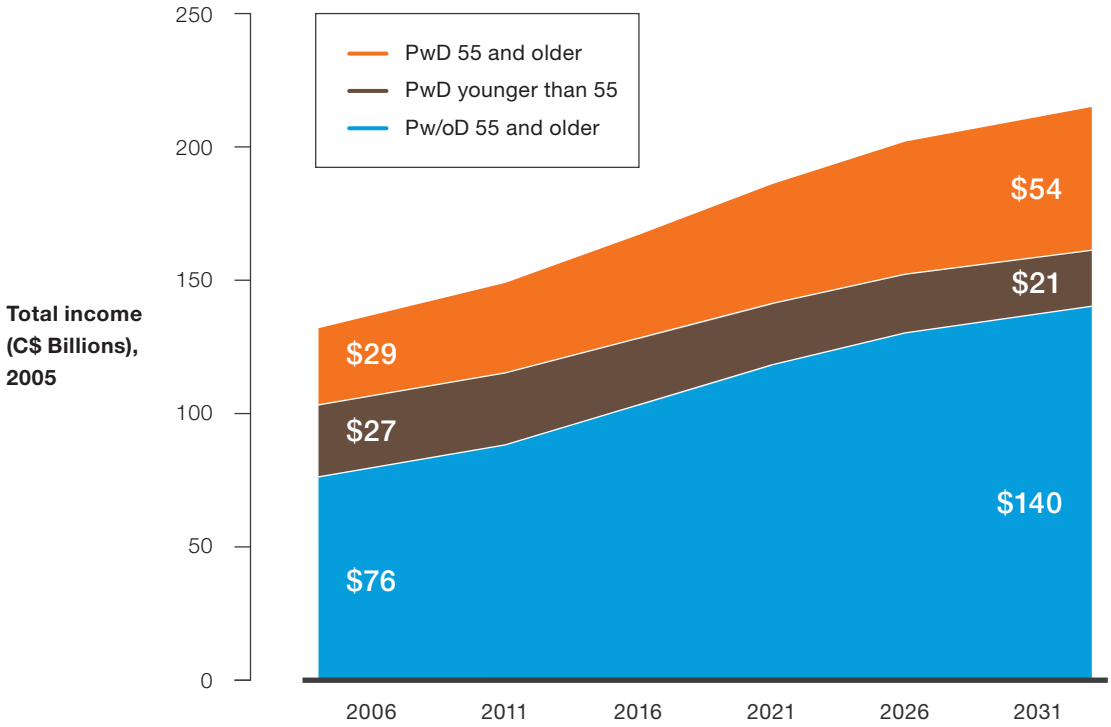
The change in total income is based entirely on the expected growth or decline in the size of these three population groups. Income is held constant over the time period of the entire projection. Income is based on total income for the year 2005 and is in Canadian dollars. Instead of allowing income to change, the population distribution is allowed to vary (**Exhibit 19**).

Combining our above analysis with a 2007 report from Packaged Facts that looked at mature market consumer trends, we can estimate the potential consumer market for inclusively designed products and services. Packaged Facts defines mature consumers as those over the age of 50. Their results show that Americans over the age of 50 control over 70% of all disposable income and have $1.6 trillion (USD) in spending power, with an estimated $1 trillion (USD) of that being spent on goods and services. We can use these studies to estimate the combined consumer market power of Ontario and the United States at approximately $2 trillion (C$).[15]

The implication for businesses in Ontario is that products and services must cater to the demand of these market segments like never before. Over the next 25 years, in Ontario and the United States, the maturing population and those with disabilities will demand goods and services that allow them to continue to participate in activities and maintain personal autonomy. According to Simmons Market Research Bureau consumer survey found that nearly 42% of Americans 55 years of age and over have a keen sense of adventure and 72% of them said that the Internet had an impact on their lives as well (Packaged Facts, 2006). The International Council on Active Aging (ICAA) states that people 50 years of age and over purchase more than $7 billion in goods and services online each year. In summary, there is a growing opportunity for those businesses that are able to offer inclusively designed products and services to persons with impairments and/or disabilities.

Designers and manufacturers face significant obstacles to successfully implementing the theoretical ideas of ID,

Total income projections for persons with a disability and/or over the age of 55 — Exhibit 19



Source: Participation and Activity Limitation Survey, 2006

[15] By normalizing Packaged Facts' nominal values with PPP for 2005.

transferring them into practical applications, and adopting best practices (Dong et al., 2003; Dong et al., 2004; and Goodman et al., 2006). A study conducted on manufacturers and retailers showed that "the most significant barriers [to ID they faced] to be within the domain of the other party, rather than their own" (Dong et al., 2004, 311). It was found that manufacturers were hesitant about producing inclusively designed goods due to their perceptions that retailers could not sell their products. Retailers, on the other hand, did not market inclusively designed goods due to their perceptions that manufacturers could not make such goods. The study also examined the design consulting businesses. It found that the perceived problems faced by designers were caused by the design commission, the body that sets the standards in the design industry. Designers felt that a lack of standards and a process to design and produce inclusively designed products were barriers to commercial application of ID. They felt that improved communication was key to overcoming these barriers (Dong et al., 2004).

Ensuring open channels for industry communication in Ontario, between these different groups, could have significant positive benefits in the long-term success of AODA and ID. For most firms, uncertainty is enormously expensive, often more expensive than the implementation of the standards. Without adequate consultation and communication, Ontario's firms will be uncertain about the standards themselves, the dates by which they must be compliant, the penalties for non-compliance, the assistance with marketing and capital costs they might gain, and other critically important issues.

FURTHER POSSIBLE IMPACTS OF AODA: HOW INCLUSION AND DIVERSITY DRIVES GROWTH

Diversity and inclusion are important drivers of economic growth and innovation (Jacobs 1969, Florida and Gates 2002, and Page 2008). Places that have a flourishing mixture of cultures, industries and personality types send positive signals to other locations. Over time these signals generate positive effects, attracting human capital, financial resources and the creativity necessary for innovation.

Inclusion and diversity are already documented as being a strength of Ontario's economy. The province is already a mixture of diverse people with one of the largest foreign-born populations anywhere in the world at 28%, (Florida and Martin, 2009). Along with a rich diversity of cultures, Ontario has also been shown to be a place that is open and accepting of different lifestyles.

The AODA opens Ontario's economy to an additional 1.7 million previously marginalized persons, adding to Ontario's economic strength and its history of diversity and tolerance. The benefits to Ontario's economy from this openness come in the form of an expanded forum for ideas with a wide range of individual experiences. In "The Difference", Scott Page argues that by adding a diverse set of experiences, the range of possible solutions to a problem expands and in most cases will trump flat out ability. Page refers to this as the "Diversity trumps ability" theorem. Diverse groups will more often than not reward ability resulting in more innovative solutions to problems.

> "Design is a creative activity whose aim is to establish the multi-faceted qualities of objects, processes, services and their systems in whole life cycles. Therefore design is the central factor of innovative humanisation of technology and the crucial factor of cultural and economic change."
>
> — International Council of Societies of Industrial Design (ICSID)

Regulations can provide a strong force to change industry structure, shift competitiveness and drive innovation. When factors such as available knowledge, industry and occupational composition or government regulation shift in any given jurisdiction, businesses respond through increasing their rate of innovation (Bassanini and Ernst, 2002). Firms that are able to adapt quickly to increased accessibility demands can introduce a new range of products and services designed for a larger segment of the population. These businesses will be facing new environmental and technical challenges that force them to rethink parts of their value chain as they seek to accommodate the AODA.

This involves thinking through the entire experience from customer service to the actual use of the product. In creating integrated inclusive experiences, Ontario can establish a leadership position, defining globally the standard of what it means to design for the entire population. Ontario has an opportunity to become a pioneering jurisdiction in ID at a time when the global trend is to view design as high value added economic activity.

Two cases: The tourism and consumer retail sectors

The tourism and retail sectors in Ontario are examples of sectors that are likely to benefit from the successful implementation of the AODA's standards and addressing issues of accessibility through ID. The AODA, by improving the built environment, consumer service and transportation in Ontario, will attract new customers and tourists. To assess the potential impacts of such improvements we used historical data on consumer retail and tourism in Ontario. Based on the historic numbers for these sectors we estimate the growing impact of the AODA over the next 5 years.

Tourism

The Ontario Ministry of Tourism indicates that 105 million total person visits were made in Ontario in 2007. According to the Canadian Travel and Tourism Survey, in 2004, the most recent year for which data on the age characteristics of tourists was published, approximately 26% of tourists over the age of 15 in Ontario were 55 years of age and older, and 47% were 45 years of age and over. If we assume that the average tourist in Ontario in 2007 reflects these same demographic characteristics of the tourist population in Ontario in 2004, then, in 2007, approximately, 27.3 million tourists were 55 years of age and over, 49.4 million were 45 years of age and over, and 16.2 million tourists had a disability. While the estimated number of tourists with a disability reported here is based upon the 15.4% of individuals who reported themselves as having a disability in the 2006 PALS, the actual number of tourists with a disability is likely far less, meaning the population of PwD that is underserved in the tourism industry in Ontario is much larger. Despite the existing size and total combined purchasing power of PwD and seniors, they are only a small part of a much larger market that continues to remain largely untapped. Many PwD travel with a companion or with their family, meaning the potential revenue and profit forgone as a result of not making tourist destinations accessible is much larger than is often considered. In addition to this, because most of the PwD travel with a companion, the market impacts have the potential to extend beyond this group alone. By implementing AODA standards and adopting an ID approach, the tourism industry will be able to capture the much larger portion of this market that remains dormant and underserved.

There are a number of barriers that deter PwD and those 55 years of age and over from fully participating as tourists. As Smith (1987) suggests, the determinants of these barriers in an individual's decision to travel can be environmental, interactive or intrinsic. Environmental barriers are the result of limitations imposed on an PwD by the physical and social environment. Interactive barriers prevent a tourist with a disability from partaking in activities due to the required skill or communication involved. Intrinsic barriers are primarily a result of an individual's level of cognitive, physical and psychological function, including knowledge barriers, health-related problems, social ineffectiveness and physical or psychological dependency. As a result of these barriers, travel for manypeople with a disability or 55 years of age and over is perceived as a risk because it involves leaving a familiar place and venturing into unknown physical and psychological spaces (Yau, McKercher and Packer, 2004). Reducing the barriers that prevent PwD from travelling in Ontario will mean moving beyond simply complying with legislation and incorporating inclusively designed practices that encourage and promote participation, and empower the individual (Daruwalla and Darcy, 2005; MacDonald, 2006a., and Burnett and Bender Baker, 2001). The standards can allow potential travelers in Ontario to acquire the information and assurance they need in order to commit to what could otherwise be an unsafe, expensive or difficult journey. Making destinations reliably and consistently accessible would help individuals feel more comfortable as tourists and empowered in making future
travel plans, allowing them to travel more frequently and freely (Yau, McKercher and Parker, 2004).

However, simply reducing the barriers that prevent PwD from travelling in Ontario will not be enough. If the first step of any trip is making a plan (Smith, 1987), and if making those plans requires ensuring a destination is accessible, then being informed is the most important factor in deciding to travel. As a result, ensuring that destination information is made more accessible and readily available will allow PwD, or limitation in their physical or psychological capabilities, to better inform themselves. As a consequence, they may be more likely to visit a destination (Eichhorn, Miller, Michopoulou and Buhalis, 2007). Improvements made in communications and marketing will play an essential role in ensuring that potential consumers are made aware of the changes to make tourist destinations more accessible. This means information on accessible destinations must be made more readily available on websites and brochures. Improvements are needed to ensure PwD are made aware that changes have been made that will allow participation in activities at tourist destinations and feel safe when in unfamiliar places.

An important step in the marketing and selling of a product, service or destination is making sure that your message

reaches your maximum potential audience. However, many companies invest very little time, if any at all, in ensuring information is readily available that informs potential visitors that they are an accessible destination and/or provide accessible products and services. Neglecting to ensure consumers are informed that they can access a destination will inevitably limit the number of potential visitors tourist destinations will attract. The number of consumers who require and will seek out accessible activities and accommodations in the coming years will increase as our population continues to age and the number of PwD continues to grow. Failing to properly and effectively market accessible destinations will soon become quite costly to business as the potential revenue and profits forgone increases as a result of ignoring the needs of this growing consumer group.

An Ontario institution becomes accessible

The Royal Ontario Museum (ROM) in Toronto, Ontario has already begun to take steps to improve accessibility. Work on making the ROM more accessible began in 2003, two years before the implementation of the AODA, with increasing awareness and understanding among the ROM board members, volunteers and staff of the importance of accessibility. In 2005, the Royal Ontario Museum Accessibility Committee (RAC) was formed to begin to address ways to improve accessibility at the ROM. Members of the committee included major stakeholders in the city such as the Canadian National Institute for the Blind (CNIB), Canadian Hearing Society, the Ontario March of Dimes, and public citizens. The early work on improving awareness amongst board members, staff and volunteers of the issues and the impact that could be had on revenue due to making the ROM more accessible can be seen in the design of the Michael Lee-Chin Crystal, which opened in 2007, and in the new services that have been introduced.

With the opening of the Michael A. Lee-Chin Crystal, the ROM made a number of changes to become more accessible. First, the Crystal has been designed to reduce, if not eliminate, a number of physical barriers that would deter individuals with a disability from experiencing the exhibits. A new zone was also built outside the Crystal for vehicles to safely drop off visitors close to the entrance, which has no steps, and only a single slope leading from the street to the interior of the main floor. Inside, the new ticket booths are designed with two wheel-chair accessible stations and there is a sit-down service for ticket purchase. Wheel chair lifts, ramps and washrooms have also been put in place to assist individuals with mobility restraints to move more freely around the building. A much less costly change to the physical environment was simply to lower the height of the exhibits in order to improve their visibility. As part of the larger renovation project, the entrance doors to the washrooms in the Heritage building were removed to better accommodate individuals who use scooters and wheelchairs.

The ROM has also begun to provide a number of new and enhanced services that improve access to the exhibits for visitors with disabilities. For example, they post online podcasts with sign language to help guests become aware of the ROM and exhibits within it. These podcasts can also be downloaded to an iPod and used at the museum, which is especially useful for those who are either blind or hard of hearing. The museum also has loaded iPods which can be used by visitors. There is seating throughout their exhibits, which is useful for older adults, mothers and those with mobility restraints and wheelchairs at the front entrance.

Many of the enhanced services now provided by the ROM are also far less costly than those changes made to the physical building and environment. One of the most significant ways in which the ROM has begun to improve services is through employee and volunteer training. The ROM now addresses customer service for PwD in its ongoing staff development. Part of their training includes a four-hour interactive workshop that teaches employees and volunteers how to interact with visitors with disabilities with support, dignity and respect. This training also includes improving employee awareness of the services the ROM provides. Employees are free to act on issues that improve customer experience for those with a disability.

In making the changes at the ROM a success, effective marketing strategies have played an important role in generating awareness amongst the disabled community. Cheryl Blackman, Director of Visitor Experience at the ROM, stated in an interview:

> *"One of the greatest shifts in the ROMs approach in general to marketing is the use of the web…so adding [accessibility] to the website and making it something that was accessible and starting to create collateral, marketing collateral, that supports that message i.e. large format maps, podcasts that have sign language and putting it all on line, transcripts for those podcasts. That begins to communicate a message to the audience looking for accessible information that we are contemplating them as our customer… we put things out there that speak to their plan to come…to the ROM".*
>
> — Interview with researchers, January 13th, 2010.

