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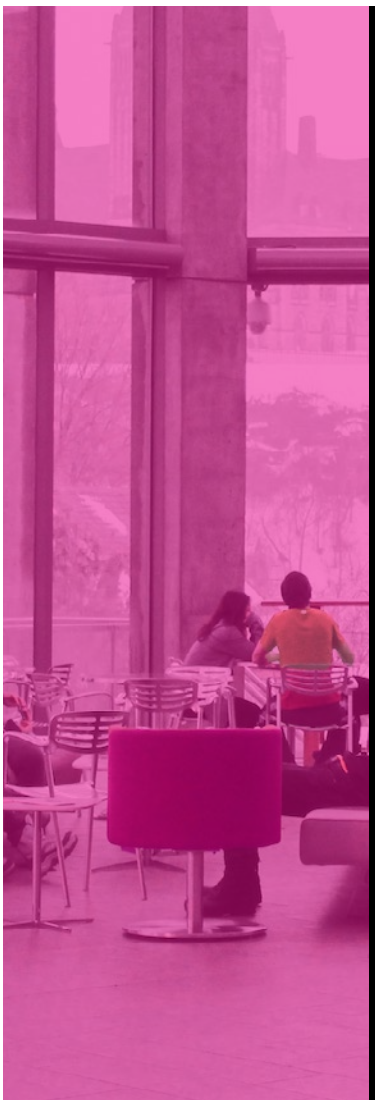
From Shortages to Solutions

Tackling Canada's Critical Gaps in Healthcare, Trades, and Tech

Impact paper | March 31, 2025



Future Skills Centre | Centre des Compétences futures

The Future Skills Centre – Centre des Compétences futures (FSC-CCF) is a forward-thinking centre for research and collaboration dedicated to preparing Canadians for employment success. We believe Canadians should feel confident about the skills they have to succeed in a changing workforce. As a pan-Canadian community, we are collaborating to rigorously identify, test, measure, and share innovative approaches to assessing and developing the skills Canadians need to thrive in the days and years ahead.

The Future Skills Centre was founded by a consortium whose members are Toronto Metropolitan University, Blueprint, and The Conference Board of Canada.

If you would like to learn more about this report and other skills research from FSC, visit us at fsc-ccf.ca or contact info@fsc-ccf.ca.

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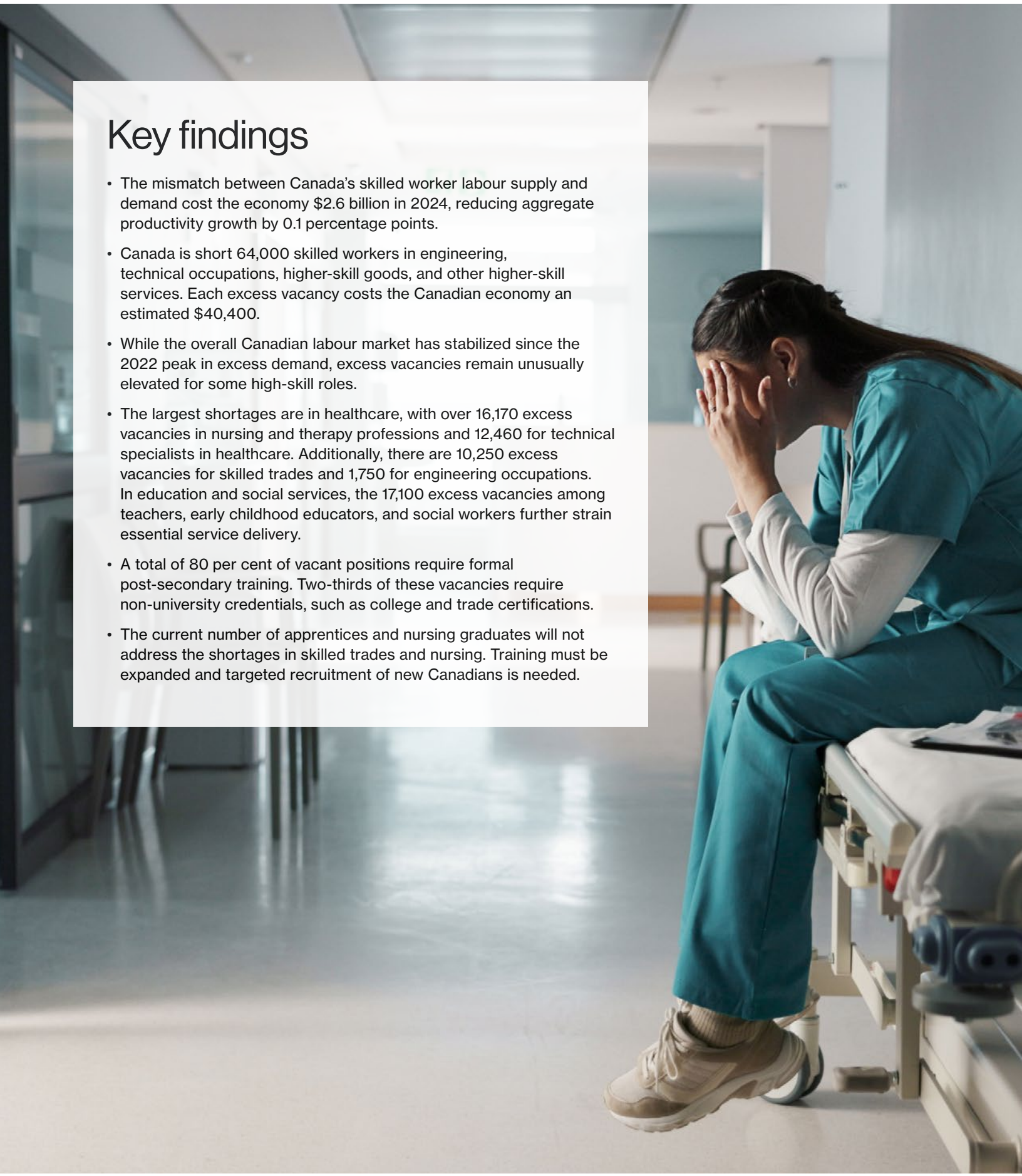


Key findings

- The mismatch between Canada's skilled worker labour supply and demand cost the economy $2.6 billion in 2024, reducing aggregate productivity growth by 0.1 percentage points.
- Canada is short 64,000 skilled workers in engineering, technical occupations, higher-skill goods, and other higher-skill services. Each excess vacancy costs the Canadian economy an estimated $40,400.
- While the overall Canadian labour market has stabilized since the 2022 peak in excess demand, excess vacancies remain unusually elevated for some high-skill roles.
- The largest shortages are in healthcare, with over 16,170 excess vacancies in nursing and therapy professions and 12,460 for technical specialists in healthcare. Additionally, there are 10,250 excess vacancies for skilled trades and 1,750 for engineering occupations. In education and social services, the 17,100 excess vacancies among teachers, early childhood educators, and social workers further strain essential service delivery.
- A total of 80 per cent of vacant positions require formal post-secondary training. Two-thirds of these vacancies require non-university credentials, such as college and trade certifications.
- The current number of apprentices and nursing graduates will not address the shortages in skilled trades and nursing. Training must be expanded and targeted recruitment of new Canadians is needed.

Actionable insights

For university and college leaders

Expand select programs to meet labour market needs. At the university level, this includes programs in registered nursing, allied health diagnostics, and human development, family studies, and related services. For college and apprenticeships programs, our findings support the expansion of practical nursing, electrical and power transmission installers, and vehicle maintenance and repair technologies programs.

Improve graduation rates and employment outcomes for students through targeted and expanded student supports.

For the federal government

Rebalance the points-based immigration scoring system to put more weight on experience in the skilled trades and other technical occupations, while reducing the weight given to holders of university degrees.

Prioritize permanent resident status for international graduates in key fields, expand post-graduation work permit eligibility for accredited programs that align with labour market needs, and collaborate with provinces to develop targeted nominee streams for skilled graduates in healthcare, education, and skilled trades.

Expand the Foreign Credential Recognition Program to simplify and harmonize credential recognition, improve information sharing, and expand work experience pilot programs. Doing so would help more newcomers obtain licences and enter the workforce more quickly.

Canada needs more skilled workers

Canada is facing a dramatic workforce gap. The country lacks workers with technical skills and post-secondary education, such as engineers, tradespeople, nurses, and educators. This imbalance cost an estimated $2.6 billion in lost GDP in 2024. Training and reskilling are vital but will not be enough—or fast enough—to close the gap.

To better understand the skills gap, we use occupation-level job vacancy data to identify workers in short supply.[1] We then link the job vacancy data to the Occupational and Skills Information System (OaSIS) database[2] to obtain the skill requirements for the occupational skill profile. This mapping provides a detailed picture of Canada's workforce needs, including the specific skills, education, and experience employers are looking for.

This analysis builds on previous Conference Board of Canada research in which we quantified the potential impact of skills imbalances on Canadian productivity over the past two decades.[3] That research highlighted imbalances in construction and related sectors.

We go beyond that initial research through our occupation-level analysis to provide a more detailed view of skills gaps across the economy.

We find it is the higher-skilled technical roles, such as tradespeople and engineers, that are most needed and are holding back Canadian productivity. We also identify other key occupations, including nurses, educators, and technical specialists, where employer demand far outstrips supply in occupations that require above-average proficiency in the skills outlined by OaSIS.

