



Getting Skills Right Sweden



Getting Skills Right: Sweden

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Foreword

Digitalisation, globalisation and demographic change are challenging the adequacy of labour market and training policies to ensure that workers have the skills needed in the labour market. In most countries, many employers complain that they cannot find workers with the skills that their businesses require. At the same time, a number of college graduates face difficulties in finding job opportunities matching their qualifications. In light of these challenges, the OECD has launched a new programme of work on how to achieve a better alignment between the skills people acquire and those needed by employers, with a focus on: i) understanding how countries collect and use information on skill needs; ii) investigating cost-effective training and labour market policies to tackle skill mismatch and shortages; iii) studying the incentives of training providers and participants to respond to changing skill needs; and iv) setting up a database of skill needs indicators. This work builds on the extensive programme of work of the OECD in the area of skills, including the OECD Skill Strategy and its follow up national studies, the Survey of Adult Skills (PIAAC) and its rich analytical programme, and several studies in the areas of skills mismatch, vocational education and training, and work-based learning.

Within this area of work, the OECD Directorate for Employment, Labour and Social Affairs is carrying out a series of in-depth country reviews to offer a comprehensive analysis of the key areas where policy action is required to spur the development of an efficient system for skills assessment and anticipation to inform policy.

This report on Sweden identifies strategies adopted for turning qualitative and quantitative information on skill needs into relevant policy actions. It provides a comparative assessment of best practices in the following areas: the collection and use of information on skill needs to foster a better alignment of skills acquisitions with labour market needs; and the use of effective governance arrangements to ensure good co-ordination across the key stakeholders in this area.

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Executive summary

Skills mismatch and shortages are widespread in Sweden. Around 34% of workers are employed in a field which is not related to their studies (e.g. field of study mismatch) and 39% are mismatched by qualifications (i.e. having either higher or lower education than required by their jobs). Around 11% of workers are mismatched by skills, being either more or less proficient in literacy than what is required by their job. At the same time, around 33% of firms claim they face difficulties in filling their vacancies due to the lack of workers with adequate skills, and wage pressures are emerging in sectors requiring high skills. In parallel, Sweden faces a number of challenges in adapting the skills of migrants to its knowledge-intensive labour market.

To tackle these challenges, Sweden has become a leader, among OECD countries, in the development of skills assessment and anticipation (SAA) exercises to collect timely and robust information on current and future skill needs. Multiple exercises are carried out concurrently by Statistics Sweden and the Swedish Public Employment Service, increasing the robustness of the overall results and analyses. Surveys and forecast models are used to gather information on existing and future skill needs. These rely on more than one data source, in order to serve different policy purposes, reduce potential biases and expand the scope of the exercises.

One of the strengths of the Swedish SAA system lies in its use of sound statistical information and in the constructive dialogue among stakeholders. However, improvements could be achieved in a number of key areas: i) the production and dissemination of SAA information at the sub-national level; ii) the use of SAA information across administrative levels; and iii) the way in which SAA information is used to inform policies in the areas of education, employment and integration of migrants' skills.

While Swedish SAA exercises allow for a comprehensive assessment of both current and future skill needs at the national level, regional and sector SAA analyses are somewhat underdeveloped as many of the exercises at a more disaggregated level have been discontinued. Recent efforts have been put to enhance regional analyses but these could be further improved and better disseminated to sub-national users, making the results more relevant for policy use.

Substantial differences exist also between the national and sub-national level in the ability to use SAA information in policy-relevant areas. At the national level, Swedish ministries have well-developed analytical infrastructures that allow them to make the best use of SAA information for education and employment policy or for the integration of migrants' skills. Co-operation at the national level extends effectively to many policy domains through, for instance, the development of youth training initiatives bridging employment and education, and the collaboration of ministries, national agencies and social partners to address skills pressures coming from large migration flows.