While the initiatives the ROM has implemented to increase accessibility are still new, staff at the ROM claim that the success of the changes can be seen in the amount of use the new services receive. Part of this success has been the use of effective marketing strategies to increase awareness of the changes made to make the ROM more accessible. The changes made at the ROM to increase accessibility have ranged in cost from expensive additions and alterations to the physical building and environment, to much more affordable and low cost changes to improving personal services through employee training. While the ROM is a large venue and publicly funded institution, it is not the only tourist destination in Ontario making these sorts of changes to improve accessibility.

The case of Beaverland Camp, North Bay, Ontario

Another example of a tourist destination that has benefited from making itself accessible is Beaverland Camp, a fishing camp and recreational get-away located on the Marten River near North Bay. According to interviews conducted with the lodge owners by the Ministry of Community and Social Services (MCSS) (2009), the staff at the lodge "prides itself on excellent and individualized customer service". The owners of the camp have refurbished two cottages and a pontoon boat to make them wheelchair accessible, and modified the fishing lodge itself to be completely accessible. Beaverland Camp is an excellent example of a small business that has made modifications to accommodate individuals with accessibility restraints, the camp owners feel their time spent on accessibility features has been a worthwhile investment. Again, according to interviews with the lodge owners conducted by the MCSS (2009), they have found that more and more visitors have been coming to the camp because of its accessible features. The Beaverland Camp website also does a good job of ensuring visitors are made aware that they are accessible by posting comments made by previous guests, some of whom thank the camp for its hospitality, customer service and accessibility. As an example, one visitor commented:

"....It was such a true blessing to meet two such wonderful caring people that cater to the needs of the handicapped and make everything so completely accessable and at such an affordable rate. We cannot wait to book our holiday for next year and make this our annual retreat."

— Kristine Nemeth,
Beaverland Camp Website, May 12th, 2010.

THE PROJECTED IMPACT OF AODA ON TOURISM

Ontario Ministry of Tourism expenditure data was used to examine the potential impacts of AODA on the Ontario tourism industry.[16] In order to capture the different impacts that AODA could have on tourist expenditures in Ontario, two different scenarios were developed, each with three different projections. The first scenario examines the impact of AODA on tourism expenditures assuming AODA would have no impact on the total number of tourists that visited Ontario each year. We vary the projected amount each tourist would spend given different levels of increased access that might result from new standards. The second scenario examines the impact AODA would have on tourism expenditures accounting for an increase in the total number of tourists that visited Ontario each year. In this second scenario, we consider the possibility that AODA will allow for individuals previously excluded from engaging in tourism to become active tourists. Providing better access to tourist destinations and the opportunity for these individuals previously excluded are likely to have the largest impact on increased expenditures in the tourism industry. This projection takes into consideration the fact that this increased group of tourists are not only people with a disability but also includes the family, friends or companions they will travel with.

For each scenario, three different projections were calculated based on whether AODA would have a low, medium or high impact on tourism expenditures. For each of the projections, in both scenarios, we calculated the potential impact AODA could have on tourism expenditures in five years. These projections are based on 2007 tourism expenditures, which is the most recent data available at the time of this analysis. The normal projected growth in tourism expenditures without AODA was calculated using the compound annual growth rate (CAGR) for the increase in annual tourist expenditures between 1980 and 2007.

[16] The reason tourism expenditures were used in our analysis, as opposed to tourism receipts, is because tourism receipts include expenditures made in Ontario by individuals leaving the province to travel elsewhere. While using tourism receipts would produce substantially larger final values in our analysis, they are not representative of kinds of tourism activity, i.e. individuals traveling to and spending within the province, that AODA will benefit the most. Tourism receipts in Ontario in 2007 totalled $22 billion while tourism expenditures totalled $17.3 billion.

Scenario 2.1: Impact of AODA on tourism expenditures in Ontario, total number of tourists remaining constant (Exhibit 20)

Projection 1: Low Impact
AODA implementation was considered to add 2% to the normal projected increase in tourism expenditures without AODA in five years. This is assumed to be the impact of AODA should the tourism industry do the legal minimum to comply with its standards.

Projection 2: Medium Impact
A medium impact was considered to have a 3% total additional increase over the normal projected increase in tourism expenditures without AODA in five years. This is assumed to be the impact of AODA should the tourism industry comply with its standards and only partially adopt ID practices.

Projection 3: High Impact
A high impact was considered to have a 5% total additional increase in tourism expenditures over the projected normal increase in these expenditures without AODA in five years. This is assumed to be the impact of AODA should all businesses comply with its standards and embrace ID in all their practices.

Scenario 2.2: Impact of AODA on tourism expenditures in Ontario, increase in the total number of tourists (Exhibit 21)

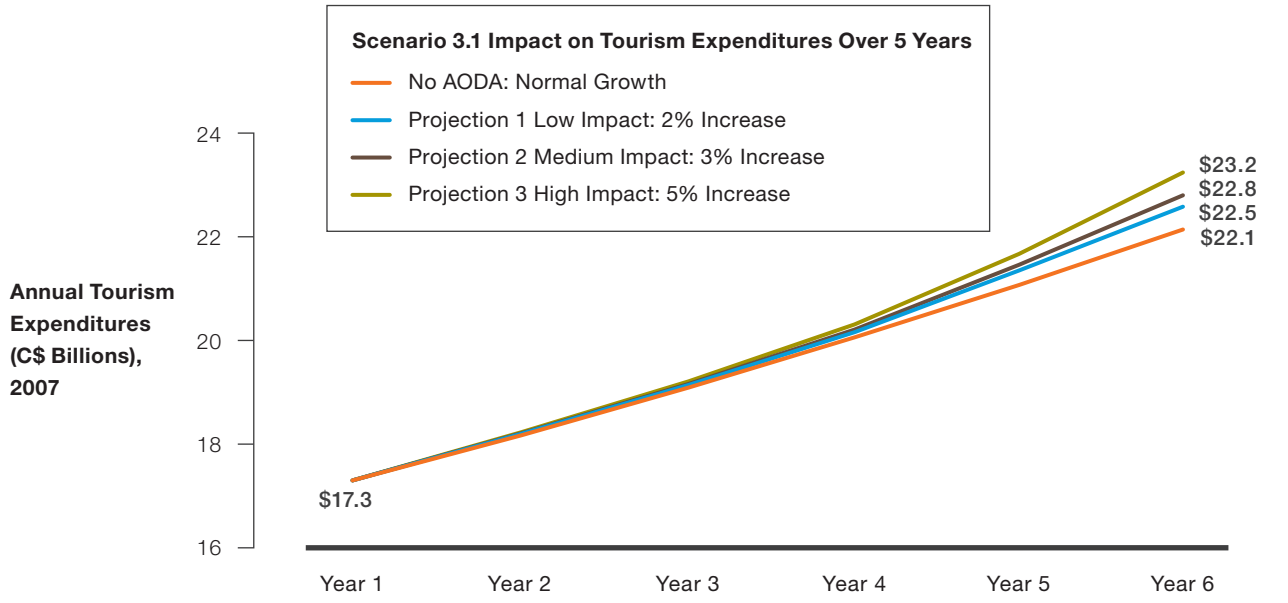
Projection 1: Low Impact
AODA was considered to add 3% to the normal projected increase in tourism expenditures without AODA in five years. This is assumed to be the impact of AODA should the tourism industry do the legal minimum to comply with its standards.

Projection 2: Medium Impact
A medium impact was considered to have a 4.5% total additional increase over the normal projected increase in tourism expenditures without AODA in five years. This is assumed to be the impact of AODA should the tourism industry comply with its standards and only partially adopt ID practices.

Projection 3: High Impact
A high impact was considered to have a 7% total additional increase in tourism expenditures over the projected normal increase in these expenditures without AODA in five years.

Five year forecast of the economic impact of AODA on expenditures in the tourism industry: Three projections, number of tourists per year remains constant

Exhibit 20



Source: Ontario Ministry of Tourism, Historical Data, Visitor Spending, 1980–2007

This is assumed to be the impact of AODA should all businesses comply with its standards and embrace ID in all their practices.

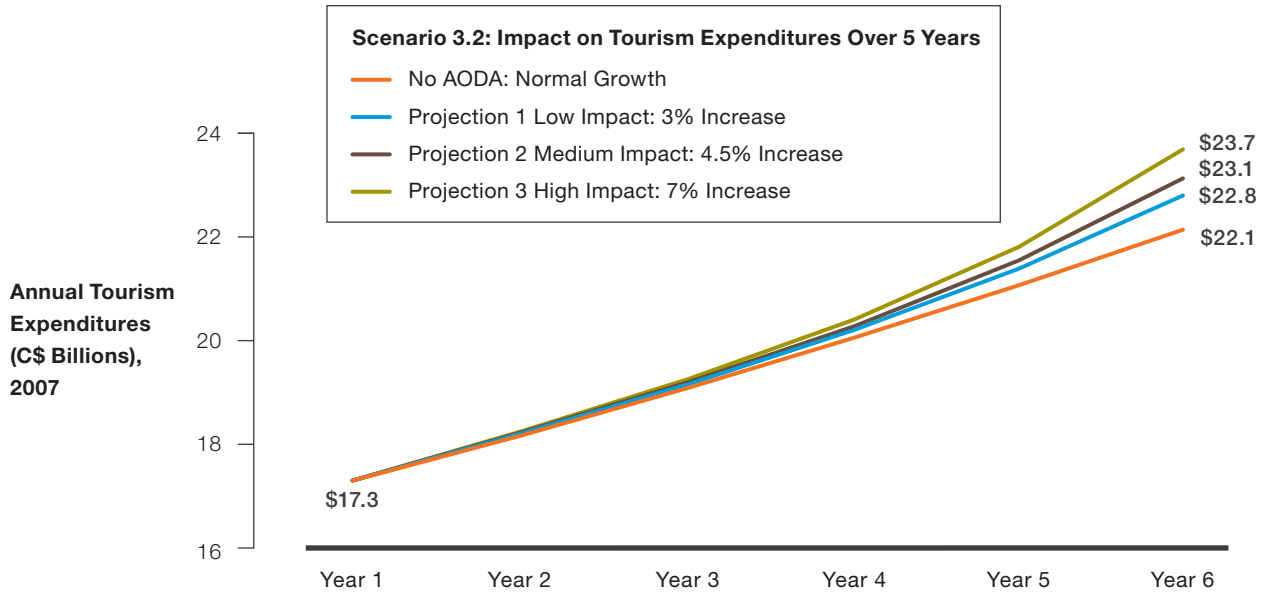
The results suggest that Ontario could, within five years, potentially see an increase in tourism expenditures from anywhere between $400 million (**Exhibit 20**, low impact scenario) and $1.6 billion (**Exhibit 21**, high impact scenario) due to the combined direct and indirect effects of AODA. These increases would mean total tourism expenditures in Ontario would grow to a level between $22.5 billion (**Exhibit 20**) and $23.7 billion (**Exhibit 21**) in five years.

Despite previous advancements in making tourist destinations more accessible over the last twenty years, there is still much to be accomplished, as the market impacts have been minimal (Darcy, 1998; Darcy 2002; Yau, McKercher and Parker, 2004). There are a number of reasons for this. First, businesses have simply failed to move beyond the legislative compliance stage and broaden their approach to incorporate ID practices (Darcy, 1998; 2002; Yau, McKercher and Parker, 2004). Second, income also has a significant impact on the decision to travel (Darcy, 1998; 2002), and as discussed in the first section of this report, PwD generally experience lower levels of income. This reinforces the barriers such individuals face in taking a trip. By improving the employment opportunities for individuals with an impairment or disability, as discussed in the previous section, and in addition designing more inclusive tourist destinations, many of these obstacles can be overcome. Finally, as mentioned earlier, success in the tourism industry depends as much on addressing the most immediate issues as it does in addressing the entire tourism process. This means developing marketing strategies that advertise a destination as a place that provides amenities and activities that are inclusive. As demonstrated by the ROM, marketing played an integral role in ensuring tourists were aware of the ROM's newly inclusive and accessible plans and policies. Taking such actions into account, the assumptions of the impacts of AODA in this analysis are likely conservative and the true impacts of AODA on the tourism industry are likely larger than the estimates calculated in this section.

When it comes to accessibility and the tourism industry, Ontario lags behind many other jurisdictions in developed countries. The region of North East England (2010), for example, has developed an online tourism "toolkit" designed to help businesses adapt to the Disability and Discrimination Act (DDA). The DDA is similar to AODA and was enacted back in 1995. This web-based toolkit provides a number of resources to businesses to help them understand the Act and what parts of it are relevant to them. It also provides training resources and examples of what they can do, that is reasonable, to

Five year forecast of the economic impact of AODA on expenditures in the tourism industry: Three projections, number of tourists per year increases due to improved accessibility

Exhibit 21



Source: Ontario Ministry of Tourism, Historical Data, Visitor Spending, 1980–2007

enhance accessibility. The region also hosts the annual North East England Tourism for All Awards, which recognizes businesses that have demonstrated exemplary performance as an accessible tourist destination. Winners receive an award, recognition and media coverage from the event. In 2008, the gold winner of the Tourism for All Award was The Hytte, a hotel in Bingfield, Northumberland. In an interview, the owner of the hotel stated that as a result of making the adjustments to become an accessible location, their hotel's occupancy levels rose to 92.5%, up from 85% in the previous year. Another, broader example is that of the European Network for Accessible Tourism (ENAT), a not-for-profit organization aimed at spreading awareness of accessible tourism. By drawing upon the knowledge and experience of its members, ENAT seeks to identify models of excellence and improve the tourist experience of PwD.

Consumer retail

Under the new Accessible Customer Service Regulation which came into effect on January 1, 2008, retailers will be required to remove barriers that:

- Prevent PwD from receiving quality customer service; train employees on how to provide accessible service;
- Provide information on any service disruption that would prevent accessibility for PwD;
- Make information available about the accessibility features of their customer service practices; and
- Communicate with customers in a way that takes into consideration their disability (for example providing a publication in an alternative format, such as audio or large print).

Ontario has a recent example of improving access to retail: the beginning of Sunday shopping hours. While this was not done to enhance services for the disabled, it is an example of how increasing access to services and products can create new markets and generate profit. The idea of opening stores earlier on Sundays was originally dismissed as increasing costs without providing any significant benefits to retailers. An oft-repeated assumption was that the total retail sales were fixed and already at their maximum—being open on Sunday would not generate new sales; only spread the existing sales out more over the entire week. Similar concerns have been raised with regard to the impact of AODA standards on retail sales. In both cases, it is seen as a "zero sum" game: improving accessibility, whether through increased hours or physical access or customer service accommodations, will merely redistribute existing sales. However, improved access is not "zero sum". Being open on Sundays did not just create new opportunities to shop for *existing* customers—it created opportunities for *new* customers.