1 This paper uses vacancy data from the Job Vacancy and Wage Survey (JVWS). This data provides a detailed picture of vacancies in the Canadian economy—161 occupations at the National Occupational Classification (NOC) 4 level, versus 15 industries—and are higher-frequency than the annual industry-level data used in Conference Board of Canada, The, *Skills and Productivity: Which Skills Shortages Are Impacting Canadian Productivity? This data also tells us what formal education and on-the-job experience these openings require.*

2 Government of Canada, "Welcome to the Occupational and Skills Information System."

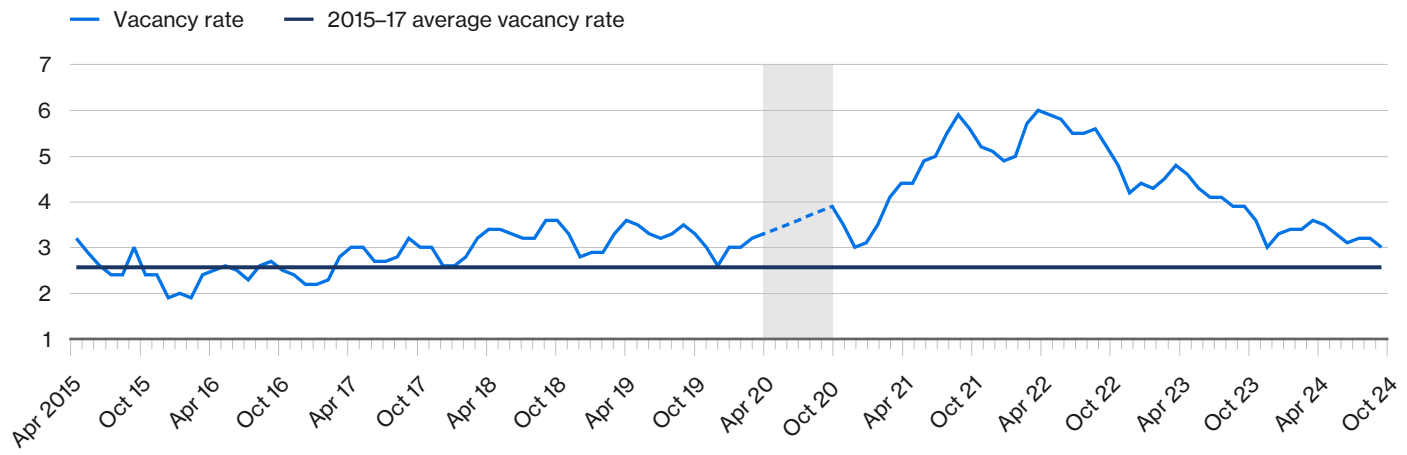
3 Conference Board of Canada, The, *Skills and Productivity.*

Labour shortages remain a challenge

The acute labour market tightness after the height of the COVID-19 pandemic has eased, with the overall job vacancy rate[4] falling from a peak of 6.0 per cent in April 2022 to 3.0 per cent in October 2024. While this rate is comparable to pre-pandemic levels, it remained above the 2015–17 average of 2.6 per cent.

Notably, the vacancy rate hovered around 3.1 per cent from 2017 to 2019, a period marked by concerns over labour market imbalances. We have now returned to that level. (See Chart 1.)

Chart 1
Canada's job vacancy rate has returned to pre-pandemic levels
(ratio of job vacancies to the sum of employment and job vacancies, per cent)



Note: The dashed line represents estimates for 2020Q2 and 2020Q3, as data for this period are missing from the Job Vacancy and Wage Survey due to disruptions caused by the COVID-19 pandemic.
Source: Statistics Canada, Guide to the Job Vacancy and Wage Survey.

4 Measured as the number of vacancies relative to the sum of employment and vacancies, or total labour demand.

The overall vacancy rate masks an important shift in the labour market: today there is much wider variation in labour imbalances across occupations than there was before the pandemic. Chart 2 illustrates the distribution of vacancy rates across 161 minor group occupations (four-digit National Occupational Classification number) by year.

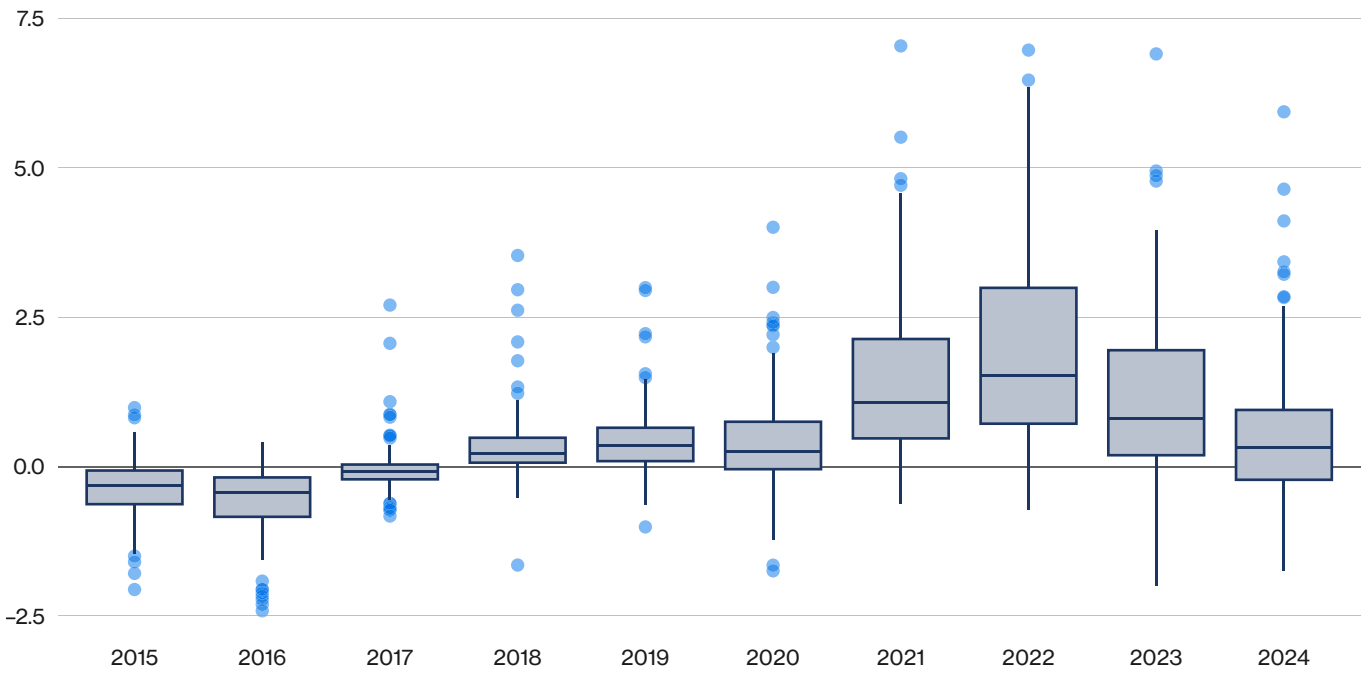
While the median vacancy rate (represented by the line in middle of the boxes) has returned to the pre-pandemic levels (defined as 2015Q2–2020Q1 average), the range in which 50 per cent of the occupations can be found and the interquartile range, depicted as the box, has widened.

Further, the outlier vacancy rates, indicated by the lines above and below the boxes, have also widened. While the overall vacancy rate has returned to previous levels, employers in four of the eight job clusters (defined below) are still facing severe imbalances for some occupations.

Chart 2

Average vacancy rates are returning to pre-pandemic levels, but many occupations still face excess demand relative to supply

(percentage point deviation from 2015Q2–2020Q1 average, distribution by minor group occupations)



Note: 2024 data based on first, second, and third quarter. Box shows interquartile range with the median shown by the horizontal line, vertical lines are 1.5 times interquartile range, and dots represent outliers, indicating values that fall beyond this range.
Sources: Statistics Canada; The Conference Board of Canada.

Workers don't have the skills we need right now

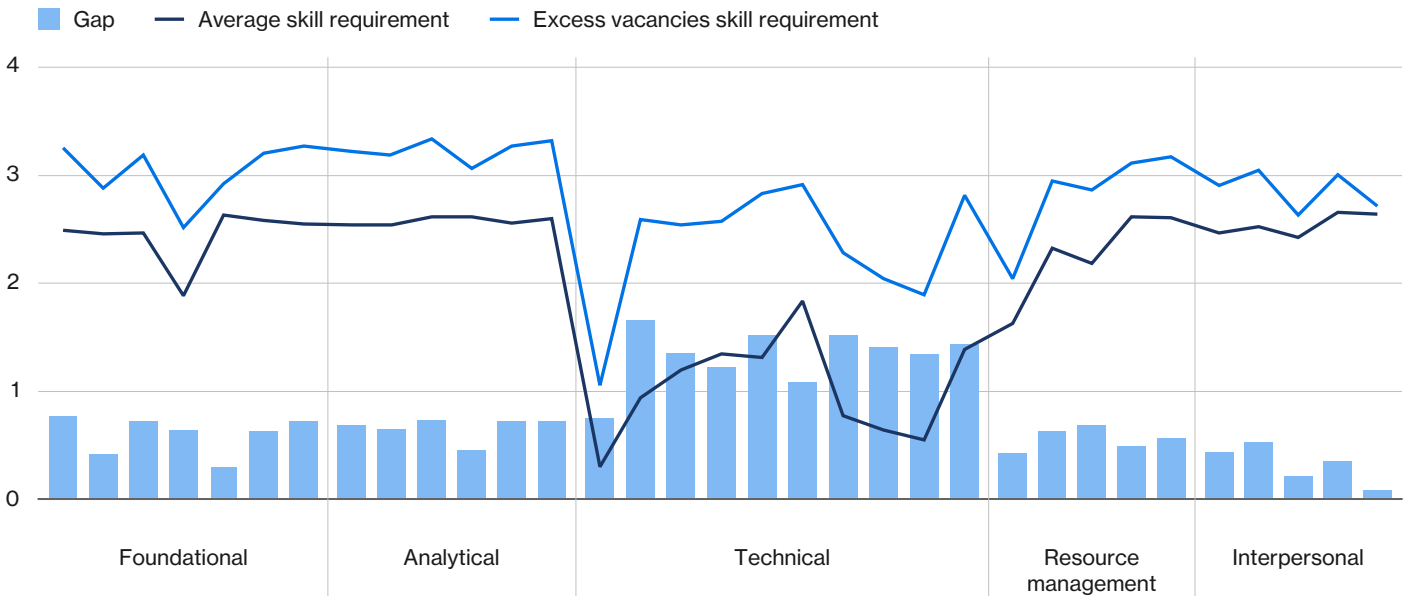
Each occupation requires a specific set of skills from its workers. The OaSIS database assigns a skill profile to each occupation, with a proficiency rating between 0 and 5 for each of the 33 individual skills in categories such as foundational, analytical, technical, resource management, and interpersonal skills.