At the local level, Swedish municipalities have extensive powers to decide on the allocation of financial resources to specific activities and play a crucial role in the delivery and implementation of national skills policies. Despite a long tradition of dialogue, the co-ordination across actors at different administrative levels could be strengthened further. National skills objectives are, in fact, not always well-reflected in their local implementation and vice versa.

The misalignment between national and local skills priorities partly lies in the inability of some municipalities to make a full use of SAA information. This is due, among other reasons, to the lack of local statistical and analytical infrastructures and to weak incentives to use SAA information at the local level. The availability of more resources has allowed some large regions (or big municipalities) to buy services and support from Statistics Sweden (e.g. buy ad-hoc studies on their regional labour market). Smaller local actors, instead, unable to reach a critical mass which would be needed to carry out a robust full scale analysis, have not been able to do so and are nowadays less well equipped to assess and/or understand their current and future skill needs and to develop an effective policy response.

SAA information has the potential to inform policy in a number of different areas, notably in the education, employment and migration domains. Although Sweden does quite well in using SAA results for policy making compared to other OECD countries, several weaknesses emerge in a number of specific areas.

As far as education policy is concerned, competition across municipalities to attract students and financial resources contributes to the emergence of skills mismatch. Large variations also exist in the way and the extent to which SAA information is used to inform students' education choices through career guidance. Information on existing and future skill needs is still not yet used sufficiently to encourage enrolment in vocational education and training.

Concerning employment policy, the Swedish Public Employment Service (PES) has made considerable investments in improving its capabilities to match the skills of job seekers to those required by vacancies. However, the variety of tasks and objectives that the PES faces puts a great deal of pressure on its resources when it comes to meet the fast-changing needs of employers, and hence the delivery of skill-matching services could be strengthened.

Employers in Sweden are involved in SAA exercises but their role remains limited. The vast majority of Swedish firms provide training both to new hires and existing employees and many update their training content (at least) yearly to align them with changing skill requirements. More could be done, however, to build stronger and more regular linkages between employers and education providers as a key requirement to tackle skill imbalances.

Finally, the size and nature of migration into Sweden puts substantial pressure on the available resources for the validation of migrants' skills and their upgrading to meet the needs of the Swedish economy. This pressure is likely to increase as the influx of asylum seekers increases. New measures introduced by the government already foresee a more central role for SAA information. Despite recent reforms, the relative fragmentation of the Swedish system for skills validation and recognition, with responsibilities divided among multiple actors, can represent a barrier to the integration of migrants into the labour market, especially in certain occupations (e.g. health care) where skill shortages are very pronounced.

Key policy recommendations for Sweden

Further efforts are needed to fine tune SAA exercises to end-users' needs and effectively disseminate the results

- More effort should be put in in enhancing the analytical capabilities of regional actors to exploit SAA information by providing them with specific training opportunities and reinforcing the available platforms for peer discussion and mutual learning.
- Sectoral analyses should be reinforced following a rotating structure where, in addition to the exercises providing information at the national or regional levels, sector-specific analyses are carried out for two or three different sectors each year.
- More could be done to foster a wider dissemination of SAA information. The interaction at the local level between the PES and municipalities, both providing educational guidance and career advice, should be reinforced, especially in smaller municipalities.

The co-ordination between the national and local actors needs to be improved

- The PES should be granted more flexibility in the allocation of available financial resources to address local skills challenges. A quicker procurement of services from external contractors for the delivery of skills matching activities and a decrease in the share of earmarked funds within the agency should be promoted to prevent resources from remaining unspent.
- Further action is required to improve the linkages between national and local interests and skills planning. These are the focus of an ongoing debate. Co-ordination at all administrative levels should be strengthened by a more organised system of multi-level governance collaboration. Municipalities' interests and objectives should be pooled together into the activities of larger actors at the regional level with stronger links with national stakeholders.
- Regional skills planning should be strengthened with the aim of reducing competition at the local level and spurring a more rational use of available resources. This objective can be achieved through the establishment of state-region contracts, existing in other OECD countries, where bilateral agreements between national and sub-national governments clearly define stakeholders' mutual obligations, the assignment of powers of decision, the financial commitments (possibly in a multi-year budgeting perspective) and the enforcement and accountability mechanisms. The tasks of municipalities' regional co-ordinators, regions and that of county administrative boards, should also be clarified either by providing them with a stronger mandate from the municipalities or through new powers given from the national government.