The title of a 2002 *Toronto Star* article on Sunday shopping read as follows: "Sunday shopping proves a hit; after a decade, Ontario retailing is transformed". The article marked the 10-year anniversary of the passing of the legislation that allowed retailers to open on Sundays. Much of the success experienced with Sunday shopping came from the greater accessibility and convenience it offered consumers, which was matched by changing demographics and a shifting economy. In explaining the success of Sunday shopping, the article points to the 10.7% increase in dual income households between 1980 and 1990, noting that the "stay-at-home, shop-during-the-week mom" had largely become a thing of the past. During the same period, the growth in overall wage earners represented a new group of potential customers, many of whom had greater purchasing power, due to rising income levels, and increasingly saw shopping as a recreational activity. As further proof of the influx of potential customers, the article mentions one Toronto retailer who chose not to open on Sunday, but whose telephone system logged 1,475 calls inquiring about store hours on a Sunday.

The same may be true for the impact of AODA on retail. Making retail settings more accessible and providing more accessible services and products may create more visits and higher sales. As the population ages and more individuals become disabled or live their lives with a disability, the demand for accessible retail outlets will grow. The changing consumer market allowed Ontario retailers to take advantage of Sunday shopping as an opportunity to increase sales. Ontario retailers may find that AODA standards are a necessary condition to serve a population who will actively demand accessible places, goods and services. The benefits to adopting AODA and ID approaches to providing accessible places, goods and services will only be recognized if the retail sector is ready to meet the demands of this emerging consumer market.

The purpose of the Accessible Customer Service Regulations is to raise the level of service above current practices, thereby improving the experience of all customers. We expect that better customer service will increase total sales in the consumer retail sector.[17] In 2008, this sector had total sales of $150 billion (C$). Our working assumption is that standards will have a positive effect on sales causing a gradual increase over the next five years.

[17] The consumer retail sector is composed of 19 sub-sectors including car dealers, furniture stores and department stores.

Scenario 3.1: Impact of AODA on retail sales in Ontario (Exhibit 22)

Projection 1: Low Impact
AODA was considered to add 2% to the normal projected increase in retail sales without AODA in five years. This is assumed to be the impact of AODA should the retail industry do the legal minimum to comply with its standards.

Projection 2: Medium Impact
A medium impact was considered to have a 3% total additional increase over the normal projected increase in retail sales without AODA in five years. This is assumed to be the impact of AODA should the retail industry comply with its standards and only partially adopt ID practices.

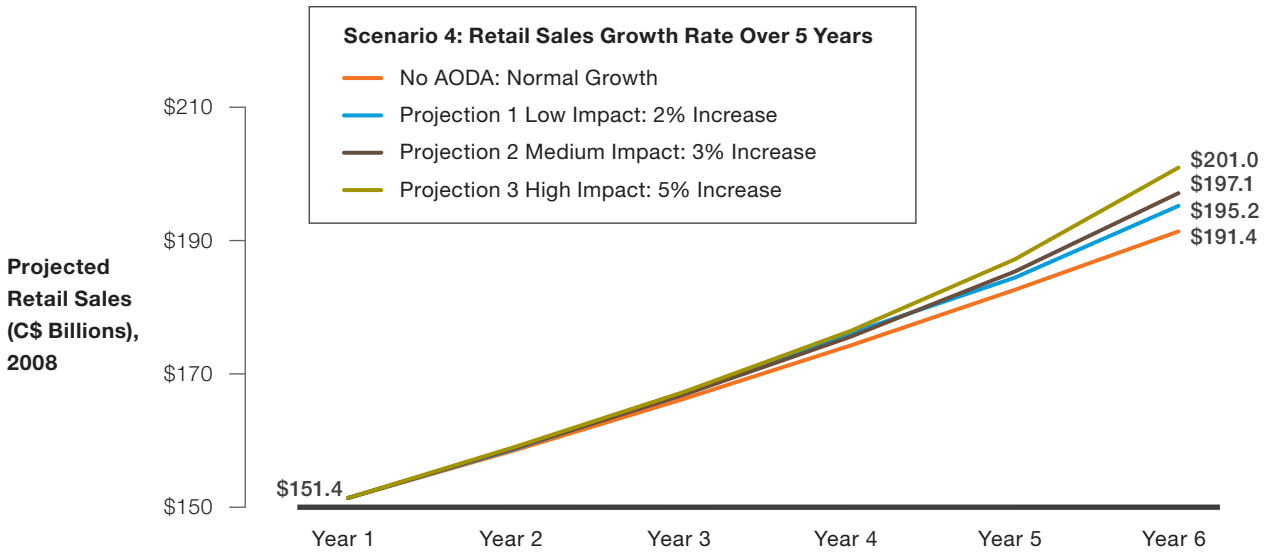
Projection 3: High Impact
A high impact was considered to have a 5% total additional increase over the projected normal increase in retail sales without AODA in five years. This is assumed to be the impact of AODA should all businesses comply with its standards and adopt ID in all their practices.

Using the average rate of growth in sales from 1992-2008, we project that without the AODA total sales in the retail industry will increase from $150 to $190 billion, a difference of $40 billion. However, we project that by complying with or exceeding AODA standards, Ontario could see a further additional increase in total sales of between $3.8 and $9.6 billion (**Exhibit 22**).

PORTER'S CLUSTER MODEL AND INCLUSIVE DESIGN IN ONTARIO

Michael Porter's model for cluster analysis (**Exhibit 23**; Porter, 1990; 2000) provides an excellent framework to identify regions in Ontario that could support the adoption of ID by industry. Porter's model of industrial clusters is a widely used framework for examining issues pertaining to economic and industry development. The concept of an industrial cluster refers to the concentration of related firms within a particular region due to the competitive advantages they incur such as cost savings and knowledge sharing. As an economic development tool, the model has been widely used to identify regions of interest for targeting economic development policy. The model has also been used by economic development practitioners and policy makers in their attempts to replicate the conditions that support cluster development within their regions in the hopes of establishing clusters of their own. The

Five year retail sales forecast of impact of AODA on sales — Exhibit 22



Source: Ontario Ministry of Tourism, Historical Data, Visitor Spending, 1980–2007

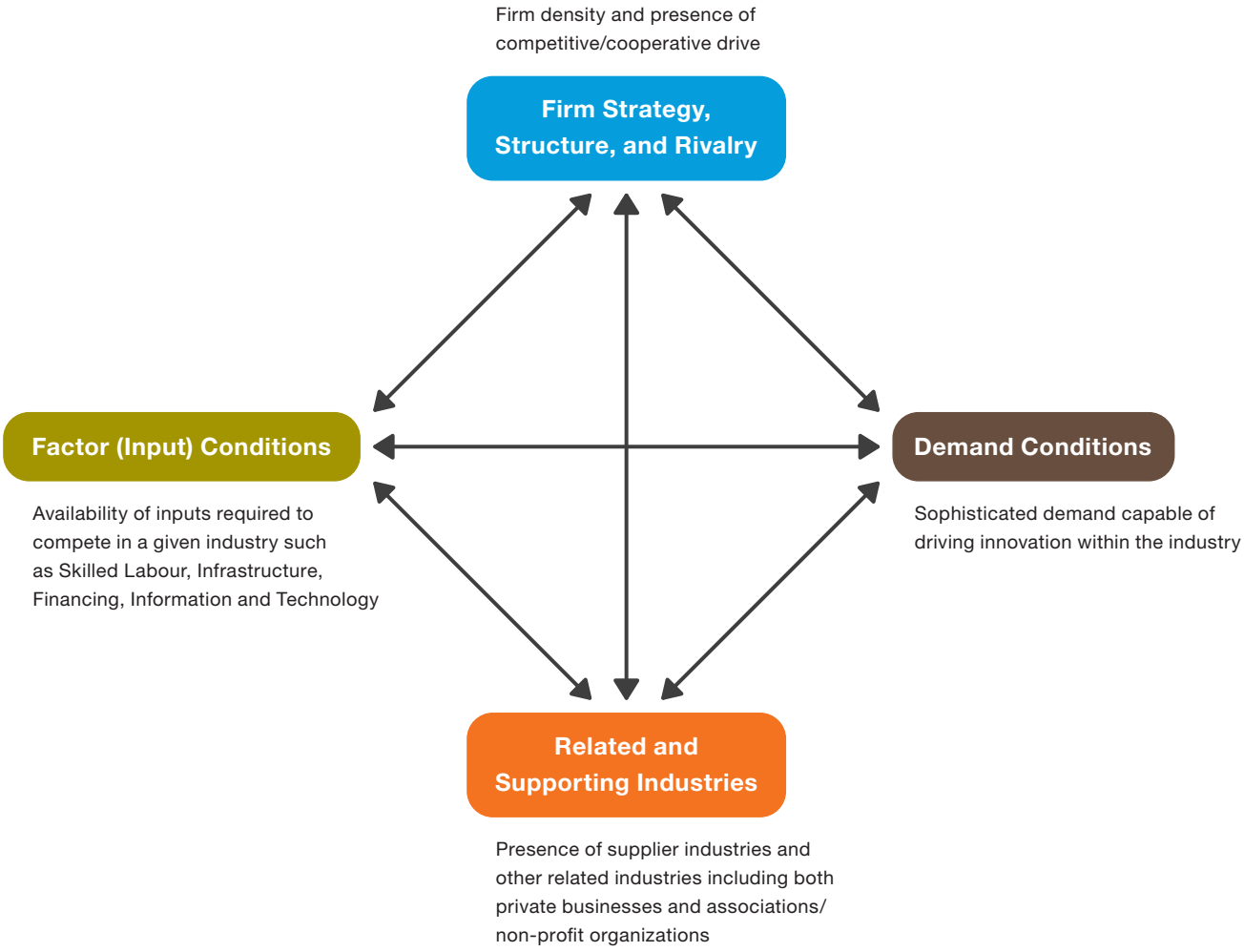
ideas expressed in the model have become particularly important in recent decades as people have become aware of the economic benefits that arise due to clustering, which include increased productivity and innovation.

Porter's research identifies four conditions that are important in both the emergence of clusters and later on promoting industry upgrading and innovation. The four conditions include: (1) the presence of a sufficient density of firms to create competitive conditions; (2) the availability of inputs such as skilled labour, financing, information and technology infrastructure, transportation etc.; (3) the existence of related and supporting industries, including post-secondary institutions and NGOs; and (4) a local demand for the products and services that is sophisticated and drives innovation in the industry. In our analysis we examine each of these conditions separately before considering how they work together to support the adoption of ID by industry in Ontario. By using Porter's model, we can begin to see which regions in Ontario already possess favourable conditions that are likely to support industry upgrading in adopting AODA's standards and incorporating an ID approach.

Firm strategy, structure and rivalry

Our analysis began by selecting existing industry clusters in Ontario from the 41 clustered industries across Canada identified

Porter's Diamond — Exhibit 23



Adapted from Michael Porter, The Competitive Advantage of Nations, Free Press. 1990

by the Institute for Competitiveness and Prosperity (2002). We chose existing clusters because the impacts of AODA and ID will come primarily through industry upgrading. It is within existing clusters that the impacts of AODA and ID will likely be seen first. Existing and established clusters were also chosen because they represent dense concentrations of firms that exist within strong networks of innovation and knowledge sharing, and possess established consumer markets. The identified clusters were chosen based on their potential ability to not only act on the AODA standards but also, given the nature of the products produced within the industry, the likelihood that an ID approach would have an early impact if adopted. The clusters chosen can be seen in **Exhibit 24**. By identifying such clusters, we were able to focus our analysis on the particular cities in which these clusters exist. The regions in our analysis included 11 Census Metropolitan Areas (CMAs, 2001): Ottawa-Gatineau, Kingston, Oshawa, Toronto, Hamilton, St. Catharines-Niagara, Kitchener, London, Windsor, Greater Sudbury and Thunder Bay.

The 11 regions in our analysis support 61 clusters, ranging across a variety of industries (**Exhibit 24**). The clusters in our analysis were identified in part using Location Quotients (LQs). Location Quotients are ratios that reflect the concentration of employment in a particular industry in a particular city, compared to the concentration of that same industry in a larger region. A location quotient with a value of 1 for an Ontario city in industry X would mean that the concentration of that industry in that city is about average. LQs with a value greater than 1 reflect an industry concentration in a particular region that is greater than the concentration of that same industry across the entire province. A LQ with a value less than 1 reflects a concentration of industry in a particular region that is less than the concentration of that industry in the province as a whole. For example, in **Exhibit 24**, the Medical Devices cluster in Hamilton has a location quotient of 1.25. That is to say that Hamilton has 25% more people engaged in the medical devices industry than is the norm for the province overall. Higher LQs mean greater concentrations. For example, in Exhibit 24, in Kitchener, the medical devices cluster has a LQ value of 2.55, representing a stronger concentration of related businesses in Kitchener than what was found in Hamilton. LQs are helpful in examining differences between places as they eliminate the impact of population size, which can distort flat out comparisons between two areas. Industries with LQ values of less than 0.8 were dropped from our analysis as they did not demonstrate a tendency towards clustering within a particular city. Clusters with location quotients greater than 2.0 are starred in **Exhibit 24** as rather strong concentrations of industry compared to the whole of Ontario. Appendix E provides a comprehensive list of all the clusters considered in our analysis for each of the 11 regions examined.

Factor input conditions — Labour market presence

LQs were also used to identify favourable occupational groupings in each of the regions. In this case, they were used to understand the concentrations of occupations in each region relative to the concentration of that occupation across the province as a whole. Using occupational definitions provided by Statistics Canada, we selected occupations likely to have an influence on industries and businesses seeking to develop inclusively designed goods and services. The occupations were then divided into three categories according to whether they were likely to have direct, indirect, or supporting influences on ID. A list of the occupations used in our analysis and the corresponding category in which they were located can be found in Appendix F. Occupations in the direct category reflect jobs that would be directly involved in the design and production of new, inclusively designed products for the market. Occupations in the indirect category include those with a secondary impact on new, inclusively designed products, predominantly through research. This category includes researchers and university professors in post-secondary institutions and individuals employed in hospitals and other medical fields. The third category of supporting occupations reflects jobs involved in the direct construction of goods and services where there is some room for input into design but mostly involves frontline production or provision. This category includes individuals employed primarily as carpenters and related trades, and machinists involved in the production of goods and services. While not involved in the primary design of many goods, these individuals can have an impact when retrofitting buildings and crafting prototype products. Creating such categories allowed us to include the influence of occupations in related and supporting industries in our analysis. We developed indexes for each of the categories to compare the concentrations of all the occupations in the regions selected.