We find that occupations with the highest excess vacancies[5] require workers with higher proficiency than the average Canadian worker across all skill categories, with the gap most pronounced for technical skills. (See Chart 3.)

Chart 3

Occupations with excess vacancies have higher skill proficiency requirements than the average role in Canada

(OaSIS skill proficiency ratings for roles with excess vacancies and all roles, 2024Q3)



Note: Average skill requirement is weighted by 2021 census employment shares; excess vacancies skill requirement is weighted by excess vacancies, calculated as the deviation in vacancy rates by skill cluster relative to 2015Q2–2020Q1 levels.
Sources: Statistics Canada; The Conference Board of Canada; Employment and Social Development Canada.

5 Defined as the highest percentage point deviation from pre-pandemic levels (average from 2015Q2 to 2020Q1). See "Excess vacancies as a measure of skills imbalance" for more detail on this indicator.

Excess vacancies as a measure of skills imbalance

Job vacancies are unmet demand for labour at a given point in time. Even in a well-balanced labour market, vacancies will exist due to labour market frictions. If an employer has a vacancy and a suitable candidate is available, there will be a period of time before they make contact and a match takes place. Therefore, vacancies do not necessarily indicate a labour or skills imbalance.

Excess vacancy rates are defined as the difference between the vacancy rate in the third quarter of 2024 and the average vacancy rate from 2015Q2 to 2020Q1.[6] This measure is used to identify occupation-level imbalances. If an occupation is facing excess vacancy rates compared to pre-pandemic levels, this indicates that vacancies are rising faster than labour supply and unmet demand is rising.

For occupation-skill clusters with excess vacancies, we estimate the impact of excess vacancies on productivity by using the relationship between the vacancy rate and our proxy measure of skills imbalance at the industry level.[7]

6 Statistics Canada, *Guide to the Job Vacancy and Wage Survey. This is the longest usable pre-pandemic sample available using the Job Vacancy and Wage Survey. The 2015Q1 survey was conducted on a smaller sample, and the 2020Q1 survey was conducted before COVID-19 restrictions were implemented.*

7 The industry-level skills imbalance proxy is the same as used in *Skills and Productivity.* See Appendix A for details.

Markets won't solve widespread shortages on their own

Isolated labour shortages are typically resolved by job transitions as people shift from one job to another similar position. Problems arise when shortages become chronic. When shortages are widespread across similar job categories, the shortages are more likely to be persistent and create a drag on overall productivity growth. Workers in one occupation often have the skills to be successful in another related field. To capture the broader trends, we group occupations with similar skill profiles to capture the consequential impacts of skills shortages rather than analyzing occupations in isolation. We categorize the 161 minor group National Occupational Classification occupations into eight occupational clusters, ensuring that occupations requiring similar skill profiles fall within the same cluster.[8] (See Table 1.)

In this analysis, identifying imbalances doesn't mean that every occupation within these clusters is affected. Rather, on average, workers with similar skill profiles face imbalances. For instance, while the engineers cluster comprises six occupations, only four have excess vacancies.[9] However, given the size of these occupations within the cluster, the overall occupational group is identified as facing a skills shortage.

If shortages were confined to just a few occupations, the impact on the economy would be limited, as workers could more easily transition between occupations with similar skill profiles, even within the same cluster. However, when shortages are spread across multiple occupations in a cluster or across multiple clusters, the labour market's normal adjustment mechanisms become less effective at addressing skill gaps. Imbalances across occupational clusters point to the need for targeted policy interventions, such as upskilling and reskilling, the expansion of certain education programs, and other targeted education policies. Additionally, immigration policies that attract workers with in-demand skills can help reduce these imbalances and support labour market stability.

Table 1
There are eight clusters of occupations with a similar profile of skill requirements

Cluster name	Occupations included
Engineers	Engineering professions such as civil, mechanical, and electrical engineers.
Professionals	High-skill roles such as physicians, architects, legal professionals, and scientists.
Managers	Leadership roles across industries, such as administrative, financial, and business services managers.
Technical occupations	Technical roles in applied sciences, engineering, health technologies, regulatory oversight, and skilled supervision.
Higher-skill goods occupations	Tradespeople such as electricians, industrial mechanics, construction supervisors, and transportation officers.
Higher-skill services occupations	Specialized service roles such as educators, healthcare professionals, business and administrative professionals, and social and community service providers.
Other goods occupations	Lower-skill trades and production-related roles, such as machine operators and assembly workers.
Other services occupations	Service-oriented roles such as retail workers, personal service providers, food service workers, and customer support staff.

Source: The Conference Board of Canada.

To illustrate this point, consider two scenarios: one in which vacancies are restricted to a few clusters, and the other in which vacancies spread across clusters.

Suppose there is a shortage of *administrative services managers* and a surplus of *financial and business services managers*. These occupations both fall into the same cluster and share nearly identical skill profiles; the shortage could likely be addressed by leveraging the current workforce and shifting workers from one occupation to another. For instance, finance and business services managers could transition into administrative service manager roles with minimal retraining, possibly requiring only a short adjustment period or targeted training.

8 Using the OaSIS framework. See Appendix A for details.

9 Civil and mechanical engineers, physical science professionals, manufacturing and processing engineers, and natural resources engineers are facing excess vacancies, while electrical, electronics, and computer engineers and other engineers are not.

Now, consider a shortage of *electrical technicians* and a surplus of corporate sales managers. These occupations belong to different clusters, meaning their skill profiles differ substantially. Electrical technicians require strong technical skills, while corporate sales managers rely heavily on resource management and interpersonal abilities. As a result, a direct transition between these occupations is highly unlikely.

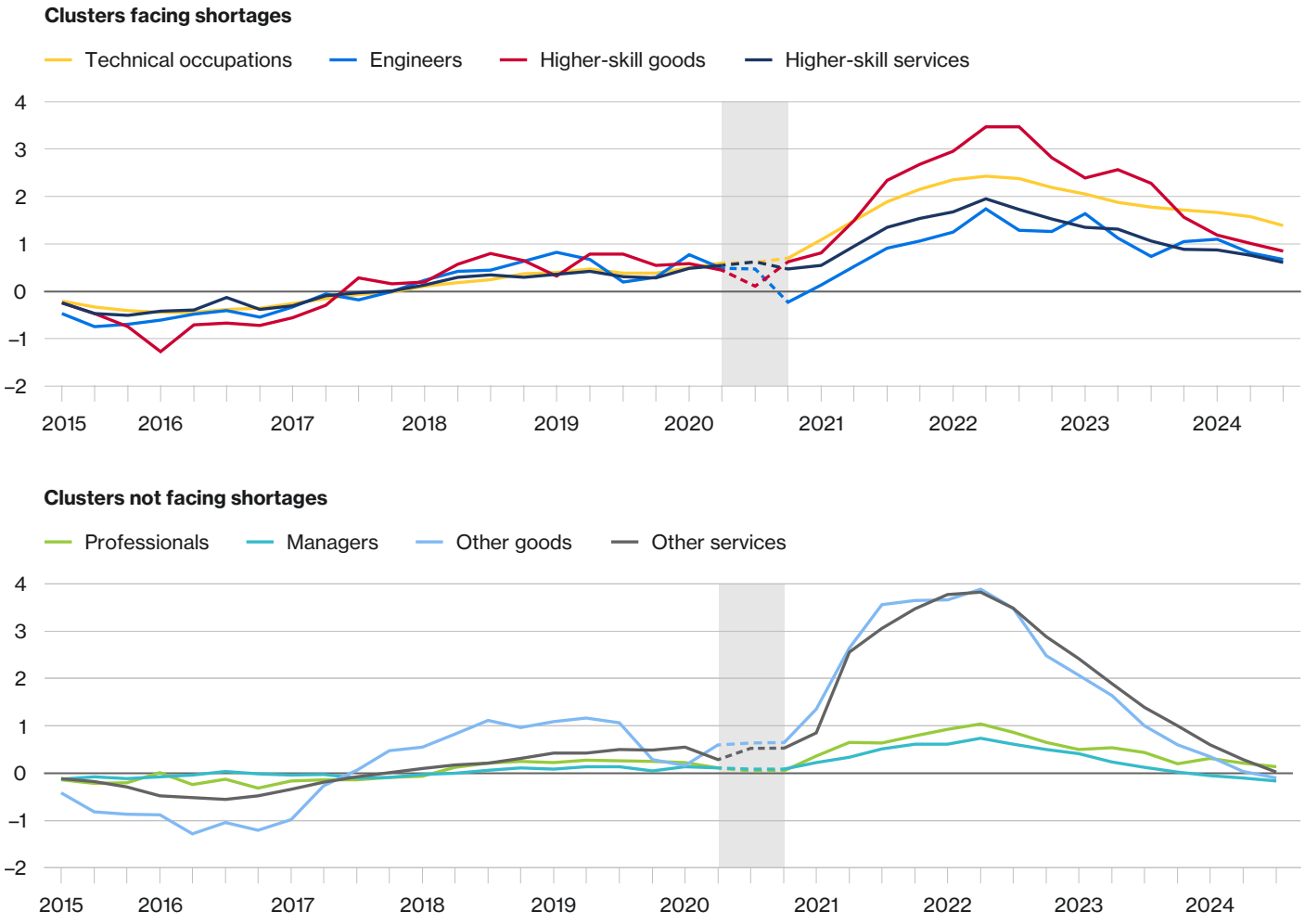
Addressing the shortage would require either substantial retraining of existing workers or attracting new workers with the necessary skill set.