A better use of SAA information in education policies could improve relevance, strengthen career guidance and broaden VET provision and attractiveness

- Competition across municipalities to attract students is leading to an uncoordinated response to skills challenges. Municipalities should establish co-operation through explicit agreements among education providers and employers with the objective of increasing resource efficiency and improving the quality of the educational offer to meet the needs of regional labour markets more effectively. The Teknikcollege initiative or the example of the Gothenburg Region should be developed further as models of best practice.
- The quality of the career and counselling services is a major impediment to tackling skills mismatch and shortages and should be reinforced. More resources should be devoted to increase the counsellor-to-students ratio in smaller schools and municipalities and to streamline counselling activities. More could also be done to provide incentives to smaller industries and sectors for the creation of local programmes of co-operation between education providers and employers to spur a better skills matching.

Key policy recommendations for Sweden *(cont.)*

- More stable funding schemes should be designed to provide a better link between upper-secondary VET and higher VET. The potential lack of continuity of funding between upper-secondary and higher VET, where the funds for the latter can be suddenly discontinued if labour market needs change, reduces the already poor incentives to enrol in VET. More incentives should be provided to ensure continuity in this education pathway and to encourage young Swedes to apply to VET.
- The visibility and reputation of VET in Sweden should be improved by building stronger links between employers and education providers and through a wider dissemination of SAA information showing the positive career prospects of VET graduates.
- More possibilities and financial support should be provided to adults who wish to re-train in order to adjust their skills to those needed in the labour market. Validation of prior learning and of competences acquired informally on the job should be reinforced. More flexible education options should be provided to those who are already working but seeking to pursue lifelong learning. This could be done by increasing the offer of one-year Master's programmes, short(er) courses or by increasing the availability of distance learning.

Better matching tools for the PES and a stronger involvement of employers in the Swedish SAA system would help improve skills matching

- Measures should be taken to improve the use and further develop the PES profiling tools as well as to provide adequate training to PES officers for the interpretation of the resulting SAA information. This could enhance the delivery of skills-matching services.
- Efforts should be stepped-up to create more effective platforms of co-operation and discussion among employers and especially among SMEs which face more difficulties in identifying their own skill needs.
- More should be done to involve employers, students and education providers in the joint discussion of labour market and skills challenges and in the identification of skills priorities. Lack of regular contacts between employers and education providers has led to diverging perceptions of the extent and urgency of skill challenges. This, ultimately, hinders the development of an effective response to skills imbalances, obstructing the identification of skills targets.

Programmes to put the skills of migrants to use need to be improved based on SAA information

- The validation of foreign qualifications is slow. This is especially true for regulated professions where deep skills shortages are observed and this remains an important barrier to the full use of migrants' skills in the Swedish labour market. Clarifying the boundaries between the functions of the different agencies undertaking validation activities in Sweden should reduce ambiguity and unnecessary duplication of efforts.
- Steps should be taken to engage all relevant actors to reach a more explicit consensus regarding the fundamental criteria informing validation as well as to build an infrastructure to continuously monitor the ongoing validation activities, linking them to SAA intelligence, and to fast-track the validation of qualifications and skills in shortage.
- More should be done to seek the pro-active engagement of employers in identifying reliable criteria for skills validation with a view to foster greater confidence in the value of foreign qualifications.

Assessment and recommendations

Skills mismatch and shortages are widespread in Sweden

According to the OECD Survey of Adult Skills 34% of workers in Sweden are employed in a field which is not related to their studies (e.g. field of study mismatch) and 39% are mismatched by qualifications (i.e. having either higher or lower education than required by their jobs). Around 11% of workers are mismatched by skills, being either more or less proficient in literacy than what is required by their job. Despite over-qualification and over-skilling being an issue in Sweden, around 33% of firms claim to face difficulties in filling their vacancies due to the lack of workers with adequate skills. Wage pressures are also emerging in sectors requiring high skills. In parallel, the integration of migrants and asylum seekers' skills poses fundamental challenges in terms of adapting these skills to Sweden's knowledge intensive labour market.