Once the occupations were sorted according to the categories outlined above, we assigned a weight to each category in order to distinguish between different categories with the same location quotient. The purpose was to ensure that an occupation in the indirect or supporting category was not treated as having the same level of importance as an occupation with the

Industry clusters in Ontario by city-region

Exhibit 24

Industry Clusters in Ontario	Greater Sudbury	Thunder Bay	Kingston	Hamilton	Ottawa-Gatineau	Windsor	Oshawa	St. Catharines-Niagara	London	Toronto	Kitchener
Building Fixtures, Equipment and Services						0.89				1.49	1.57
Communications Equipment					5.28*		1.37		0.99	1.15	2.84*
Entertainment					1.08	3.06*				1.03	
Furniture							1.47				0.99
Hospitality and Tourism		1.06	0.94		0.80			2.72*		0.84	
Information Technology					2.85*					1.29	1.69
Lighting and Electrical Equipment				0.92			1.09	1.29	0.81	1.70	2.90*
Medical Devices		1.03	0.98	1.25	0.93	2.06*	0.85	0.92	0.84	1.29	2.55*
Motor Driven Products			0.85	2.00*		1.74	1.51	0.96	1.28		6.35*
Plastics									0.94	1.59	2.47*
Production Technology	0.84			1.50		3.54*		1.06	1.44	1.21	3.72*
Publishing and Printing							2.15*	0.86	0.86	1.57	0.91
Sporting, Recreational and Children's Goods									5.36*		4.39*
Total Clusters	**1**	**2**	**3**	**4**	**5**	**5**	**6**	**6**	**8**	**10**	**11**

Location Quotient (LQ) Based on National Industry Concentrations ≥0.8

Source: MPI Analysis using data from the Institute for Competitiveness and Prosperity

same location quotient in the direct category. Each occupation was then ranked according to its weighted location quotient value across all the cities in our analysis. This allowed us to observe the distribution of the occupations across the cities based on their location quotients and their level of concentration. These ranks were then summed in each of the categories for each city to generate a single value. This summed value represents the overall ranks of all occupations previously calculated. The lower this value was, the more often that particular city had a higher concentration of the different occupations for each of the categories. These values were then ranked and then weighted to differentiate between high ranks in each of the categories. The new values calculated were then summed to generate a single value for each city representing its overall concentration of all the occupations in each of the categories. This value allowed us to understand how each region compared across all regions in their concentration of occupations capable of supporting ID. **Exhibit 25** displays the overall rank that was calculated for each city and the rank calculated for each city in each of the three categories.

Related and supporting industries

The presence of pre-existing businesses and associations involved in addressing accessibility related issues will play an important part in upgrading within the clusters and incorporating an ID approach. Through a product "key word" search of Scott's Business Directory, 2009, we were able to identify businesses and associations in Ontario that are either involved in the production of accessible goods or have knowledge of accessibility related issues. Together the cities of Ottawa-Gatineau, Oshawa, Toronto, Kitchener, London and Hamilton possess 65% of all businesses in Ontario involved in the production and design of goods and services related to

Occupational rankings — Exhibit 25

Total ranking and rank within each occupational subcategory

CMA	Overall Occupation Ranking	Direct (Designers)	Indirect (Researchers)	Supporting (Construction)
HAMILTON	**1**	3	2	4
OSHAWA	**2**	4	6	1
TORONTO	**3**	2	8	5
KITCHENER	**4**	5	10	3
LONDON	**5**	7	1	6
KINGSTON	**6**	6	4	8
OTTAWA-GATINEAU	**7**	1	11	10
WINDSOR	**8**	8	9	7
ST. CATHARINES-NIAGARA	**9**	9	6	2
THUNDER BAY	**10**	10	3	9
GREATER SUDBURY	**11**	11	5	11

Source: MPI Analysis using Statistics Canada North American Occupational Classification System Data, 2006

accessibility and ergonomics, and 30% of all associations dealing with accessibility related issues (**Exhibit 26**). While these businesses and associations may not be involved in the production of inclusively designed goods themselves, they possess knowledge of accessibility related products and issues that may be of assistance to other industries, firms and entrepreneurs seeking to adopt an ID approach. Each city also has access to universities within their region, granting them access to a number of researchers with global connections and a pool of educated workers. The mix of knowledge and expertise that exists within these different groups establishes a potentially strong knowledge base that can help to stimulate new product innovation related to ID.

The combined impact of these different conditions within the city-regions of Hamilton, Toronto, Ottawa-Gatineau, London, Oshawa and Kitchener sets the stage for the successful adoption of AODA's standards and the development of inclusively designed products and services. Each of these conditions were treated on their own in our analysis and together each contribute in their own way to the potential industries have in successfully adopting AODA's standards and the principles of ID.

In observing the data we find that the metropolitan regions of Hamilton, Toronto, Ottawa-Gatineau, London, Oshawa and Kitchener tend to fall within the top ranked regions for each of our analyses of Porter's Diamond model (**Exhibit 27**). In addition to possessing established industry clusters, each of these regions possess favourable concentrations of occupations capable of supporting AODA and the adoption of ID by industry. In addition to this, each of these regions, with the exception of Oshawa, possess concentrations of existing private businesses

Private businesses and associations involved in either the production or promotion of products and issues related to accessibility

Exhibit 26

CMA	Private Specialty Businesses	Accessibility and Disability Associations
HAMILTON	12	12
KINGSTON	4	4
KITCHENER	13	6
LONDON	6	10
OSHAWA	1	3
OTTAWA-GATINEAU	11	26
GREATER SUDBURY	2	11
ST. CATHARINES-NIAGARA	3	6
TORONTO	77	55
THUNDER BAY	0	7
WINDSOR	2	7
ONTARIO	**168**	**261**

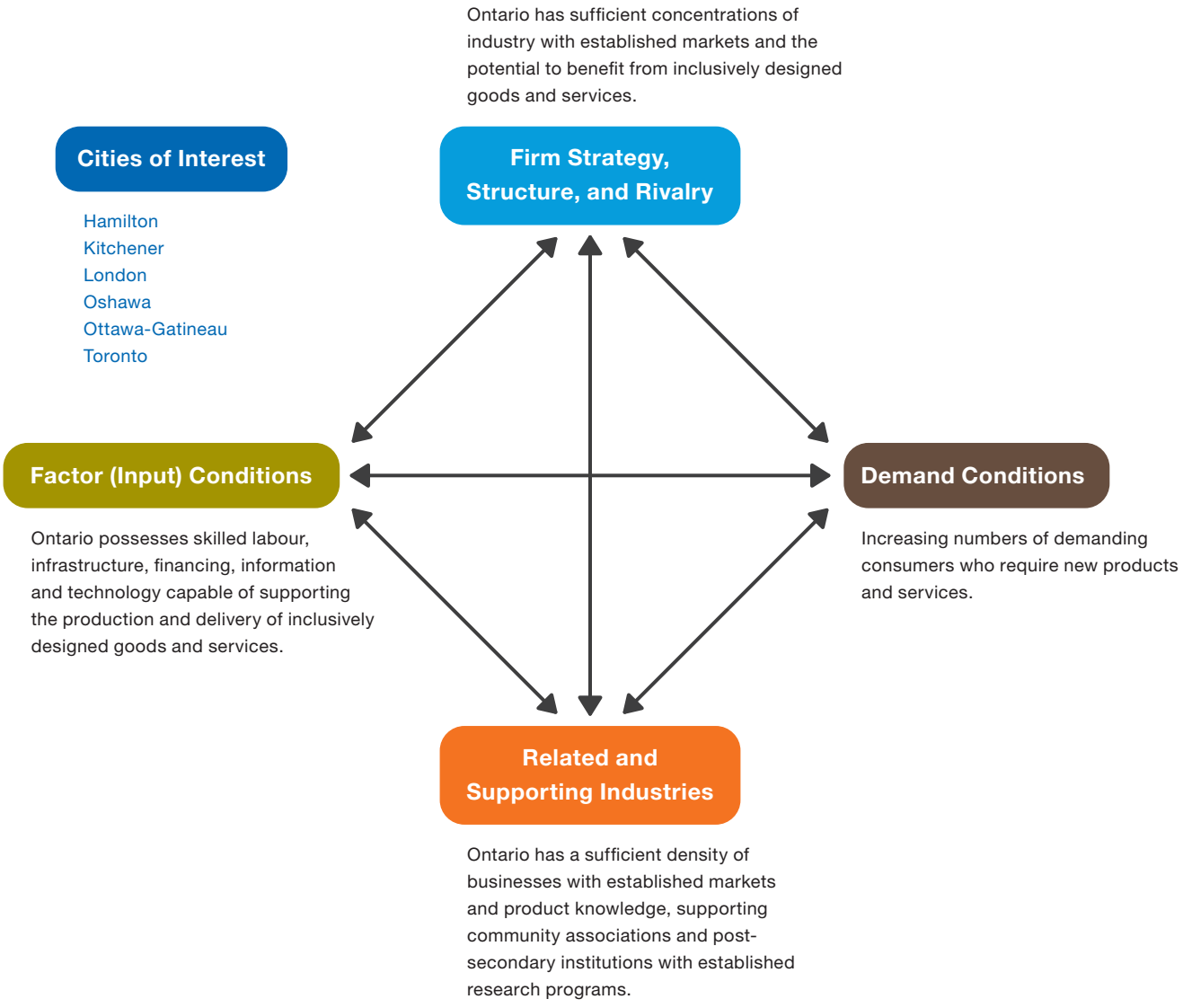
Source: MPI Analysis using Scott's Business Directory, 2009, Accessed Online (October 2009)

and associations that possess an existing knowledge of products and issues that PwD face. Oshawa was included in our analysis, despite the lack of private businesses and associations located there, due to, in part, its proximity to Toronto, which has the largest number of private businesses and associations, and its favourable concentration of occupations.

The presence of private businesses and associations in the same regions as where the clusters were identified contributes to the existing knowledge base regarding products and services required by individuals with accessibility challenges. Such local knowledge has the potential to act as a catalyst, launching new ventures in ID. Each of these three conditions found in Porter's model, combined with growing demand from Canada's population, suggests the conditions are present for success in these regions. Together, this creates a critical mass within these regions, allowing them to adopt new practices in ID and prepare to better meet the needs of all Canadians.

Porter's Diamond: Summary of results

Exhibit 27



MPI Analysis adapted from Michael Porter, The Competitive Advantage of Nations, Free Press. 1990.

Ontario lags behind many other developed countries when it comes to preparing its workforce, industry and policy sectors for the importance of accessibility and ID in the future. Other developed countries have already begun to take steps to train future workers, industry leaders and policy makers through post-secondary training and industry regulation.

Education

Education of the next generation plays an important role in fostering the kind of change that will result in both the immediate and long-term success of AODA and ID. In the United Kingdom and in Japan, post-secondary institutions have already begun to prepare the next generation of industry professionals and policy leaders to think inclusively. In both countries, ID has been addressed strategically by not limiting ID to design schools alone but implementing it in a broad range of curriculums, representing future policy makers, technologists and bureaucrats (MacDonald, 2006b.).

In the United Kingdom, a joint course has been developed between the Glasgow School of Art and the University of Glasgow, which offers a design-centered engineering program at the undergraduate level. The program is called the Glasgow Product Design Engineering course. Such a program helps to inform future engineers about, and reinforce the importance of, ID as an important component of their work. Through the program students gain an understanding of how ID impacts their final products and are encouraged to embody ID principles and ideals when providing solutions to products that could substantially improve the quality of a person's life (MacDonald, 2006b). The program has grown and is now embedded within the departments and attracts students interested in medical, welfare, rehabilitation and assistive product areas (MacDonald, 2006b).

In Japan, at the Ritsumeikan University in Kyoto, a different approach has been taken to implementing ID into the post-secondary educational curriculum. The school offers an ID course to a wide range of disciplines. While in the U.K. example, students learn to understand the range of disabilities individuals experience and how to incorporate that into the design of a product; in Japan students are taught to think critically about the social and built environment, and how such thinking can lead to the improvement of solutions to service-based, policy-based or product-based problems (MacDonald, 2006b). Both approaches have benefits and are important to furthering ID. MacDonald (2006b) suggests that while the results of the approach in Japan will be harder to quantify, it is likely to produce a generation of business leaders and policy makers that are informed and aware of the benefits of ID and the needs of PwD.

Industry

A number of steps have already been implemented by industry and other jurisdictions in other countries to aid in the adoption of ID and prepare for the demands of an aging population. In Japan, the adoption of inclusive or universal design has been assisted by the recent establishment (2003) of the Interna-tional Association for Universal Design (IAUD) and as of October 26, 2009, the Association had 131 full members, 16 associate members and 65 supporting members (IAUD, 2009). In describing their purpose and mandate the IAUD makes the following statement on their home page:

> *"We are an organization which inherits the spirit and the results of the 'International Conference for Universal Design in Japan 2002'. We seek for further progress and to make a comfortable living environment, and to lead Japan in disseminating information to the world. Through the products and services, we promote the establishment of the foundation of a society in which more people will feel comfortable to live"*
>
> — IAUD, 26 October 2009

In his research on Japanese companies and their responses to ID, MacDonald (2006a) found that they increasingly acknowledge the wider social context in which their businesses exist and have a greater concern for the production of goods for wider groups of users. He also suggests that the success of inclusive or universal design in Japan has been a result of: a) a business climate that promotes the sharing of findings across industries, and b) the use of sophisticated corporate policies that raise IAUD member awareness of ID, the availability of tools and methods, and universal standards. The Japanese Industrial Standards committee (JIS) introduced a new standard, JIS X 8341, to promote universal design in the information products and services field (MacDonald, 2006a). JIS X 8341 provides a set of guidelines aimed to "assure and improve information accessibility for older persons and PwD so they can easily use information and communications equipment, software and services" (Iizuka, 2004). This standard recognized and extended the industry's growing interest in ID principles and policies.

The guidelines laid out in JIS 8341 consist of three hierarchies: "Basic Standards", "Sector Guidelines", and "Industry Group Standards" (Iizuka, 2004). The Basic Standards are intended for individuals who look to the

JIS standards to create Universal Design Standards. Sector Guidelines are used to inform the production and use of information processing equipment and services in general, such as cell phones, personal computers and software. The final group in the hierarchy, Industry Group Standards, outlines what must be considered when planning, developing and designing a product for the elderly and those with a disability. The use of standards has encouraged Japanese industry to adopt ID practices. There are opportunities for Ontario to learn from the experiences of Japan as it seeks to use AODA to promote both accessibility and innovative, ID.

Creating an environment in Ontario that is conducive to stimulating industry advancement in the production of inclusively designed goods and services has the potential to provide the province with a competitive advantage over other similar jurisdictions and countries. Establishing such an advantage is important if Ontario wishes to continue to compete with other advanced jurisdictions around the world that are already well underway in making ID a corner stone of their industries and larger economies. In addition to Ontario's manufacturing industries, a competitive advantage could also be established in the tourism or retail industry, making the province an attractive location not only to conduct business but also to visit and live. The sooner such an environment can be created, the stronger and more deeply entrenched this competitive advantage will become in Ontario, providing a lasting advantage over other regions.

Ontario provides a suitable environment in which the potential impacts of ID could have significant ramifications for the future of Ontario's economy. The city regions identified in our research (Toronto, Kitchener, London, Oshawa, Ottawa-Gatineau and Hamilton) already possess local conditions that could support the adoption of ID by industry. The innovative spirit that exists across Ontario, in addition to the existing resources found in the regions of each of these cities, has the potential to drive the success of AODA and ID. Ontario's history of driving innovation and being an industry leader also provides added support to the success AODA could bring. By looking to the success of other jurisdictions in adopting ID, such as through new post-secondary educational programs and industry standards, and by recognizing industry weaknesses, such as in ensuring proper communication between manufacturers, retail and design, Ontario has the potential to become a leading jurisdiction in addressing the issues of those with a disability and the elderly. The importance of such changes is becoming increasingly relevant as the Canadian population ages and the population of PwD grows.