In the third quarter of 2024, four of these occupation clusters were still facing shortages: engineering, technical, higher-skill goods, and higher-skill services occupations. (See Chart 4.)[10]

Chart 4

Excess vacancies are persisting for four occupation clusters

(percentage point deviation from 2015Q2–2020Q1 average vacancy rates, seasonally adjusted, as of 2024Q3)



Note: The dashed line represents estimates for 2020Q2 and 2020Q3, as data for this period are missing from the Job Vacancy and Wage Survey due to disruptions caused by the COVID-19 pandemic.
Sources: Statistics Canada; The Conference Board of Canada; Employment and Social Development Canada.

10 Defined as those with the largest percentage point deviation from the 2015Q2–2020Q1 average vacancy rates in 2024Q3.

Shortages of higher-skilled workers hurt productivity

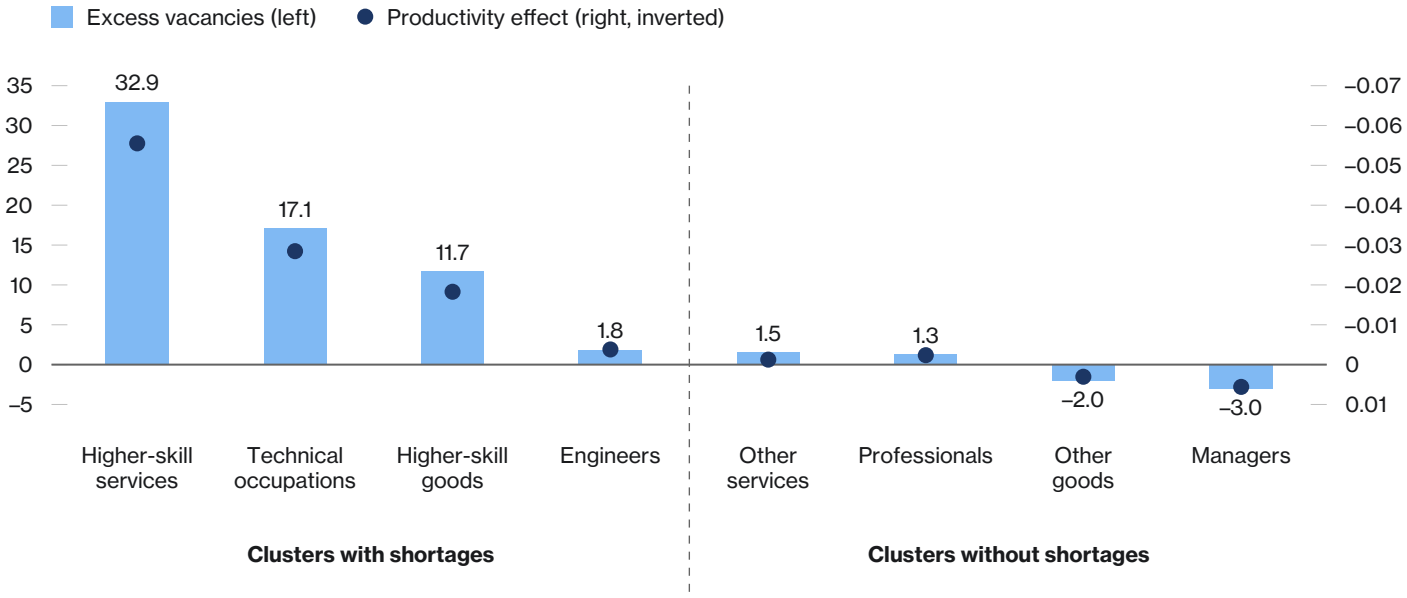
Shortages in the occupation clusters for technical occupations, higher-skill goods, engineers, and higher-skill services are reducing aggregate productivity growth by 0.1 percentage points, costing the economy $2.6 billion in 2024. (See Chart 5.)[11]

These four clusters are experiencing 64,000 excess vacancies. In economic terms, each excess vacancy represents a loss of $40,400 to the Canadian economy.[12] While other clusters, such as managers and other goods occupations, show negative excess vacancies with positive productivity effects, these gains are not large enough to offset the overall productivity losses.

Chart 5

Excess vacancies are weighing on aggregate productivity

(number of excess vacancies, thousands; productivity effect, percentage points; seasonally adjusted, as of 2024Q3)



Note: The effect on aggregate productivity by cluster is scaled by wage share, calculated as the product of employment and average hourly offered wage for each cluster. See Appendix A for details of the productivity effect.
Sources: Statistics Canada; The Conference Board of Canada; Employment and Social Development Canada.

11 See "Excess vacancies as a measure of skills imbalance" and Appendix A for details on how the productivity effect is estimated and caveats of this approach.

12 The average Canadian employee contributed $143,400 to GDP in 2023 based on Statistics Canada's Table 36-10-0104-01 and Table 14-10-0023-01. Contribution to GDP is much larger than each employee will earn in wages, because it includes workers' contribution to profits.

Canada needs technical skills and health expertise

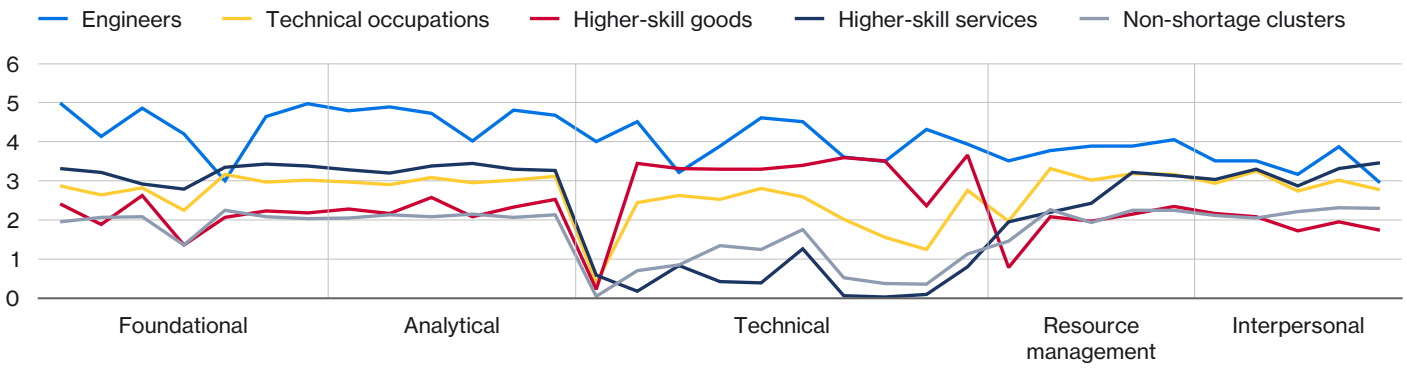
Three of the four clusters with notable excess vacancies—engineers, technical occupations, and higher-skill goods—require workers with high levels of technical skills. (See Chart 6.) This finding aligns with previous Conference Board research, which found that at the industry level, skills imbalances in construction and related sectors are currently weighing on productivity, and these sectors require higher-than-average technical skills.[13]

Highly skilled workers with specific technical expertise is an important shortage to fill. The engineers cluster, for instance, requires the highest skill proficiency levels of all the clusters (see Chart 6) and plays a critical role in sectors such as infrastructure development, industrial manufacturing, and resource management. Shortages in this cluster are highly concentrated, with nearly 1,650 excess vacancies for civil and mechanical engineers accounting for the majority of the shortages in the cluster. (See Table 2.)

The higher-skill goods cluster—crucial for industrial productivity and essential services like transportation and utilities—faces considerable shortages, particularly in mechanics and electrical trades, with nearly 5,400 unfilled positions.

The technical occupations cluster is key to sectors such as healthcare, engineering, and regulatory services. Shortages in these sectors affect quality of care and access to healthcare. There are over 9,200 excess vacancies for therapy and assessment technical occupations, representing 5.2 per cent of total labour demand. Shortages are also evident in medical technologists and dental health care occupations, further highlighting the critical need for skilled professionals in these fields.

Chart 6
Three of the occupation clusters facing excess vacancies require higher proficiency in technical skills compared with non-shortage clusters
(skill proficiency ratings by cluster, employment weighted)



Sources: Statistics Canada; The Conference Board of Canada; Employment and Social Development Canada.