Sweden is a leader in the assessment and anticipation of skill needs but some bottlenecks remain

To tackle these challenges, Sweden has become a leader, among OECD countries, in the development of exercises and tools to assess and anticipate what skills are and will be required by its labour market. Skill needs are assessed and anticipated mostly through the use of surveys and forecast methods. Multiple exercises are carried out simultaneously by Statistics Sweden and the Public Employment Service (PES) as each different approach has its own advantages and limitations. On top of that, Swedish skills assessment and anticipation (SAA) exercises rely on more than one data source, in order to serve different policy purposes, reduce potential biases and expand the scope of the exercise.

One of the strengths of the Swedish SAA system lies in the sound statistical information collected and in the constructive dialogue among stakeholders. However, bottlenecks emerge in three key areas: i) the production and dissemination of SAA information at sub-national level; ii) the use of SAA information across administrative levels; and iii) the way in which SAA information is used to inform policies in the areas of education, employment and migration.

Further efforts are needed to fine tune of SAA exercises to local needs and effectively disseminate the results

The Swedish system of SAA exercises allows a sound and comprehensive assessment of current needs and the anticipation of skills challenges in the future. However, the strength of some regional and sector SAA exercises could be enhanced by fine tuning the available information to the policy uses made by local and regional actors.

Statistics Sweden and the PES are the main actors developing SAA exercises in the country but trade unions and employers organisations are also actively engaged in the dialogue on skill needs and skills development. Results across the different exercises are

consistent and provide coherent information for policy making at the national level. The potential subjectivity of certain approaches (mainly that of surveys) has been tackled by building strong bounds with employers allowing to double check the robustness of the information. Similarly, consensus has been reached by involving different stakeholders in the definition of forecasts' scenarios.

Both Statistics Sweden and the PES are actively involved in the dissemination of SAA results through reports and websites. Furthermore the PES is in contact with the National Agency for Education to build bridges with education providers in the dissemination of SAA information.

- Sweden makes a coherent use of different SAA tools but more efforts should be put in developing further regional and sector analyses and in enhancing analytical capabilities of regional actors to exploit such information. Sectoral analyses seem to be especially under-developed. The development of exercises running at different disaggregation levels can require a great deal of resources but some countries have been able to reduce such burden following a rotating structure where, in addition to the exercises providing information at the national or regional levels, sector-specific analyses are carried out for two or three different sectors each year. Sweden could follow this example.
- More could be done to foster a wider dissemination of SAA information. The interaction between the PES and the municipalities that provide career and counselling advice to students is, for instance, an ad hoc activity with PES input sought late in the decision-making process. The weak link between SAA information and municipal career advisors is especially troubling for municipalities with limited analytical capabilities, those that would benefit the most from being able to use the SAA information produced by the PES and Statistics Sweden.

The co-ordination between the national and local levels needs to be improved

At the national level, Swedish ministries have well-developed analytical infrastructures that allow them to make the best use of SAA information for education and employment policy or for the integration of migrants' skills. Co-operation across ministries extends effectively to many policy domains through, for instance, the development of recent initiatives bridging employment and education policy (e.g. the Trainee Jobs for young People). Collaboration takes also place across ministries, national agencies and social partners to address skills pressures coming from large migration flows (e.g. the fast track for new arrivals' and the "pilot scheme in accommodation centres" initiatives).

At the local level, Swedish municipalities have extensive powers to decide on the allocation of financial resources to specific activities (e.g. schools, social services, waste collection, public health or support to migrants). Municipalities, therefore, play a crucial role in the delivery and implementation of national skills policies. Despite a long tradition of dialogue, the co-ordination across actors at different administrative levels could be strengthened further. National skills objectives are, in fact, not always aligned to their local implementation and vice versa.