ONTARIO MARKETS—A SUMMARY

There is potential for businesses in all sectors of Ontario's economy to benefit and grow from adopting the standards set by AODA, helping to better meet the needs of all Ontarians. As AODA is phased in, businesses will have the opportunity to re-assess their current practices and, in response, develop new products, services and environments that are inclusive of as wide a user group as possible. We have highlighted a number of regions in Ontario that already possess favourable local conditions that could support businesses as they develop new products and services with attention to ID. Tourism and retail are examples of two sectors that should see increased revenue as a result of AODA. We estimate that the implementation of AODA could stimulate between $400 million and $1.5 billion in new spending on trips over the next five years. Similarly, we estimate that the implementation of AODA could generate increases in retail sales ranging from $3.8-$9.6 billion over the next 5 years, a significant change in an industry that in 2008 was a $150 billion segment of Ontario's economy.

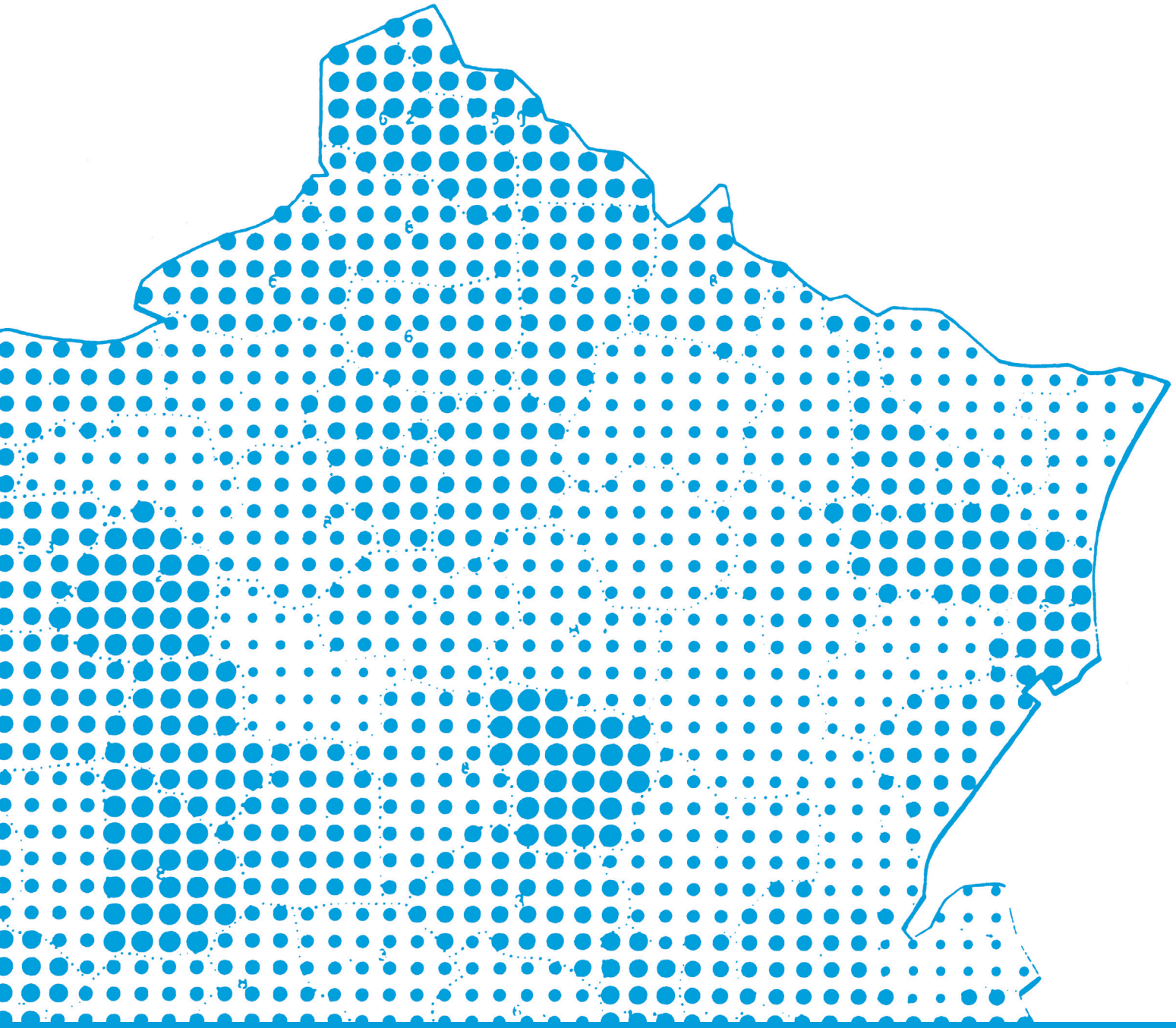
All sectors of Ontario's economy will see the impact of AODA; however, the most significant effect may come from an ID focus in Ontario. ID indicates that there are various ways that all businesses can improve their performance. By improving the design of the places and products businesses use, ID can increase productivity. With higher rates of productivity, individuals and businesses can turn their creative abilities towards generating the products and services of needed now and in the future. This could make Ontario a pioneering jurisdiction. This is important for Ontario's long-term economic sustainability. As the population of PwD and those aging grows in size, the combined purchasing power of these individuals will be approximately $2 trillion. Businesses cannot afford to ignore the needs and wants of this growing group of individuals. Access and true participation of individuals with an impairment or disability requires Ontario to commit to developing products, services and places that are inclusive across a wide range of abilities.

The successful implementation of AODA standards can help Ontario's tourism and retail sectors respond to changing demographic conditions in the province over the next 20 years. These shifts will require Ontario businesses to understand and meet a higher set of demands from a new set of customers. Over the next five years, the impact of AODA on Ontario's economy could result in an increase in revenues for retail and tourism establishments in the range of $3.9 billion to

$11.1 billion *per annum*.[18] The growth in income for this group presents a large segment of potential consumer market that is currently targeted by few businesses. Addressing the needs of these consumers will likely result in a further increase to the impacts outlined for Ontario's economy.

In addition to the impact of AODA on individual consumers and consumer markets on the Ontario economy, additional benefit could also be gained through the adoption of AODA's standards and ID practices by industry. The success of establishing new markets for industry in Ontario based on ID has the potential to significantly contribute to the overall impact of AODA on Ontario's economy. It is difficult to estimate the potential size of an ID market for industry and its impact on Ontario's economy due to the global reach of such potential markets and products and the range of products that would need to be included in such a task. Despite this, our results have shown that an industry framework does exist in Ontario that would support the adoption of ID practices and its success. While the research of AODA's potential market impact on Ontario is preliminary, the estimates drawn in this section suggest that the province is well positioned to benefit from the adoption of AODA and ID practices. However, the success of AODA and ID rests on how well such programs are supported and how industry is encouraged to adopt new practices and develop new markets.

[18] These numbers are likely to be underestimated due to two conservative estimates: (1) the low estimates for change in demand, and (2) the assumption that total income for the population of disabled and elderly consumers does not change over the five year projections.



Section 3: Social costs and benefits of AODA

Exclusion from the full array of social life costs not only the individual who is excluded but also the society to which that individual belongs. Furthermore, the exclusion of one individual leads to income loss and extra costs borne throughout the personal and extended social networks of the individual. Poverty, lack of education, reliance on social programs and exclusion from the fabric of society hurts society as a whole. In the preceding sections, it has been shown that PwD are over-represented in unemployment rates, low academic achievement and reliance on income support. Moreover, barriers to participation in labour and education have been shown to have a negative impact on the income earning capacity of family members. The financial incentive underlying AODA commitment to creating and accessible Ontario is clear: exclusion has cumulative and exponential effects that incur a significant financial cost to society. An inclusive Ontario will both create benefits to Ontario's families and communities and reduce their costs.

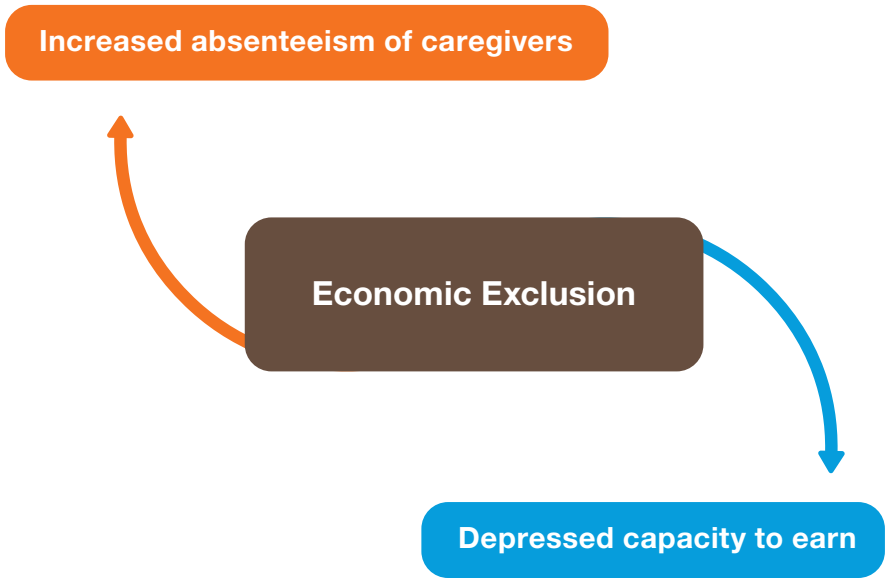
THE PRICE TAG OF EXCLUSION

Exclusion of individuals from the opportunities, freedoms, networks, events and resources of the society in which they live has a negative impact on that society and its economic prosperity. Exclusion erodes the well-being of one of the smallest societal units: the family. This erosion in turn produces costs to the community through unemployment, illiteracy and reliance on social support programs while, at the same time, preventing the community from benefitting from contributions from the excluded individuals. The negative effects of exclusion reverberate throughout an individual's personal network, particularly caregivers, spouses and children but also the social systems that rely on these connected individuals. Exclusion also holds the price tag of unrealized innovation and social capital for groups and communities. This section examines the social impact of exclusion of PwD.

Cost to the family

In Canadian society, a key marker of social wellbeing is employment and command over goods and services. The Organisation for Economic Co-operative Development (OECD) groups social indicators under four broad policy categories; self-sufficiency is one of these categories because "Self-sufficiency is an underlying objective of social policy... Self-sufficiency is promoted by ensuring active social and economic participation by people, and their autonomy in activities of daily life" (OECD, 2009). Self-sufficient individuals need not draw on the resources of their personal or social networks and, at the same time, they have the capacity to build the resource of these networks. For the individual who cannot be self-sufficient, the family can incur great cost; the risks for that family are living at or below poverty levels and loss of wages to provide assistance and care.

Economic exclusion — Exhibit 28



Poverty and disability

"Statistics Canada 2002 indicates that among PwD the employment rate is 41% for men and 32% for women. As a result, many people live on government disability pensions. In Canada a disability pension rate is similar to the poverty level. Poverty is thus very common among adults with disabilities." (Lord & Hutchison, 2007, 22). The unemployment and under-employment of PwD leaves individuals with no choice but to rely on low-income subsidies. Based on 1996 Canadian Census statistics, PwD are 50% more likely to live at or below the poverty level than Pw/oD (Lee, 2000). In summary, PwD are disproportionately and persistently represented in the lowest income groups in Canada.

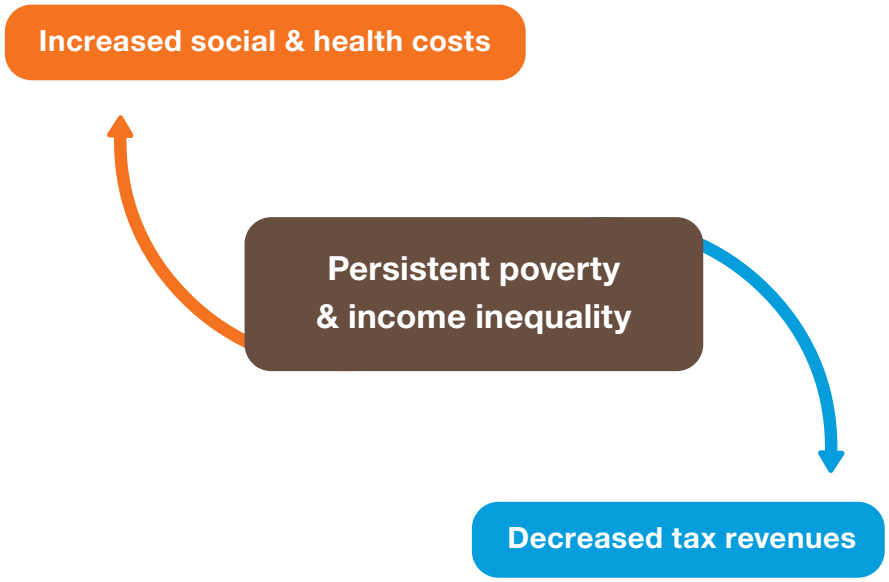
Giving up income: persons with disabilities and their family caregivers

PwD who are not able to participate in the activities, services and prosperity open to their peers without disabilities often rely upon a family member to provide care and assistance. When the person with a disability is unemployed and relying on family assistance, then both the individual and the caregiver experience income loss. Thus, exclusion due to disability creates a double blow to the economic prosperity of the Province through reduced taxes, greater need for social assistance, and reduced ability to participate in the economic exchange for not only the excluded individual but also the caregiver. Where the person with disabilities is a minor and in need of family assistance, perhaps due to barriers at childcare centres, then the caregiver experiences income loss. Indeed, the 2006 PALS report showed that "The parents of 3 out of 5 children who had some form of activity limitation in 2006 reported that their employment was affected by their child's condition. More than one-third of parents reported that they worked fewer hours, while another third indicated they had adjusted their work hours," (The Daily, 2008).[19] Furthermore, "Almost 1 in 4 parents (24.6%) received help in balancing daily activities with their child's activity limitation. Of the families who received assistance, well over half (56.5%) received help from family members living outside of the family home" (The Daily, 2008). As a result, the income in households with children with disabilities in Canada is almost $9,000 lower than the average. This results in an additional loss of approximately $4.8B for families with a member with disabilities in Ontario. While the family is a natural resource for care in our society, this resource is too heavily relied upon to mitigate the problems created by barriers to employment, education and services.