13 Conference Board of Canada, The, *Skills and Productivity.*

Healthcare, education, and social service workers also come from the higher-skill services cluster. This cluster is experiencing severe shortages, contributing to growing concerns about the quality and ability to deliver on mandates. Nurses and allied health professionals[14] alone account for over 13,500 excess vacancies, representing 3.4 per cent of total labour demand. Similarly, there are 2,630 excess vacancies for therapy and assessment professionals (2.6 per cent of total labour demand). Education and social services also face shortages, affecting teachers, social workers, and early childhood educators, highlighting the need for a closer look at these key professions.[15]

Table 2
Imbalances vary across occupations within each cluster
(Occupations with the highest number of excess vacancies in the four clusters most affected by shortages)

Engineering occupations	**Excess vacancies**	**Excess vacancy rate (per cent)**
Civil and mechanical engineers	1,649	1.4
Physical science professionals	185	0.6
Manufacturing and processing engineers	110	0.4
Natural resources engineers	60	0.6
Higher-skill goods occupations	**Excess vacancies**	**Excess vacancy rate (per cent)**
Machinery and transportation equipment mechanics	2,875	1.7
Technical electrical trades and electrical power line and telecommunications workers	2,537	1.6
Automotive service technicians	2,130	1.1
Plumbers, pipefitters, and gas fitters	1,597	1.6
Small engine and equipment mechanics and related repairers	299	1.2
Technical occupations	**Excess vacancies**	**Excess vacancy rate (per cent)**
Technical occupations in therapy and assessment	9,283	5.2
Medical technologists and technicians	2,219	2.5
Technical occupations in dental health care	1,445	2.8
Technical occupations in civil, mechanical, and industrial engineering	1,307	0.6
Technical inspectors and regulatory officers	1,283	1.3
Higher-skill services occupations	**Excess vacancies**	**Excess vacancy rate (per cent)**
Nursing and allied health professionals	13,538	3.4
Paraprofessional occupations in legal, social, community, and education services	11,100	2.2
Therapy and assessment professionals	2,630	2.6
Social and community service professionals	2,221	1.5
Secondary, elementary, and kindergarten school teachers	1,515	0.3

Note: The excess vacancy rate is calculated as the difference between the vacancy rate in 2024Q3 and the average vacancy rate from 2015Q2 to 2020Q1.
Sources: Statistics Canada; The Conference Board of Canada.

14 NOC 3130.

15 Educators and social workers refer to occupations within the following minor groups: paraprofessional occupations in legal, social, community, and education services (NOC 4220); social and community service professionals (NOC 4130); secondary, elementary, and kindergarten school teachers (NOC 4122); occupations in front-line public protection services (NOC 4210); policy and program researchers, consultants, and officers (NOC 4140); university professors and post-secondary assistants (NOC 4120); and college and other vocational instructors (NOC 4121).

Canada's labour market has an education bottleneck

A total of 80 per cent of Canada's missing workers would require formal post-secondary education—much higher than the 57 per cent of the working-age population (aged 25 to 64) that reported such qualifications in the most recent census.[16] The need for post-secondary qualifications varies between occupation clusters, but overall, two-thirds of occupations with shortages require non-university qualifications such as college and trade certificates, while one-third require university degrees. (See Chart 7.) The engineering cluster, for instance, has a substantial share of excess vacancies for degree holders, a trend also seen in higher-skill services occupations like nursing and allied health professionals, which demand advanced education and credentials. In the technical occupation cluster, 80 per cent of vacancies in the top five occupations facing shortages require a post-secondary education.

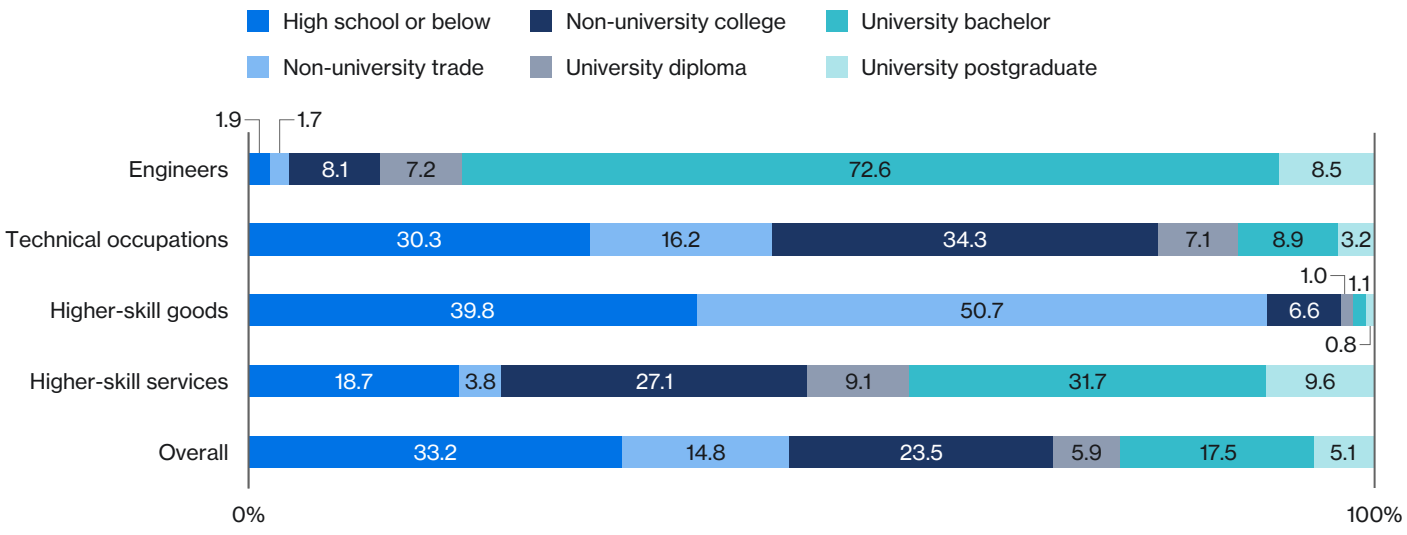
Similarly, in the higher-skill goods cluster, approximately 72 per cent of excess vacancies in the top five occupations require trade certificates.

But it takes years to increase the supply of skilled workers. Occupations with the most acute shortages—engineering, nursing, education and social work, and skilled trades—require extensive formal education, multi-year degrees or diplomas, or lengthy apprenticeships. For example, Red Seal trade workers like electricians, plumbers, and mechanics account for two-thirds of Canada's skilled trade shortage and require 7,200 hours of combined on-the-job and in-school training—roughly four years if pursued continuously at seven hours per day.[17] Engineers need a four-year bachelor's degree, followed by four years of professional experience to become certified.[18] Registered nurses require a three-to-four-year bachelor's degree, while registered practical nurses need a two-year college certificate.[19]

Chart 7

Canada needs a mix of university graduates and workers with non-university certificates

(education requirement for clusters with excess vacancies and overall, share of vacancies, per cent)



Sources: Statistics Canada; The Conference Board of Canada; Employment and Social Development Canada.

16 Statistics Canada, "Canada Leads the G7."
17 Skilled Trades Ontario, *Apprenticeship Programs Quick Facts Chart.*
18 Professional Engineers Ontario, *Applicant Guide.*
19 College of Nurses of Ontario, "Nursing Education."

Targeted increases in graduates

If addressing these shortages effectively will take years, policy-makers need a targeted strategy that aligns education and training systems with workforce demand. By analyzing the gap between excess vacancies and the current graduate supply, we know the number of additional graduates required in key fields of study to highlight where the most increases are needed. (See Table 3.) See Appendix A for details.

In the higher-skill services cluster, Canada is facing a shortage of 11,000 registered nurses, equivalent to 54 per cent of the number of graduates in 2022. This shortage requires a major increase in nursing education capacity, including faculty, clinical placements, and infrastructure.

Other areas requiring expansion include development and family studies, social work, and rehabilitation.

Table 3
Additional graduates needed to mitigate imbalances compared with 2022 cohort by largest field of study

Major field of study (CIP) in higher-skill services cluster	Additional graduates needed	Additional graduates as a share of the 2022 cohort (per cent)
Registered nursing, nursing administration, nursing research, and clinical nursing	11,142	54
Human development, family studies, and related services	2,219	16
Social work	1,445	19
Education, general	1,307	19
Rehabilitation and therapeutic professions	1,283	31

Major field of study (CIP) in technical occupations cluster	Additional graduates needed	Additional graduates as a share of the 2022 cohort (per cent)
Practical nursing, vocational nursing, and nursing assistants	2,231	34
Allied health diagnostic, intervention, and treatment professions	1,986	52
Registered nursing, nursing administration, nursing research, and clinical nursing	1,175	6
Dental support services and allied professions	837	40
Allied health and medical assisting services	524	17

Major field of study (CIP) in higher-skill goods cluster	Additional graduates needed	Additional graduates as a share of the 2022 cohort (per cent)
Electrical and power transmission installers	1,451	66
Vehicle maintenance and repair technologies/technicians	1,290	37
Plumping and related water supply services	1,031	103
Heavy/industrial equipment maintenance technologies/technicians	905	70
Electrical/electronic engineering technologies/technicians	348	13

Major field of study (CIP) in engineers cluster	Additional graduates needed	Additional graduates as a share of the 2022 cohort (per cent)
Civil engineering	443	10
Mechanical engineering	424	8
General engineering	378	7
Geological and earth sciences/geosciences	59	5
Chemistry	53	3

Sources: Statistics Canada; The Conference Board of Canada.

In the technical occupations cluster, healthcare-related fields such as practical nursing and allied health diagnostics also face critical gaps, with additional graduates needed to address shortfalls in key areas like diagnostic services and long-term care. Expanding these programs will require more funding, clinical placements, and the integration of technology to accelerate training.

In the higher-skill goods cluster, skilled trades such as electrical installations, vehicle maintenance, and plumbing are facing severe shortages. Notably, plumbing services have excess vacancies equivalent to 103 per cent of the annual number of graduates (a shortage of 1,031). This trend is expected to persist over the next decade. The number of available workers in these occupations has stagnated, as young workers entering apprenticeship and vocational training pathways struggle to replace retirees. Expanding apprenticeship and vocational training programs is essential to closing this gap.[20]

While engineering has a more moderate shortfall, in disciplines like civil and mechanical engineering where the additional graduates needed represent 10 and 8 per cent of 2022 graduates, respectively, targeted expansion is necessary to support ongoing infrastructure and industrial development projects and to meet future needs in construction, transportation, and advanced manufacturing.