Recent OECD analysis shows that the Swedish national employment policy has put increasing emphasis on workers' mobility over retraining to match the available skills to labour market demands. In stark contrast to this principle, the interests and skills

objectives of municipalities are very much decentralised and locally bounded, calling for a quick response through flexible retraining programmes. Procurement rules and earmarked funds within the PES can limit the flexibility with which this agency is able to address the fast-changing skill needs of local labour markets. As a result, funds that are potentially available to address skills mismatches remain, in too many cases, unspent, leading to some criticism from both employers and job seekers.

Misalignment between the national and local administrative levels may also be caused by barriers limiting the use of SAA information by the municipalities. While national ministries and agencies are endowed with statistical and analytical infrastructures that enable them to reap the full benefits stemming from SAA information, regions and municipalities have very heterogeneous (and in some cases, insufficient) resources to use the available information. Some large regions or big municipalities, for instance, have been able to buy services and support from Statistics Sweden (e.g. buy ad-hoc studies on their regional labour market). Smaller local actors, unable to reach the critical mass required to carry out a robust full scale analysis, are less well equipped to assess and/or understand their current and future skill needs and to develop an effective policy response.

Strengthening the linkages between the national and local administrative level is fundamental to align national and local skills objectives and to develop a more coherent and effective policy response to skills imbalances. For this purpose:

- The regional and local branches of the PES should be granted more flexibility in the allocation of available financial resources across the different activities managed by the PES. This, for instance, should allow a much quicker procurement of services to external contractors for the delivery of vocational courses aimed at the retraining of mismatched workers or for the implementation of active labour market policies with a local/regional focus in areas where mismatches and shortages are pervasive.
- Local municipalities need to better organise their skills objectives and align them to national goals. One way is to pool municipalities' interests and targets into the activities of larger actors at the regional level with stronger links with national stakeholders. In Sweden, regional actors do not have sufficient powers to plan or implement skills policies. Nonetheless, they could play a crucial role in rationalising the costs associated with building more robust SAA statistical infrastructures and in aggregating interests of smaller municipalities whose resources are currently not sufficient to coherently address skills imbalances. The weak linkages between national and local interests are a well-known issue in Sweden and they are the focus of an ongoing debate; solutions to the “regional missing link” are not always easy to find, however. Co-ordination at all levels should be strengthened by a more organised system of multi-level governance collaboration. A renewed role for regional actors to plan skills development could be inspired by the functioning of state-region contracts that exist in other OECD countries. These bilateral agreements between national and sub-national governments clearly define stakeholders' mutual obligations, the assignment of powers of decision, the financial commitments (possibly in a multi-year budgeting perspective) and the enforcement and accountability mechanisms. The tasks of municipalities' regional co-ordinators, or that of county administrative boards, should also be clarified either by providing them with a stronger mandate from the municipalities or through new powers given from the national government.

A better use of SAA information in education policies could improve relevance, strengthen career guidance and broaden VET provision

Stronger incentives for education institutions to provide job-relevant skills are needed

In the 1990s, far reaching reforms devolved the provision of education to municipalities. These reforms prompted the fragmentation of national education goals into a constellation of locally bounded interests which promoted the emergence of competition across municipalities and schools to attract students and funds. The central government grants to municipalities were shifted from consisting mostly of targeted, earmarked grants to general grants allocated through a financial equalisation system to redistribute funds from wealthier to poorer municipalities. Many small local actors, however, have not been able to handle their participation in a number of state campaigns as the application process is lengthy and complex and the administrative capacity of smaller municipalities is limited and insufficient. This deepened the differences in the resources available to education between large and small municipalities putting the latter at a clear disadvantage to meet the fast-changing skill needs of the labour market.

The incentives to use the available SAA information to plan the educational offer to meet labour market needs decreased in favour of short-sighted and uncoordinated initiatives at the local level contributing to the emergence and persistence of skills imbalances.