Cost to the community

Exclusion is a complex problem with far reaching consequences whose social and economic cost are difficult to track. However, we know that the costs related to poverty and low income, which in the case of PwD may be

Persistent poverty and income inequality — Exhibit 29



[19] This was 60% of 155,000 children w/disabilities in Canada in 2001: http://www.statcan.gc.ca/pub/89-585-x/pdf/4228545-eng.pdf

the direct result of social and economic exclusion, can quickly add up. In their ¨Poverty Costs Everyone¨ postcard (available at http://www.ncwcnbes.net/documents/home/postcards.pdf), the National Council of Welfare provides the following estimates:

- Higher rates of homicides, health problems and social ills are linked to greater income inequality. Death rates for working-age men tend to be lower where there is less income inequality. (Richard Wilkinson, The Impact of Inequality: How to make sick societies healthier)
- Poverty-induced costs related to health care have an estimated annual public cost in Canada of $7.6 billion. (Ontario Association of Food Banks. The Cost of Poverty: An analysis of the economic cost of poverty in Ontario)
- The external costs of poverty—costs to members of society who themselves are not living in poverty—include health care, education, criminal justice, social support and income support. In Calgary, these costs are $8.25–$56.8 million annually. (Shiell and Zhang, 2004)
- Poverty costs federal and provincial governments up to $13 billion a year in lost income tax revenue due to lost productivity. (Laurie, 2008)

Exclusion also costs the community in other aspects of human endeavour: creativity, volunteerism, government, education and commerce are all affected. Thus, it would be impossible to quantify in dollars the loss in social capital to Ontario society, due to exclusion of PwD. While costs to carry social programs are more readily quantified arguments for inclusion, the loss of the economic, creative, intellectual and social contributions of PwD, who face barriers in their day-to-day activities, must not be overlooked or underestimated.

a. The cost of unemployment:
   Other costs of unemployment come in the form of lost taxes, costs of alternative benefits and social assistance, lost participation in the economy, costs related to poverty, etc. These related costs are discussed more extensively in the "Poverty and Disability" and "The cost of social programs" sections.

b. The cost of under-education:
   At a glance, the education profile of persons with disabilities compared to Pw/oD shown in **Exhibit 9** is similar; however, further scrutiny reveals that PwD lead Pw/oD only in the categories for no certificate or degree and for apprenticeship/trades certificate or diploma. PwD lag behind their peers without disabilities in virtually every other level of educational attainment.

The under-education of PwD due to barriers and inadequate accommodation places an even greater economic burden on Ontario society. The estimated costs to Canadian society for dropouts, shown in **Exhibit 30**, are enormous: billions annually.

While educational non-completion occurs for a variety of reasons, reducing barriers to education for PwD so that more individuals are able to exercise their academic potential will reduce the associated costs.

We know that at least 18% of Pw/oD and 27% of PwD have greater than high school education. Given that the population of PwD is 14.3% of the overall population, we estimate that a 50% reduction in the difference between the two populations' rate of high school leaving could result in a minimum reduction of these costs of $2.65 billion per year.

The cost of social programs

The average other government income (other government income includes provincial income supplements and grants, GST/QST/HST credit, provincial tax credits, workers' compensation, veterans' pensions, and welfare payments for taxation years, 2000 (2001) and 2005 (2006)) for PwD for 2006 exceeds that of Pw/oD by nearly $2000. Better access to employment and education for PwD could mean a reduction in reliance by PwD on these important social programs.

THE VICIOUS CYCLE OF EXCLUSION OR THE VIRTUOUS CYCLE OF INCLUSION

Exclusion from the full array of social life costs not only the individual who is excluded but also the society to which that individual belongs. Furthermore, the costs multiply or cascade for the individual, their family and their community. Lack of access to education leads to lack of access to employment which in turn increases the incidence of poverty, ill health and depression. Exclusion of one individual leads to extra costs borne by the personal and extended social networks of that individual. In the preceding sections, it has been shown that PwD are more likely to face unemployment, low academic achievement and dependence on income support. Moreover, the effects of barriers to participation in labour and education have been shown to have a negative impact on the income earning capacity of family members. While the moral obligation to remove barriers to full participation in society should be enough, the financial incentive is clear: exclusion has cumulative effects

Tangible costs of high school non-completion in Canada (C$), 2008

Exhibit 30

	Estimated Cost per Dropout		Aggregated Total in Canada	
Tangible Costs	ANNUAL	LIFETIME	ANNUAL	LIFETIME
HEALTH (PRIVATE)*	$8,098	$211,471**	$23.8 billion	$623 billion**
SOCIAL ASSISTANCE (PUBLIC)	$4,230		$969 million	
CRIME (PUBLIC)	$224		$350 million	
LABOUR AND EMPLOYMENT				
EARNING LOSS (PRIVATE)	$3,491	$104,222***	$10.3 billion	$307 billion***
TAX REVENUE LOSS (PUBLIC)	$226	$6,882	$378 million	$11.5 billion
REVENUE LOSS IN EMPLOYMENT INSURANCE PREMIUM (PUBLIC)	$68	$2,063	$201 million	$6.1 billion
EMPLOYMENT INSURANCE COST (PUBLIC)	$2,767		$1.1 billion	

* Data on public costs are not available

** "Lifetime" costs related to health reflect costs over a span of 35 years

*** "Lifetime" costs related to income reflect earning loss over a 35-year span (assuming lifetime earnings start from age 20 through 54)

Table reproduced from: Olena Hankivsky (2008) Cost Estimates of Dropping Out of High School in Canada. A Report Prepared for the Canadian Council on Learning. Retrieved on June 8, 2010, from http://www.ccl-cca.ca//pdfs/OtherReports/CostofdroppingoutHankivskyFinalReport.pdf

that have a significant financial cost to society. Inclusion and full access to participation has the opposite cascading and cumulative effect. Access to education leads to access to employment leads to greater earning power and contribution to tax revenue. This virtuous cycle also has an impact on the individual, the family and the community they belong to.

The benefits of a diversity of perspectives in organizations and their leadership

The inclusion committed to by AODA will enable greater participation by PwD in the complex and rich array of civic, social, educational, recreational, commercial, and employment-related activities that make up Ontario society. These groups and activities may include impromptu neighbourhood committees, board meetings, political events, lifelong learning opportunities, and employment opportunities across all sectors. PwD have been excluded or have not had the opportunity to participate fully in these activities or decision-making and planning opportunities. Consequently, a broad array of perspectives have not been represented and decision-making and planning activities have been largely devoid of this input. Ontario has not capitalized on the wealth of diversity available in this province.

Researchers such as Scott Page and Cass Sunstein have shown the significant and far-reaching benefits of this diversity of perspectives for a society. Page shows the significant positive impact of diverse perspectives on problem solving, decision-making and prediction (Page, 2008). Including diverse perspectives leads to better decision making, planning, prediction and problem solving. The greater the diversity of perspectives the more likely innovative ideas will be generated. Page provides proofs through computational experiments as well as formal theorems that the power of diversity creates better groups, firms, schools and societies. He backs up these logical theories with empirical evidence. Among his conclusions is that a diversity of perspectives results in faster growing and more productive cities and countries.

Sunstein (2006) and Page both conclude that for communities, social systems, teams or organizations, diversity leads to better decisions, more effective problem solving, greater creativity and innovation, better prediction, and in the long term, resilience to external challenges, less brittle social systems and thereby increased viability.

It must be recognized that there is a broad diversity of perspectives among PwD. The population of PwD is less homogenous than the population of Pw/oD with respect to abilities and perspectives. Consequently, by creating the conditions such that PwD can be included and fully participate in decision-making, problem solving and planning, Ontario's diversity quotient (Page, 2008) will be increased significantly.

The advantages of increased diversity extend to leadership. The Maytree report on the benefits of diverse leadership to Canadian communities lists five of the most important benefits of diverse leadership as:

- improved financial and organizational performance;
- increased capacity to link with new global and domestic markets;
- expanded access to global and domestic talent pools;
- enhanced innovation and creativity; and
- strengthened social cohesion and social capital."[20]

Given this broad diversity of perspectives among PwD, the full benefit of inclusion is not achieved by including one or more representatives of the very heterogeneous group of PwD. The perspectives are also not captured by traditional classificatory groupings of PwD such as blind, deaf, mobility impaired, etc. The diversity advantage is not achieved by representational participation by token individuals representing groups of PwD. The full benefit of these diverse perspectives is only realized when barriers to participation due to disabilities are removed and PwD can individually participate in a level playing field and the rich wealth of insights, knowledge, values and perspectives can be contributed equally. The goals of AODA commit to this level playing field.

Inclusive societies are healthier

As previously shown in the section on Employment Income, there is a significant income gap in Ontario between PwD and Pw/oD. The economic burden of this income gap is typically further amplified by the additional cost of special equipment, services and adaptations that PwD must often pay for privately in order to secure their competitiveness in the job market. AODA has committed to help mitigate many of these burdens by creating the conditions needed to create level access to the job market and therefore bring the salaries of persons with disabilities to competitive standards. In this context, the cost to PwD and their families of failing to implement AODA would be significant and unequivocal, but as recent studies on the social impact of economic disparities suggest, the consequences of such failure would ultimately affect all Ontarians (Kerry et al., 2009).

Through an exhaustive international comparison of economic and social indicators (Wilkinson & Pickett, 2009), Kate Pickett,

[20] http://maytree.com/PDF_Files/DiverseCityReportNov2008.pdf

Other government income (not EI, CPP or CTB) for Canadians & Ontarians aged 15 and over

Exhibit 31

	2001			2006		
Income Group	TOTAL	WITHOUT DISABILITY	WITH DISABILITY	TOTAL	WITHOUT DISABILITY	WITH DISABILITY
CANADA						
LESS THAN $330	3,187,300	2,772,300	415,000	2,030,560	1,709,990	320,570
$330 TO $549	2,981,670	2,485,140	496,530	2,455,140	1,983,880	471,260
$550 TO $939	2,557,160	2,064,830	492,340	2,435,880	1,836,780	599,100
$940 OR MORE	2,852,760	1,943,540	909,220	2,362,140	1,474,450	887,680
AVERAGE INCOME	$1,619	$1,293	$2,925	$1,832	$1,397	$3,171
MEDIAN INCOME	$518	$480	$685	$573	$549	$783
ONTARIO						
LESS THAN $330	1,039,470	882,630	156,840	994,650	840,240	154,410
$330 TO $549	1,079,960	881,800	198,160	916,270	766,010	150,270
$550 TO $939	712,420	545,070	167,350	789,840	551,790	238,040
$940 OR MORE	904,590	535,700	368,900	959,780	547,540	412,240
AVERAGE INCOME	$1,724	$1,290	$3,110	$1,818	$1,272	$3,368
MEDIAN INCOME	$453	$359	$685	$549	$548	$837

Better access to employment and education for PwDs could mean a reduction in reliance by PwDs on these important social programs.

Source: Statistics Canada, Participation and Activity Limitation Survey, 2006

Senior Lecturer in Epidemiology at the University of York and Richard Wilkinson, Professor Emeritus at the University of Nottingham Medical School, have compiled overwhelming evidence (Kerry et al., 2009) demonstrating that increases in the incidence of many health and social problems (and therefore the public cost associated to their solution) are consistently and strongly correlated with wider income gaps.

Wilkinson and Pickett's study compared the income gap between the top and bottom quintiles of 23 rich countries (including Canada) with 10 indexes representing the incidence of a variety of health and social problems such as mental illness, infant mortality rate, obesity and homicide rate. The researchers found that, regardless of their GDP levels, countries in which the income gaps are wide consistently perform significantly worse in all indexes than countries with small income gaps. These results are particularly relevant to our analysis of the social impact of AODA since the indexes analyzed concern the entire population, not just the lower quintiles, minorities or risk groups. Moreover, as introduced in Section 1, almost 50% of PwD are in the lowest income quintile. Thus, by creating a more equitable context for access to income-generating activities, it is expected that AODA will contribute to the mitigation of current income gaps between PwD and Pw/oD, and thus help ensure the prosperity and well-being of all Ontarians.

Inclusive societies are more innovative

Wilkinson and Pickett also refer to a variety of studies that have found weak but statistically significant correlations relating smaller income gaps with higher rates of patents filed per individual.

The theory that inclusive communities are more innovative has been consistently supported by research in human relations for a few decades. Kelley and Thibaut (1954), Campbell (1960), Hoffman and Maier (1961) and Triandis (1965) have all confirmed that heterogeneous groups that apply a wide variety of attitudes and perspectives to the solution of specific problems are more creative than homogeneous ones. A more recent analysis is provided in the context of free market competition by Don Tapscott and Anthony D. Williams.

In their book "Wikinomics", Tapscott and Williams use case study data on emerging business models to uncover the innovative power of inclusive business practices. They conclude that, in a global information-based era, where worldwide expertise is available through digital technologies, openness and public access to corporate resources have the potential to provide significant competitive advantages to those who foster inclusive environments where communities with common interests can collaborate in solving the most challenging problems. In this context, access to information and opportunities for collaboration are key to fostering the highly diverse communities required to develop the most innovative solutions. Tapscott and Williams's argument reflects Page's theoretical analyses and provides further empirical proof that promoting diversity in a community results in an increased capacity for innovation.

It is important to note, however, that this potential for creativity can be best exploited when the communication and contextual barriers that could otherwise prevent the exchange of ideas in a diverse community are sufficiently mitigated (Triandis, 1965). A pivotal role of AODA is to remove some of the barriers that currently prevent PwD from engaging fully in every aspect of human activity and thus enable public and private organizations to take advantage of the highly diverse perspectives, abilities, and expertise that PwD can bring to their organizations in order to enhance their innovative capacity.

This can be seen at work in development teams that engage members of the group of end users in the design and development process as attested to by IBM and other software development companies. PwD supply concrete challenges that spark creativity in design as well as bring experience in divergent and resourceful thinking.

The curb-cut effect: The exponential nature of the unexpected benefits of inclusion

The previous sections summarize some of the expected health and social benefits of enabling the full participation of PwD. However, as is typically the case, the implementation of AODA, will also likely result in a wide range of unexpected but substantial advantages for every Ontarian. We call this phenomenon the "curb-cut effect" since it reflects the unexpected benefits that curb-cuts, one of the first urban accommodations designed exclusively for wheelchair users, brought to all pedestrians in a wide variety of contexts (e.g., older adults, people with carts or strollers, etc.)

These unexpected benefits will translate directly into measurable economic gains as suggested by Ottaviano and Peri (2005), who identified a positive correlation between higher levels of demographic diversity in 160 cities in the U.S. and their economic growth. Ottaviano and Peri could identify increases of as much as 11% in the average wage and 17.7% in the average rent in cities that became more diverse over a period of 20 years (1970 to 1990), when compared to those that did not change their demographic makeup.

Similarly to the previously cited work, this research poses a simple conclusion: the more diverse the attitudes and perspectives are in an organization, the more resourceful and productive the organization can become. In this context, PwD constitute one of the most diverse sources of human capital available.

In a comprehensive historical review of technological achievements in the last two centuries, Steve Jacobs compiles a revealing summary of the origins of inventions such as the typewriter, e-mail, and the telephone, all of which were originally developed by or for PwD (Jacobs, 2009). A recent local example of this effect is the practice of calling out the next stop on public transit. This was instituted to accommodate the needs of riders who are blind or visually impaired but benefits everyone. Similarly, while text captions of the audio of videos and TV broadcasting were originally instituted to assist viewers who are hard of hearing or deaf, the majority of users of this feature are individuals in noisy bars or in fitness centres, and persons who are learning a new language or who do not want to disturb family members while watching television.

Products, services and places designed to accommodate PwD are typically better for everyone and thus, easy to use, apply, or market in contexts that benefit us all.

Just as accessibility barriers may ignite a chain reaction of multiplicative costs for PwD, which spread across the wider community, the removal of such barriers has the potential to catalyze growth, creativity, and well-being for individuals and the community at large.

PwD have played and will continue to play a pivotal role in the economic, social, political, cultural and technological development of modern cities. Through AODA, Ontarians will be better able to realize and benefit from this unlocked potential.