20 Statistics Canada, Table 37-10-0193-01. The average Red Seal cohort size between 2016 and 2021 was 55,000, though since 2008 only 36 per cent of apprentices ended up with certification, which implies around 19,600 new certified Red Seal apprentices entering the workforce each year since 2016.

Migration-side fixes are available

Reducing barriers between provinces to alleviate some shortages

The Prairies face acute shortages in higher-skill goods occupations, likely affecting resource-based industries, and substantial gaps in other goods occupations, particularly labourers and truck drivers—in contrast, most other provinces have a surplus in these roles. The Prairies and Quebec are also experiencing shortages in the other services cluster, unlike other regions.

Ontario and Quebec show notable shortages in engineering, technical, and professional service occupations, while British Columbia and the Atlantic region show more nuanced patterns. The territories follow a distinct trend due to their specific economic structure and small population base.

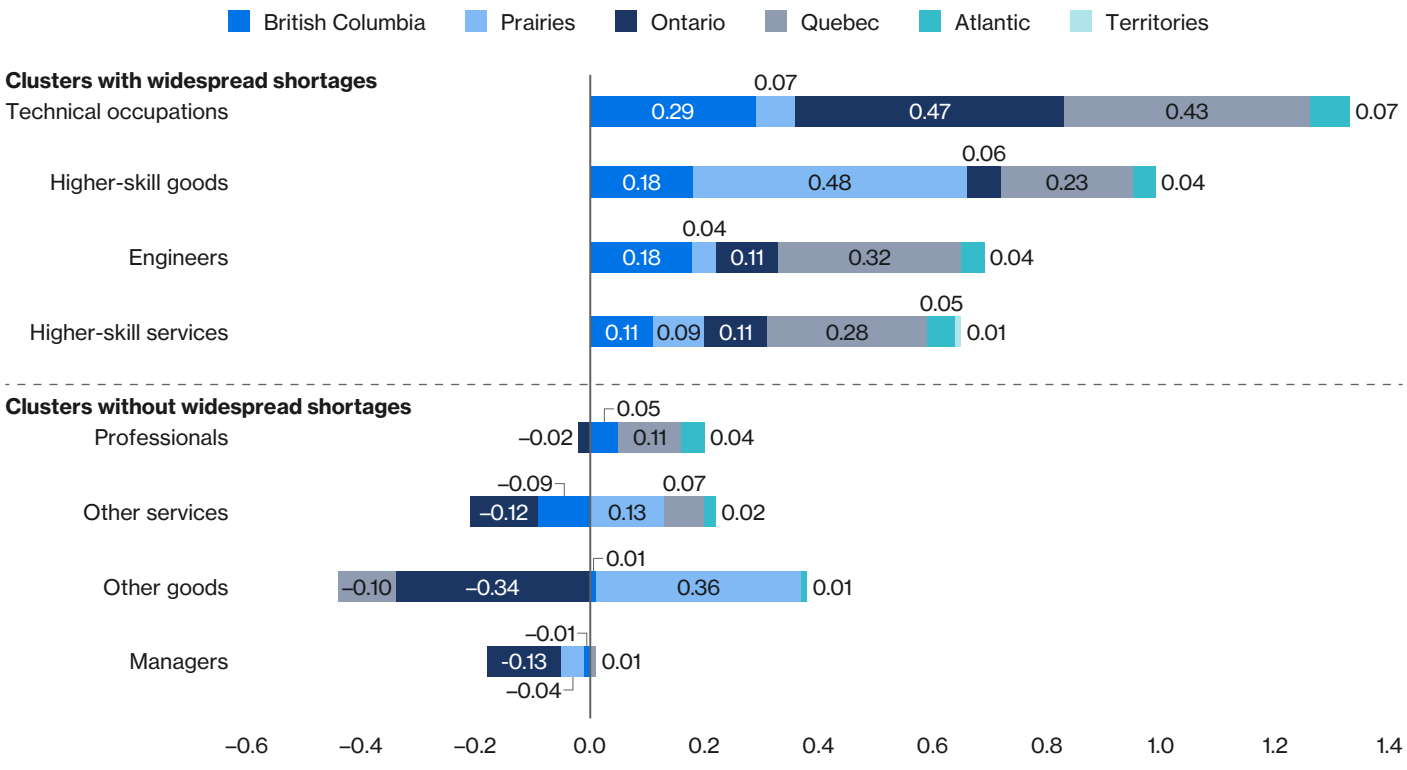
Skills shortages persist across all regions in four key clusters: engineers, technical occupations, higher-skill goods, and higher-skill services. (See Chart 8.) No region has a surplus of skilled workers sufficient to offset shortages elsewhere.

Some localized imbalances in low-skill clusters can be mitigated through interprovincial migration and by reducing credential recognition and language barriers. Overall, however, these changes are unlikely to dramatically reduce excess vacancies given the widespread imbalances across the country.

Chart 8

No region of Canada has enough surplus skilled workers to address the gaps in areas with widespread shortages

(contribution to national excess vacancy rate in the third quarter of 2024, percentage points)



Note: Groupings based on Statistic Canada's Standard Geographical Classification (SGC) six geographical regions of Canada.
Sources: Statistics Canada; The Conference Board of Canada; Employment and Social Development Canada.

Attracting and engaging immigrants with the skills we need

Canada's 2023–24 immigration plan identifies labour market imbalances in healthcare and other high-need sectors as a key challenge that economic-class immigration can help address.[21] Of the 480,000 people who immigrated to Canada between 2023Q4 and 2024Q3, 132,000 (28 per cent) were principal applicants in the economic class.[22]

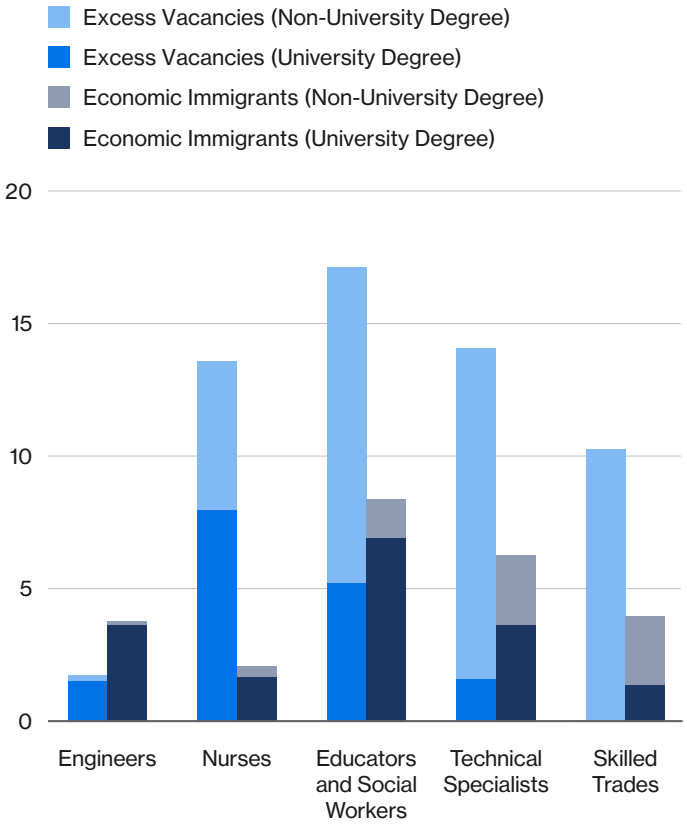
We identified two key challenges with the current approach to immigration targets. First, the inflow of workers with college and trades certifications remains insufficient to address skills shortages in clusters such as higher-skill services—particularly among educators and nurses—and skilled trades (i.e., higher-skill goods).[23] Second, systemic barriers, including credential recognition and professional licensure requirements, continue to prevent many immigrants from fully contributing their skills to the labour market.

Immigration can help address labour market imbalances if the flow of immigrants matches the occupations with excess vacancies and those new Canadians can find work in their chosen profession. The gap between excess vacancies and incoming permanent immigrants is highest in high-demand professions such as nursing, education, social work, and skilled trades. (See Chart 9.) In nursing, the number of immigrants falls short of the required numbers to address the existing shortages by 80 per cent. For professions like engineering, education, and social work, the number of economic immigrants with university degrees surpasses the number of excess vacancies, suggesting that the imbalance in these sectors may be alleviated in the near future.

Chart 9

Nurses face the largest gap in economic immigration supply

(number of principal applicant economic immigrants with a post-secondary degree, 000s, 2023Q4–2024Q3; excess vacancies requiring post-secondary degree, 000s, 2024Q3)



Sources: Statistics Canada; The Conference Board of Canada.

21 Immigration, Refugees and Citizenship Canada, *Departmental Plan*.

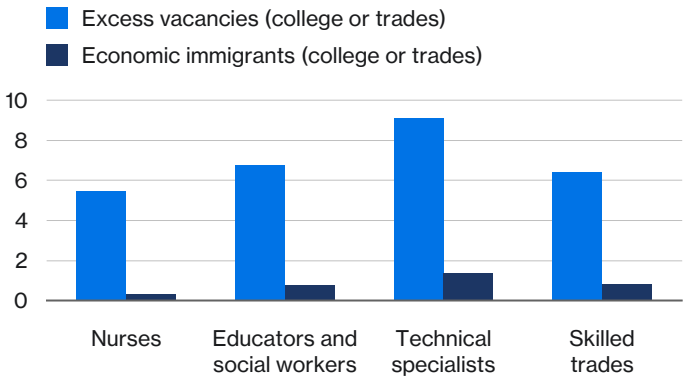
22 Statistics Canada, Table 17-10-0040-01; and Statistics Canada, Table 98-10-0441-01.