- Sweden needs to encourage municipalities to use existing network organisations such as the regional co-ordinating bodies or county council platforms to co-ordinate local interests. These mechanisms can foster synergies and reduce competition among local actors and can help align educational provision with labour market needs.

How regional and local platforms could help ensure job-relevant education provision: examples of existing good practice

Technical Colleges (Teknikcollege) in Sweden have been able to encourage education providers from various municipalities to form local networks with firms in their geographical area to provide technology-oriented courses at different levels. Their strength lies in the establishment of co-operation, through explicit agreements, with the objective of increasing resource efficiency and improving the quality of the educational offer to meet the needs of regional labour markets more effectively. This model should be expanded and reinforced as it proved to be effective in bridging students, education providers and firms into a coherent platform which has the potential to reduce skills imbalances.

Similarly, the Gothenburg region has been able to gather different municipalities around collective and shared skills objectives. This led to a co-ordinated planning of the educational offer (as opposed to the uncoordinated response prompted by local competition) and to an extremely effective response to skills challenges at the regional level. The establishment of a regional platform for co-operation implied that resources were used in a more rational way and enabled smaller education providers (some of them private ones) to benefit from reaching a critical mass which, for instance, allowed to apply for European Social Funds (ESF) with larger project proposals eventually increasing the chance of receiving funds. Building trust across local actors has been fundamental in this process as it was the ability to collect and share SAA information to all stakeholders involved. This framework of co-operation should be strengthened and exported to other regions in Sweden as an example of best practice that have been able to create synergies at the local level to tackle skills imbalances.

Better career guidance and counselling activities are needed as students' preferences drive education provision in Sweden

The reforms in the early 1990s aimed to create a more flexible education system that satisfied the individual wishes of students and their aspirations. Scope for specific preparation for future working life was gradually de-emphasised in favour of increased individual freedom of choice. As a consequence, the supply of education is now primarily determined by students' wishes and funding follows students' in their education choices. Against this backdrop, career advice and counselling activities should have played the fundamental role of informing students' education decisions and promoting the alignment between students and labour market's needs. Instead, career advice and counselling activities have been a low priority leading young Swedes to be poorly informed about occupational prospects, jobs' tasks and skills, wages and mismatch.

Recent survey results show that only 30% of young Swedes knew what disciplines provided good labour market prospects before deciding what to study. Field of study mismatch is, therefore, widespread in Sweden. Some 71% of students graduating from the field of humanities, language and arts and more than 60% of new graduates in Agriculture and Veterinary in 2012 ended up working in a different field.

- More resources should be devoted to increase the counsellor-to-students ratio in smaller schools and municipalities. At present no specific national funds are earmarked for guidance and counselling in Sweden, hence the financing of these activities at the local level comes entirely from municipal resources. As a result, the size and quality of the service can end up being very different across large and small local education providers. Larger and better equipped municipalities are able to offer higher-quality guidance services through the use of specialised external centres while the rest (the majority of smaller municipalities) rely on limited in-house expertise.
- Establishing stronger links between employers and education providers is key to improve the dissemination of information on labour market needs to students. In fact, in many instances, the quality rather than the quantity of the career and counselling services is a major bottleneck in Sweden. Meetings with counsellors for academic advice are frequent and around 78% of young Swedes attended one of these meetings. However, only 16% of them reported this service to be helpful.
- More incentives should be provided to small industries and sectors (e.g. tourism and hotels, natural resources, food and beverage services) to build stronger ties between employers and education providers at the local level. Evidence shows that skills matching is more effective in those fields where education providers have a close co-operation with employers. This co-operation, however, tends to be concentrated in male dominated vocational programmes and in specific sectors (e.g. the energy sector, automotive and transport sector or the construction sector).