AODA and the 2015 Pan/ Parapan American Games

Hosting any international game event or other high-profile international meeting requires adherence to a stringent set of accessibility requirements and draws the intense scrutiny of the international community. This is the case whether or not it is accompanied by a "para" version of the same event. As Ontario will be hosting the 2015 Pan/Parapan American Games, the AODA commitment will prepare the province for meeting the accessibility requirements.

As is the case with Olympic bids, accessibility is one of the areas that must be addressed in the PanAm bids. This includes accessibility for the athletes, the staff and the public. It includes not only the physical accessibility of the events and venues but also, accessible customer service, transportation and information and communication systems including publicity, ticketing and the Web. International scrutiny and expectations will extend beyond the PanAm and Parapan village to the surrounding community, as visitors to the games seek services and tourist opportunities in the area.

In the bid, Toronto confirmed that "an important part of all Toronto 2015 promotion will be the inclusion of the values of Pan American sport: fair play, inclusion and accessibility" (PanAm Toronto, 2010: http://www.toronto2015.org). With respect to disability awareness, the bid states that "All staff and volunteers involved in the Toronto 2015 Parapan American Games will participate in mandatory disability and diversity awareness training to ensure that Parapan American athletes, officials and families receive barrier-free customer service." In winning the bid, Toronto committed to adhere to the "highest accessibility standards in the world."

During the 2000 Sydney Olympics the Australian Human Rights and Equal Opportunity Commission (HREOC) launched a complaint against the Sydney Organising Committee for the Olympic Games (SOCOG) on behalf of Bruce Maguire (Human Rights and Equal Opportunity Commission, 2000: http://www.hreoc.gov.au/disability_rights/decisions/comdec/2000/DD000120.htm). The complaint was that the ticketing system and Website discriminated against individuals who are blind. In this groundbreaking case the Australian Federal court ruled in favour of Bruce Maguire. This case helped to set expectations for other games. The AODA will assist Ontario in meeting the commitments made with respect to the PanAm and Parapan Games.

CASE STUDY—ELLIOT LAKE

Population: 11,549 (Statistics Canada, 2006)
Area: 698.12 km2 (269.5 sq mi)

The City of Elliot Lake was established in 1955 as a community strictly dedicated to the mining industry in northern Ontario. Thus, for almost four decades, Elliot Lake's revenue and development was completely dependent on the mining industry.

With the decline of uranium extraction and after the closure of the last mine in 1996, Elliot Lake's community envisioned a strategic plan for economic and social development focused on an innovative "retirement living concept" The project initially targeted the economic potential of selling cheap houses abandoned by the miners and transformed them into affordable and high quality living facilities for the aging population.

In less than a decade, Elliot Lake has redeveloped its economic model and become a leader in harnessing public and private investment and diversifying services and industries, while assuring sustainable and ecologically aware development.

The success of the construction business started in the early 90s and the re-relocation of thousands of retirees has brought to Elliot Lake much more than housing opportunities.

From 1999 to 2006 vacancy rates have been decreasing steadily, and total personal income has been increasing due to the wide range of new businesses and services including health services, entertainment, tourism, among others.

Related online resources

Official Site (info on services): http://www.cityofelliotlake.com/en/cityservices/index.asp

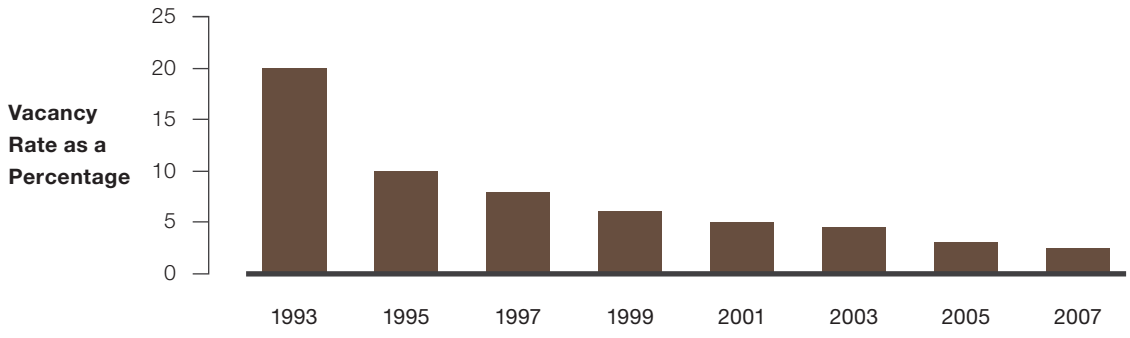
Success Stories—Elliot Lake (stats on Income and Vacancy): http://www.cityofelliotlake.com/en/invest/sucessstories.asp

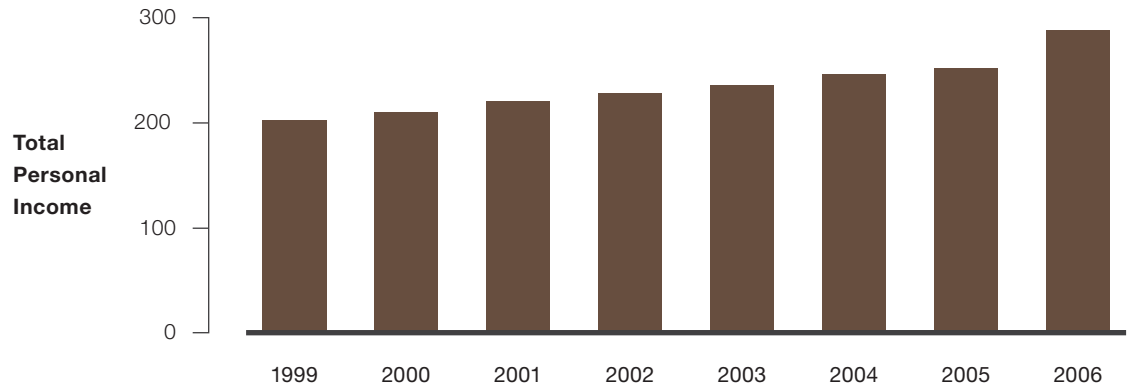
Rio Algom Limited - Elliot Lake Uranium Mine Site Reclamation: http://www.denisonenvironmental.com/en/rehab/Content/PDF%20Folder/Elliot%20Lake%20Info%20Package.pdf

Elliot lake miner edges closer to uranium mine: http://www.thefreelibrary.com/Elliot+lake+miner+edges+closer+to+uranium+mine.-a0181728409

An Act respecting the City of Elliot Lake: http://www.e-laws.gov.on.ca/html/source/private/english/2001/elaws_src_private_pr01001_e.htm#Top

Elliot Lake cottage, retirement economy needs skilled trades people: http://www.northernontariobusiness.com/Industry-News/government/Elliot-Lake-needs-skilled-tradespeople225





CONCLUSION

GREATER EARNINGS

Our study indicates that increasing the level of educational attainment and employment of PwD could lead to significant improvements in Ontario's GDP. Over time, improved access to employment and education could reduce the likelihood of poverty for a large number of Ontarians and improve the income of everyone in the province by a small but significant amount. These changes could also shift Ontario's economy toward employing a more educated workforce, potentially attracting more businesses, further increasing employment and making Ontario's economy more prosperous.

READINESS FOR FUTURE MARKETS

With the new standards, businesses can develop new products, services and environments viable in a larger market. Local businesses will meet current and future global purchasing requirements and retain dominance in the growing local markets for inclusive products and services. We have identified several regions in Ontario that could support the development of businesses that can be competitive in markets for inclusively designed products and services.

As well, Ontario's tourism and retail sectors can realize increased revenues as a result of the AODA. We have estimated that over the next five years, the implementation of AODA standards could stimulate between $400 million and $1.5 billion in new spending on tourism and generate increases in retail sales ranging from $3.8-$9.6 billion.

RELEASING THE POTENTIAL OF ONTARIO'S ECONOMY

We have noted three ways in which the new standards can support a more efficient economy. Exclusion of individuals from the full array of social and economic life imposes high costs on society. Increasing accessibility may lead to lower rates of unemployment, poverty and ill-health. On the other hand, inclusion and increased diversity lead to increased access to global markets, improvements in labour pools, and enhanced innovation and creativity, a trend Ontario has witnessed repeatedly. Finally, new standards may unlock unforeseen benefits creating a "curb-cut" effect.

A POLICY OPPORTUNITY

While new AODA standards will impose costs on every organization in Ontario, there are ways in which many of these costs can be offset by gains in the size of markets. Further, the social gains consequent upon full implementation can create a far more prosperous Ontario. AODA has the potential to create both social and economic gains. Such opportunities are not frequent in public policy. Our results are estimations based upon reasonable conjectures. It will be important to monitor their implementation and fine tune Ontario's collective progress in order to extract the greatest value.

We do not have the capacity to evaluate the potential impact of specific policy initiatives. What we have learned, however, leads us to conclude that every day that people who want to learn cannot, people who want to work do not, businesses that wish to serve these markets wait to see what will be required, Ontario is losing extremely valuable contributions from its citizens. Releasing the constraints which limit full participation in the economy will create a significant force for economic growth.

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INTERVIEWS

Cheryl Blackman, Director of Visitor Experience. The Royal Ontario Museum. Date of Interview: January 13th, 2010.

LIST OF ACRONYMS

AODA: Accessibility for Ontarians with Disabilties Act

PALS: Participation and Activity Limitation Survey

PwD: Person(s) with disabilities

Pw/oD: Person(s) without disabilities

NOTICES

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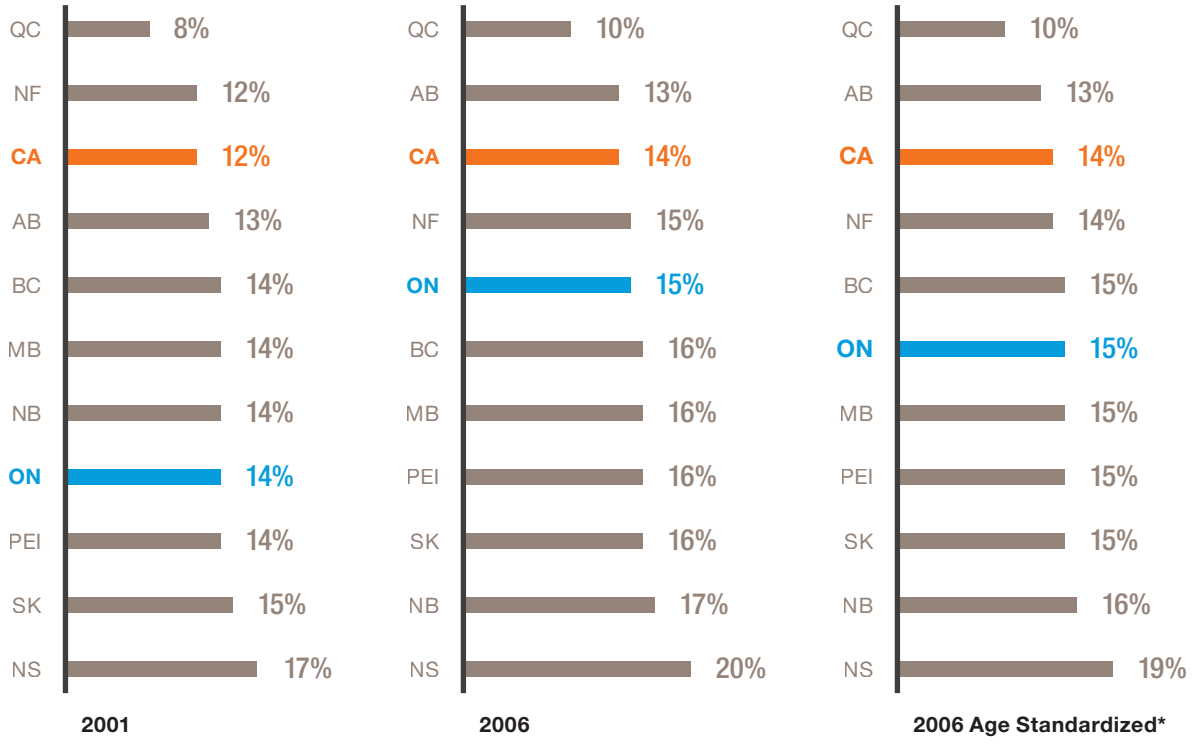
APPENDICES

Disability rates have increased across all provinces

Appendix A

Disability rates for Canada and Provinces, 2001, 2006 and 2006 age standardized*



*Standardized to 2001 population
Source: Statistics Canada, Participation and Activity Limitation Survey, 2001 and 2006

APPENDIX B: PALS DEFINITIONS OF DISABILITIES AMONG ADULTS

A disability severity index was developed using questions for each type of disability in the PALS questionnaires. At first, a standardized score for each type of disability was calculated based on severity, the maximum score given for someone who reports being completely disabled for a given disability. Questions on intensity and frequency of the limitation were used in order to determine the severity of the disability. For example, a maximum score was given in a situation where someone reported being completely unable to take part in an activity because of a disability and this difficulty was always present.

Next, an overall score of severity was calculated taking the average of all standardized severity scores calculated for each type of disability. Due to the strong relationship between learning difficulties and developmental disability, only the score given to the developmental disability was taken into account in the overall score for respondents reporting both disabilities.

Finally, after discussion with data users, it was decided that the severity scale should be divided into four severity classes. These were created by examining the distribution of the global severity score. In the first step, an attempt was made to identify a "natural cut-off" point in the scale. This cut-off point corresponds to the 70th percentile and is close to a score of 1/9 for the adults and 1/8 for the children. Since these particular scores correspond to the score of someone with a maximum score for one type of disability, it was decided to subdivide the scale into two parts. The two groups were then subdivided again into two parts consisting of four other classes. These two new cut-off points are equivalent to half and twice the maximum score obtained for one disability.