23 According to Immigration, Refugees and Citizenship Canada, skilled trades refer to occupations that require specialized knowledge and hands-on work, often obtained through apprenticeships. In Canada, skilled trades typically fall within sectors such as construction, transportation, manufacturing and industrial, and natural resources and agriculture.

The immigration system also seems to prioritize university degrees over other degrees. Immigrants with college and trade certifications are underrepresented among principal applicant economic immigrants. (See Chart 10.)

Only 12 per cent of economic immigrants hold college certificates, and just 4 per cent have trade certifications. This underrepresentation is particularly concerning given that 37 per cent of vacancies in the four most affected occupation clusters require a college degree (21,690 excess vacancies) and 16 per cent require trade certifications (9,640 excess vacancies). Average annual immigration flows over the past two years—just 15,500 with college certificates and 5,400 with trade certifications—fall far short of demand. The gap is particularly stark in roles like nurses, educators, and technical specialists, where college-credentialled immigrants meet less than 15 per cent of current needs; for skilled trades, the gap is as high as 87 per cent. (See Chart 10.)

Chart 10
Canada's immigration strategy should prioritize college- and trade-certified workers
(number of principal applicant economic immigrants, 000s, 2023Q4–2024Q3; excess vacancies, 000s, 2024Q3)



Sources: Statistics Canada; The Conference Board of Canada.

Canada needs a coordinated approach to solving labour shortages

Shortages in higher-skilled professions, technical occupations, and higher-skill services are likely to persist throughout the decade. Educators and immigration services providers have a key role in both an expansion of education and training capacity and a more targeted immigration strategy. Without bold action, shortages will persist, straining key industries and hindering productivity. Leaders who are seeking to address our skills imbalances can consider the following actionable insights.

Actionable insights for university and college leaders

Expand select programs to meet labour market needs

To address the most pressing shortages, post-secondary education institutions can expand the program offerings to bring in a larger number of students in key areas. At the university level, this includes programs in registered nursing, allied health diagnostics, and human development, family studies, and related services. For college and apprenticeships programs, our findings support the expansion of practical nursing, electrical and power transmission installers, and vehicle maintenance and repair technologies programs.

Improve graduation rates and employment outcomes for students through targeted and expanded student supports

Colleges and universities, with the support of federal and provincial governments, need to ensure students receive the appropriate support to be successful in their studies. This support can be through training placements, financial support, and other services to connect these students with practical job market opportunities.

Actionable insights for the federal government

Rebalance the points-based immigration scoring system to focus more on needed skills

Canada's points-based system is over-indexed on university-level education, despite the pressing need for more skilled trades workers. To better align immigration targets with labour market needs, Immigration, Refugees and Citizenship Canada (IRCC) could rebalance the scoring system to put more weight on experience in the skilled trades and other technical occupations, while reducing the weight given to holders of university degrees. More broadly, immigration policies should also seek to target professionals in healthcare, engineering, skilled trades, and education. Dedicated provincial nominee streams, fast-track processing, and a more balanced intake of university, college, and trade-certified graduates can help achieve this goal.

Prioritize permanent resident status for international students studying in high-demand fields

IRCC should prioritize permanent residency pathways for international graduates in key fields, expand post-graduation work permit eligibility for accredited programs that align with labour market needs, and collaborate with provinces to develop targeted nominee streams for skilled graduates in healthcare, education, and skilled trades. The federal government's recent restrictions on international students—including stricter eligibility for post-graduation work permits—make it harder for graduates in high-demand fields to stay and contribute to the workforce, exacerbating labour shortages in sectors like healthcare and skilled trades.[24]

Expand the Foreign Credential Recognition Program

The Foreign Credential Recognition Program (FCRP)[25] is the largest source of funding to recognize more foreign credentials, particularly in the health and skilled trades sectors. Expanding the FCRP to simplify and harmonize credential recognition, improve information sharing, and expand work experience pilot programs would help more newcomers obtain licences and enter the workforce more quickly. Evaluations show that FCRP loans have been effective, making further investment in this program a high-impact solution.[26]

24 Statistics Canada, Table 17-10-0040-01. Data shows an increase of 69 per cent in non-permanent resident outflows in 2024Q3 compared with Q2.

25 Employment and Social Development Canada, "Foreign Credential Recognition Program."

26 Employment and Social Development Canada, *Evaluation of the Foreign Credential Recognition Program.*

Appendix A

Technical Methodology

Translating excess vacancy rates to productivity effects

Labour shortages can affect productivity, but measuring these effects requires a structured approach. This analysis examines how persistent labour shortages, reflected in vacancy rates, influence productivity across different industry clusters. To estimate this relationship, we use a two-step approach. First, we estimate the relationship between labour market tightness and labour productivity using historical data. Second, we model the relationship between vacancy rates and labour market tightness, allowing for variation across industry clusters. Combining these two relationships makes it possible to estimate the impact of excess vacancies on productivity growth while accounting for differences in skills imbalances across clusters.

First, we estimate the relationship between labour market tightness ($rpca_{t,i}$) and labour productivity at the industry level from 1998 to 2019, following the approach in our previous publication, *Skills and Productivity*:

$$d(\ln(productivity_{t,i})) = \beta rpca_{t,i} + \alpha_i + \tau_t + \epsilon_{i,t} \quad (1)$$

Next, we estimate the relationship between vacancy rates ($vr_{t,i}$) and our labour tightness indicator between 2011 and 2019 at the industry level, where the relationship between vacancies and labour tightness is allowed to vary by industry cluster—goods, knowledge-based services (KBS), and technical and manual services (TMS).[1] Doing so allows for the possibility that changes in vacancy rates are more indicative of skills changes in skills imbalances in some industries:

$$rpca_{t,i} = \lambda_c vr_{t,i} + \mu_i + e_{i,t} \quad (2)$$

Combining these two equations and then differentiating with respect to vacancy rates yields the estimated effect of a change in vacancies on productivity growth for each industry cluster:

$$\frac{\delta d(\ln(productivity_{t,i}))}{\delta vr_{t,i}} = \hat{\beta} \cdot \hat{\lambda}_c \quad (3)$$

This assumes that $E(\epsilon_{i,t} | \delta vr_{t,i}) = 0$ and $E(e_{i,t} | \delta vr_{t,i}) = 0$.[2]

We calculate productivity effect by occupation cluster (o) as deviation in vacancy rate in 2024Q3 from its pre-pandemic average multiplied by the cluster's wage share.

$$d(\ln(productivity_{t,i})) = \hat{\beta} \cdot \hat{\lambda}_o (vr_{2024q3,o} - \overline{vr}_{2015q2\text{–}2020q1,o}) \cdot \frac{wage_o}{\sum_{c=1}^{8} wage_o} \quad (4)$$

$\hat{\lambda}_o$ is based on the industry employment shares ($empl$) for each occupation cluster.

$$\hat{\lambda}_o = \frac{\hat{\lambda}_{goods} \cdot empl_{goods} + \hat{\lambda}_{KBS} \cdot empl_{KBS} + \hat{\lambda}_{TMS} \cdot empl_{TMS}}{empl_{total}} \quad (5)$$

The motivation for this indirect approach—estimating the effect of vacancies on productivity directly ($d(\ln(productivity_{t,i})) = \theta vr_{t,i} + \alpha_i + \tau_t + \epsilon_{i,t}$) or using a two-stage estimator—is that we can be more confident that our estimated effects are abstracting from non-skill-related factors affecting productivity, which are correlated with labour market conditions given how our skills imbalance proxy is constructed (i.e., it's based on the relative deviation of a suite of labour market indicators from aggregate to abstract from common cyclical factors).

1 To construct an industry level vacancy rate series going back to 2011, we splice together vacancy rates from Statistic Canada's Job Vacancy and Wage Survey and Survey of Employment, Payrolls and Hours.

2 Including the change in the vacancy rate in Equation 1 yields the same estimate for $\hat{\beta}$, and the coefficient on the change in the vacancy rate is not statistically different from zero.

The skills imbalance proxy relationship with productivity is also estimated over a longer sample (1998 to 2019) than would be possible using only the vacancy rate (from 2011). In any case, the estimated effect of excess vacancies on productivity growth from the indirect approach is smaller than when regressing productivity on the vacancy rate directly or employing a two-stage estimation. (See Table 1.)

This approach could also be used to estimate the effect of excess vacancies on multifactor productivity (MFP) growth. The only difference is that the estimated effects of excess vacancies on MFP growth will be half the magnitude of the effect on labour productivity growth given that the effect of skills on MFP in Equation 1 is around half as large relative to its estimated effect on labour productivity growth.[3]

Table 1
Estimated coefficients

Independent variable	Sample	Estimated value
$rpca_{t,i}$	1998–19	–0.006***
$vr_{t,i} \cdot Goods$	2011–19	0.870*
$vr_{t,i} \cdot KBS$	2011–19	0.406
$vr_{t,i} \cdot TMS$	2011–19	–0.110
Memo items: Estimated effect by cluster		
$\hat{\beta} \cdot \hat{\lambda}_{engineers}$	Mixed	–0.003
$\hat{\beta} \cdot \hat{\lambda}_{professionals}$	Mixed	–0.003
$\hat{\beta} \cdot \hat{\lambda}_{managers}$	Mixed	–0.001
$\hat{\beta} \cdot \hat{\lambda}_{technical}$	Mixed	–0.003
$\hat{\beta} \cdot \hat{\lambda}_{higher\text{-}skill\ goods}$	Mixed	–0.003
$\hat{\beta} \cdot \hat{\lambda}_{higher\text{-}skill\ services}$	Mixed	–0.002
$\hat{\beta} \cdot \hat{\lambda}_{other\ goods}$	Mixed	–0.003
$\hat{\beta} \cdot \hat{\lambda}_{other\ services}$	Mixed	–0.001
Direct estimator		
$vr_{t,i}$	2011–19	–0.039**
Two-stage estimator		
$vr_{t,i}$	2011–19	1.176*
$\widehat{rpca}_{t,i}$	2011–19	–0.033**

Note: Statistical significance levels are indicated by asterisks: * p < 0.10, ** p < 0.05, *** p < 0.01.
Source: The Conference Board of Canada.