These classes are defined as:

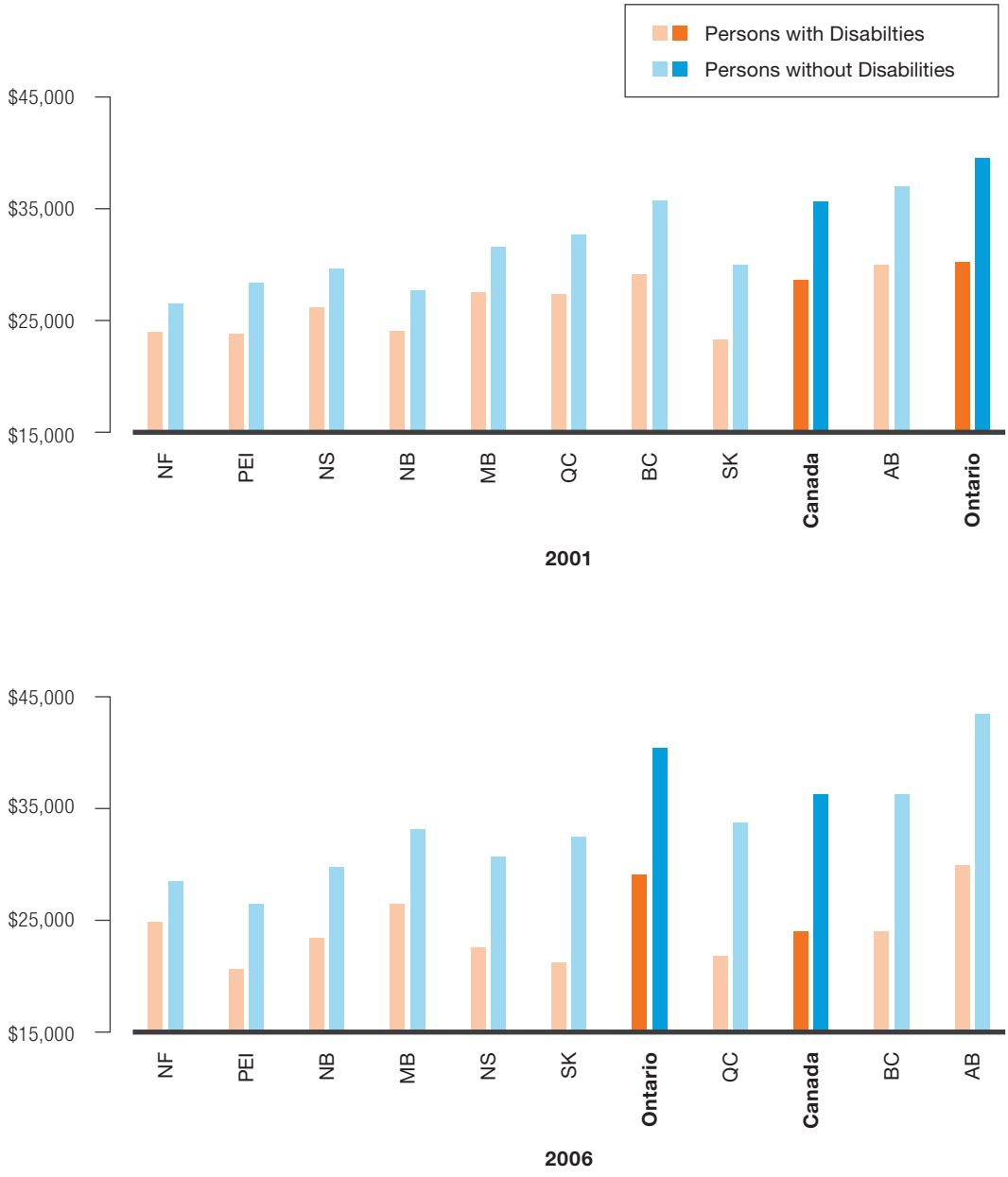
Class 1: Respondents with a score equivalent to less than half the maximum score for one disability.
Class 2: Respondents with an equivalent score between half and the maximum score for one disability.
Class 3: Respondents with an equivalent score between one and twice the maximum score for one disability.
Class 4: Respondents with a score equivalent to more than twice the maximum score for one disability.

In light of the relatively subjective nature of this classification and in order to avoid any misinterpretation, it is preferable not to use specific terms to characterize the classes. The interpretation of the measurement tool is as follows: persons in Class 4 have a more severe disability than persons in Class 3, who in turn have a more severe disability than persons in Class 2, and so forth. However, for practical purposes, names of "mild," "moderate," "severe" and "very severe" were assigned to the classes 1 through 4. It should be noted that there is no judgment associated with the use of this terminology.

Because questions differ according to a child's age, two different scales were created, one for children aged 0 to 4 and another for children aged 5 to 14. Taking into account there are only 4 types of disabilities measured for children aged 0 to 4, only two severity classes were created. The first was labelled as "mild to moderate" and the second was labelled "severe to very severe".

Retrieved on June 7, 2010, from: http://www.statcan.gc.ca/pub/89-628-x/89-628-x2007001-eng.htm#4

Average employment income for adults 15 years of age or older, by disability status, Canada and Provinces, 2001 and 2006

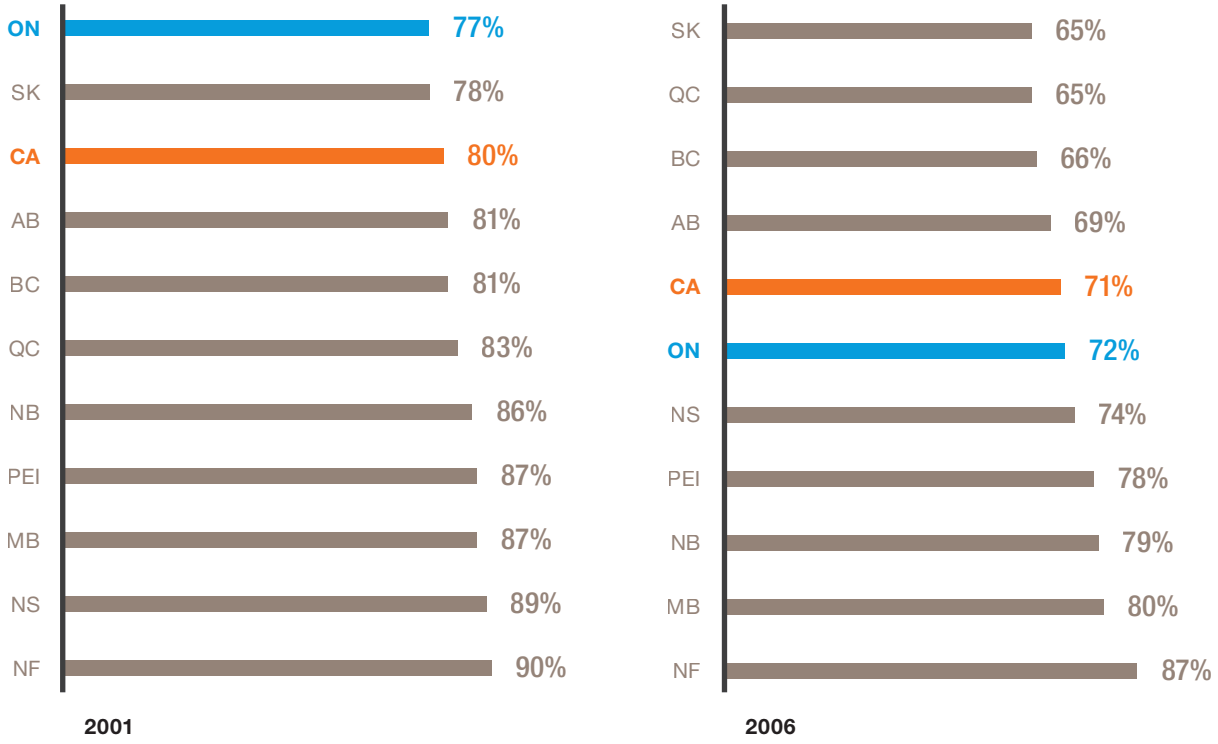


Source: Statistics Canada, Participation and Activity Limitation Survey, 2001 and 2006

The gap in average employment income of persons with disabilties and persons without disabilties increased in Canada and Provinces, 2001 and 2006

Appendix D

Persons with disabilities average employment income as a percentage of persons without disabilities average employment income, ranked lowest to highest percentage



Source: Statistics Canada, Participation and Activity Limitation Survey, 2001 and 2006

Location quotients for Ontario industries compared to National composition

Appendix E

	Building Fixtures, Equipment and Services	Communications Equipment	Education and Knowledge Creation	Entertainment	Furniture
Ontario	1.15	1.41	1.05	0.93	0.78
Greater Sudbury	0.26	0.12	1.75	0.34	0.03
Hamilton	0.65	0.71	1.12	0.47	0.22
Kingston	0.39	0.39	3.46*	0.22	0.12
Kitchener	1.57	2.84*	2.07*	0.39	0.99
London	0.71	0.99	1.45	0.36	0.36
Oshawa	0.53	1.37	0.67	0.48	1.47
Ottawa	0.20	5.28*	2.27*	1.08	0.12
St. Catharines	0.72	0.12	0.83	0.72	0.41
Thunder Bay	0.20	0.04	2.07*	0.32	0.27
Toronto	1.49	1.15	0.81	1.03	0.75
Windsor	0.89	0.05	1.58	3.06*	0.06

LQ = 1.00

	Hospitality and Tourism	Information Technology	Lighting and Electrical Equipment	Medical Devices	Motor Driven Products
Ontario	0.88	1.05	1.29	1.23	1.25
Greater Sudbury	0.74	0.10	0.05	0.35	0.06
Hamilton	0.42	0.23	0.92	1.25	2.00*
Kingston	0.94	0.21	0.32	0.98	0.85
Kitchener	0.40	1.69	2.90*	2.55*	6.35*
London	0.48	0.28	0.81	0.84	1.28
Oshawa	0.39	0.17	1.09	0.85	1.51
Ottawa	0.80	2.85*	1.45	0.93	0.11
St. Catharines	2.72*	0.29	1.29	0.92	0.96
Thunder Bay	1.06	0.30	0.01	1.03	0.16
Toronto	0.84	1.29	1.70	1.29	0.67
Windsor	0.57	0.23	0.62	2.06*	1.74

LQ = 1.00

	Plastics	Publishing and Printing	Production Technology	Sporting, Recreational, and Children's Goods
Ontario	1.50	1.16	1.38	0.81
Greater Sudbury	0.06	0.35	0.84	0.07
Hamilton	0.61	0.73	1.50	0.20
Kingston	0.37	0.42	0.15	0.00
Kitchener	2.47*	0.91	3.72*	4.39*
London	0.94	0.86	1.44	5.36*
Oshawa	0.70	2.15*	0.70	0.16
Ottawa	0.07	0.79	0.31	0.09
St. Catharines	0.62	0.86	1.06	0.37
Thunder Bay	0.31	0.17	0.36	0.00
Toronto	1.59	1.57	1.21	0.39
Windsor	3.26*	0.33	3.54*	0.26

LQ = 1.00

LQ > 2.0*

APPENDIX F: OCCUPATIONAL GROUPINGS BY INFLUENCE ON INCLUSIVE DESIGN

DIRECT IMPACT

A014	Senior Managers in Health, Education, Social and Community Services and Membership Organization
A016	Senior Managers in Goods Production, Utilities, Transportation and Construction
A121	Engineering Managers
A122	Computer and Information Systems Managers
A123	Architecture and Science Managers
A321	Managers in Health Care
A331	Government Managers in Health and Social Policy Development and Program Administration
A332	Government Managers: Economic Analysis, Policy Development and Program Administration
A333	Government Managers: Education Policy Development and Program Administration
A371	Construction Managers
A372	Residential Home Builders and Renovators
A373	Transport Managers
A391	Manufacturing Managers
A392	Utilities Managers
C031	Civil Engineers
C032	Mechanical Engineers
C033	Electrical and Electronics Engineers
C041	Industrial and Manufacturing Engineers
C051	Architects
C052	Landscape Architects
C053	Urban and Landuse Planners
C073	Software Engineers and Designers
C074	Computer Programmers and Interactive Media Developers
C075	Web Designers and Developers
C131	Civil Engineering Technologists and Technicians
C132	Mechanical Engineering Technologists and Technicians
C133	Industrial Engineering and Manufacturing Technologists and Technicians
C141	Electrical and Electronics Engineering Technologists and Technicians
C143	Industrial Instrument Technicians and Mechanics
C151	Architectural Technologists and Technicians
C152	Industrial Designers
C153	Drafting Technologists and Technicians
C162	Engineering Inspectors and Regulatory Officers

DIRECT IMPACT

C163 Inspectors in Public and Environmental Health and Occupational Health and Safety
C164 Construction Inspectors
E031 Natural and Applied Science Policy Researchers, Consultants and Program Officers
E032 Economists and Economic Policy Researchers and Analysts
E033 Business Development Officers and Marketing Researchers and Consultants
E034 Social Policy Researchers, Consultants and Program Officers
E035 Education Policy Researchers, Consultants and Program Officers
E036 Recreation, Sports and Fitness Program Supervisors and Consultants
E038 Other Professional Occupations in Social Science, N.E.C.
E039 Health Policy Researchers, Consultants and Program Officers
E211 Paralegal and Relation Occupations
F125 Audio and Video Recording Technicians
F126 Other Technical and Co-ordinating Occupations in Motion Pictures, Broadcasting and the Performing Arts
F127 Support Occupations in Motion Pictures, Broadcasting, and the Performing Arts
F141 Graphic Designers and Illustrators
F142 Interior Designers

INDIRECT IMPACT

A131 Sales, Marketing and Advertising Managers
D011 Specialist Physicians
D012 General Practitioners and Family Physicians
D013 Dentists
D014 Veterinarians
D021 Optometrists
D022 Chiropractors
D023 Other Professional Occupations in Health and Diagnosing and Treating
D031 Pharmacists
D032 Dieticians and Nutritionists
D041 Audiologists and Speech-Language Pathologists
D042 Physiotherapists
D043 Occupational Therapists
D044 Other Professional Occupations in Therapy and Assessment
D111 Head Nurses and Supervisors
D112 Registered Nurses

INDIRECT IMPACT

D211	Medical Laboratory Technologists and Pathologists' Assistants
D212	Medical Laboratory Technicians
D213	Veterinary and Animal Health Technologists and Technicians
D214	Respiratory Therapists, Clinical Perfusionists and Cardio-Pulmonary Technologists
D215	Medical Radiation Technologists
D216	Medical Sonographers
D217	Cardiologists Technologists
D218	Electroencephalographic and Other Diagnostic Technologists, N.E.C.
D219	Other Medical Technologists and Technicians (except Dental Health)
D221	Denturists
D222	Dental Hygienists and Dental Therapists
D223	Dental Technologists, Technicians and Laboratory Bench Workers
D231	Opticians
D232	Midwives and Practitioners of Natural Healing
D233	Licensed Practical Nurses
D234	Ambulance Attendants and Other Paramedical Occupations
D235	Other Technical Occupations in Therapy and Assessment
D311	Dental Assistants
D312	Nurse Aids, Orderlies and Patient Service Associates
D313	Other Assisting Occupations in Support of Health Services
E111	University Professors
E112	Post-Secondary Teaching and Research Assistants
E121	College and Other Vocational Instructors
F123	Graphic Art Technicians
F124	Broadcast Technicians
H011	Supervisors, Machinists and Related Occupations
H012	Contractors and Supervisors, Electrical Trades and Telecommunications Occupations
H013	Contractors and Supervisors, Pipefitting Trades
H014	Contractors and Supervisors, Metal Forming, Shaping and Erecting Trades
H015	Contractors and Supervisors, Carpentry Trades
H016	Contractors and Supervisors, Mechanic Trades
H018	Supervisors, Printing and Related Occupations
H019	Contractors and Supervisors, Other Construction Trades, Installers, Repairs and Services
J022	Supervisors, Electronics and Manufacturing
J023	Supervisors, Electrical Products and Manufacturing
J024	Supervisors, Furniture and Fixtures Manufacturing

SUPPORTING OCCUPATIONS

H11	Plumbers, Pipefitter and Gas Fitters
H12	Carpenters and Cabinetmakers
H13	Masonry and Plastering Trades
H211	Electricians (except Industrial and Power System)
H216	Telecommunications Installation and Repair Workers
H312	Tool and Die Makers
H531	Residential and Commercial Installers and Servicers
J181	Printing Machine Operators
J183	Binding and Finishing Machine Operators
J191	Machining Tool Operators
J193	Woodworking Machine Operators
J194	Metalworking Machine Operators

Source: 2001 NOCS (North American Occupational Classification System) Occupation Codes, Statistics Canada

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