3 Conference Board of Canada, The, *Skills and Productivity.*

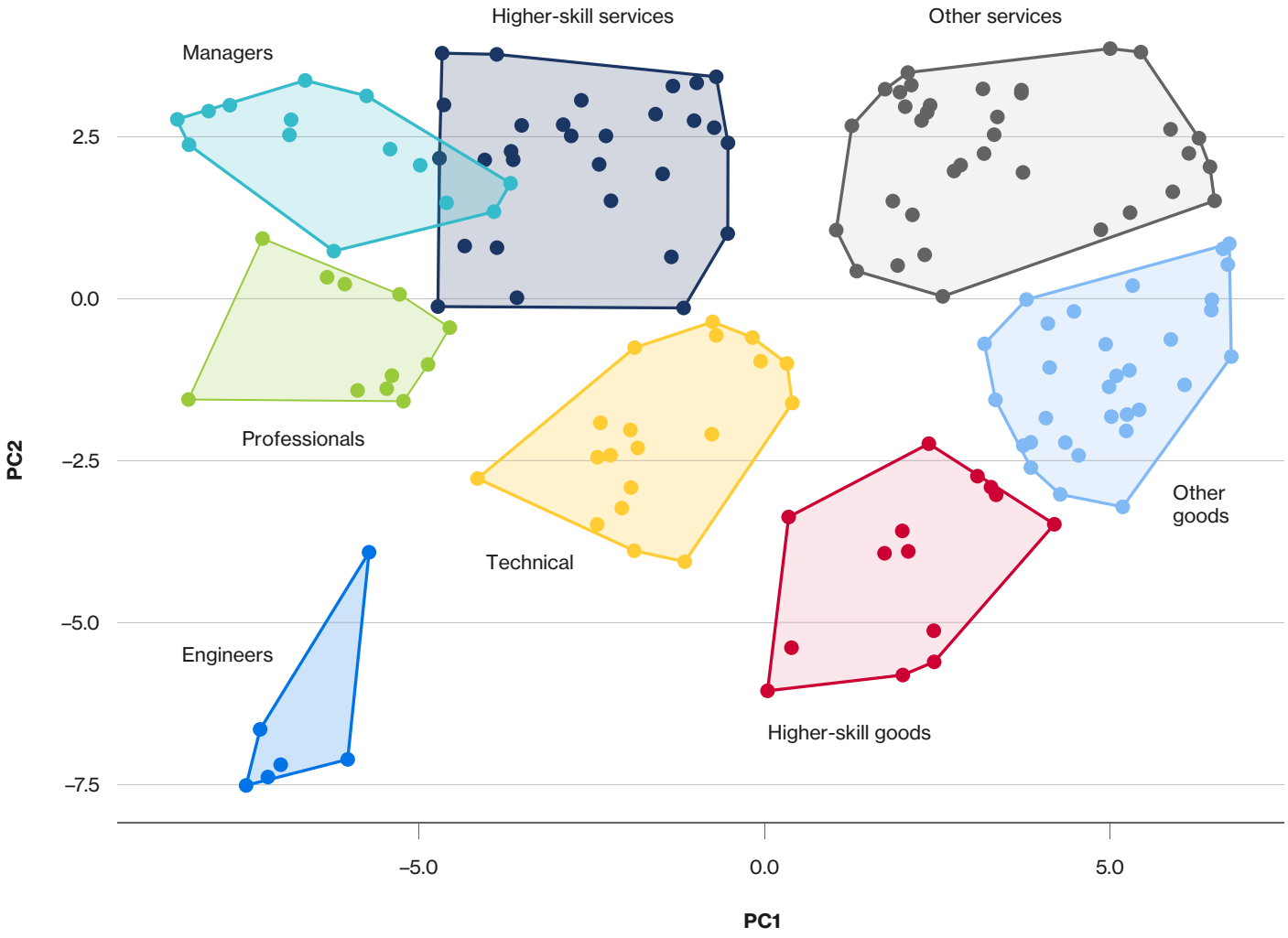
Clustering occupations by skill profiles

Recognizing that there are occupations that demand similar skill profiles, we sorted 161 minor group occupations into eight occupational groups or clusters. To do so, we used K-means clustering, an unsupervised machine-learning technique that sorts our observations into a specified number of sensible groups. (See Chart 1 and Table 2.) This is the approach used in previous Conference Board research, which grouped 500 occupations based on their skills profiles using the O*NET database.[4]

Chart 1

There are eight distinct clusters of occupations in terms of common skill demand

(k-means clusters, 1st and 2nd principal component)



Note: This chart shows a two-dimsensional representation of occupation clusters.
Sources: The Conference Board of Canada; Employment and Social Development Canada.

4 Conference Board of Canada, The, *Beyond Blue and White Collar.* The occupation groupings in that report are broadly similar to those here. Differences reflect the higher level of aggregation we used (four-digit NOC versus five-digit NOC) and the different skills database (OaSIS versus O*NET). The choice to focus on four-digit NOC in this analysis is due to missing data in the JVWS. At the four-digit level, 6 per cent of vacancy observations are missing or supressed; at the five-digit level, this increases to 25 per cent.

Table 2
Occupation clusters, ordered by average skill proficiency level

Occupation cluster	Currently facing skills shortages	Average skill proficiency level (scale of 1 to 5)	Number of occupations
Engineers	Yes	4.1	6
Professionals (physicians, architects, etc.)	No	3.2	11
Managers	No	2.9	14
Technical occupations	Yes	2.7	19
Higher-skill goods	Yes	2.4	14
Higher-skill services	Yes	2.3	31
Other goods	No	1.3	31
Other services	No	1.3	35

Note: Skill proficiency level is average across 33 OaSIS skill dimensions.
Sources: The Conference Board of Canada; Employment and Social Development Canada.

Linking educational programs to labour market demand

To estimate which programs should be targeted for expansion to address acute shortages, we link data on graduates by the Classification of Instructional Program (CIP)[5] at the four-digit level to data on occupations by major field of study at the four-digit level and level of education.[6] This connection provides insights into how educational output aligns with labour market needs, highlighting the flow of graduates by CIP into minor group occupations. By identifying gaps between educational supply and occupational demand, we pinpoint programs that require expansion to address critical shortages.

First, for each occupation, we determine the share of workers employed in that occupation who hold a relevant CIP degree using Census 2021 data. This share is derived by dividing the number of individuals employed in the occupation with the corresponding CIP degree by the total employment in that occupation.

Second, we apply this share to the number of excess vacancies in each occupation to estimate how many of these vacancies would typically be filled by graduates of the relevant CIP. This provides the number of additional graduates needed by CIP to address shortages in each occupation. We then compare the number of additional graduates needed to the 2022 graduate cohorts to highlight where the most significant increases are needed.

Third, to expand the analysis from individual occupations to a cluster of occupations, we calculate the total number of additional graduates needed by CIP for each cluster. We then rank the total number of additional graduates needed within each cluster by CIP, identifying the programs that require the most expansion.

5 Statistics Canada, "RTRA Custom Request."
6 Statistics Canada, Table 98-10-0403-01.

Caveats and limitations

Our assertion is that deviations in the current vacancy rate from its five-year pre-pandemic average indicate which parts of the labour market are facing skills shortages and would benefit from intervention. But why might that not be the case?

Vacancy rates in a particular occupation may reflect non-skill factors, such as wages or working conditions relative to occupations with complementary skill requirements, or licensing and certification requirements. In both cases, these factors may limit the supply of workers for a given occupation even though there are enough people with the appropriate skills in the labour market. Increasing the number of workers through training or immigration may not be effective.

While the overall vacancy rate has returned to its pre-pandemic position, this need not be the case at the occupation level. If, for example, the standard recruitment process for an occupation is adjusted, the prevailing vacancy rate would be affected even when the labour market is in balance.

It may be that some of our occupations are still facing cyclical imbalance between supply and demand from the effects of the pandemic even though, in aggregate, the labour market has returned to pre-pandemic conditions. In this case, we may expect imbalances to resolve themselves in the coming quarters.

Another key caveat is how we estimate the effect of excess vacancies on productivity. We translate our measure of excess vacancies to productivity growth using the estimated relationship between vacancy rates and the skills shortage proxy estimated in *Skills and Productivity* at the industry level. However, we observe the skills shortage proxy only from 2011. While we account for the fact that shortages of higher-skilled workers likely have a larger effect on productivity by using the wage share as the weighting system rather than employment, we don't account for the fact that some occupations may contribute to longer supply chains and have larger impacts on overall productivity by creating bottlenecks.

Finally, our estimated productivity impacts are static. Skills and labour imbalances may encourage firms to substitute toward capital, which may be beneficial for productivity in the longer run. Additionally, we don't account for potential opportunity costs to addressing skills imbalances in a particular occupation as opposed to another.

Appendix B

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