The image, continuity, funding and flexibility of Vocational Education and lifelong learning need to be improved

Around 77% of young Swedes participating to a recent survey believe that Vocational Education and Training (VET) is the type of education that is most helpful to get a job. Despite that, only 21% felt that VET is well valued by society in Sweden. A profound social stigma against VET (especially among youth with a higher socio-economic

background) limits its attractiveness and represents a major barrier to meet the needs of the labour market.

The linkages between upper-secondary VET and higher VET are also particularly fragile, contributing to reducing the incentives to enrol in VET in the first place. Higher VET is very much focused on meeting current labour market needs and funds are provided only to courses for which skills shortages have been identified through SAA analyses. The volatility in the funds allocated to higher VET courses, where the funds can be suddenly discontinued if labour market needs change, undermines the continuity of this education track and reduce the already poor incentives to enrol in VET. The relatively short duration of national grants to higher VET also contributes to the financial instability of providers and may reduce the incentives to invest in high-quality higher VET in the long run.

Efforts should be stepped-up to increase the visibility and reputation of VET in Sweden by building stronger links between employers and education providers and by improving the dissemination of SAA information to students showing the positive career prospects of VET graduates. Increasing the attractiveness of VET and reducing its social stigma is especially important among young Swedes whose parents did not attend VET and whose decisions may be biased accordingly.

Lifelong learning and adult education can play an important role in developing a response to skills imbalances. Barriers exist, however, that hinder the access of older workers to further education and, hence, limit their re-training.

- Financial constraints can limit adults' access to further education and re-training. As of today, the rules for the provision of financial aid and grants favour younger students making the access to further education difficult for working professionals who often face a trade-off between working or participating in lifelong learning. More possibilities and financial support should be provided to older workers and professionals who wish to re-train in order to adjust their skills to those needed in the labour market.
- In Sweden the system of validation of prior learning and of informal competences acquired on the job is relatively weak. This reduces the incentives for older workers to participate in further education as, in many cases, working professionals are required to follow courses and gain credits for skills and knowledge they already possess. SAA information can play an important role in reinforcing the system of validation of informal learning. In Australia and New Zealand, for instance, SAA information feeds into the revision of occupational standards and the update of qualifications frameworks.
- A more flexible educational offer should be provided to those who are already working but seeking to pursue lifelong learning. This could be done by increasing the offer of one-year Master's programmes and short(er) courses or by increasing the availability of distance learning.

Better matching tools available to the PES and a stronger involvement of employers in the Swedish SAA system would help improve skills matching

The quality of the matching tools available to the Swedish Public Employment Service should be strengthened further to meet the fast changing needs of employers

The PES occupies a strategic position in most countries' SAA system, being pivotal to the use of SAA information for the implementation of active labour market policies. The Swedish PES is in charge of many different and challenging tasks, most of which aim at ensuring a better skill match in the labour market. The variety of these tasks and the extensive challenges that they pose has recently put a great deal of pressure on the PES infrastructures. Despite considerable investments, the PES struggles to become a professional skills-matching broker and the quality of its matching services could be improved to meet the fast changing needs of employers.

As a reflection of this, employers and job seekers are not always satisfied with skills-matching activities of the PES and the competition from professional job-brokering providers has become increasingly high in the last years. The latter have different business contacts and are able to quickly fill skill gaps when regular staff is absent. The PES, on the contrary, is tasked with various activities at the same time (e.g. job matching, delivery of active labour market policies, the production of SAA information, etc.). This contributes to slowing down the delivery of skill-matching support to both employers and job seekers.

- The delivery of skills-matching activities by private providers should be considered. Part of the employers' dissatisfaction with the services provided by the PES lies in the fact that the PES has, so far, prioritised its support to those job seekers that are further removed from the job market at the expense of those whose skills are generally more in line with the request of employers. This poses the question of whether the delivery of skills matching activities should be opened to more competition from private providers in the attempt to rationalise available resources and enhance the delivery of more tailored services to both employers and job seekers with particular skill needs. Building a competitive model where the quality and effectiveness of both the PES and of private employment services providers is measured against objective criteria, is a suitable way to improve the delivery of skills-matching services.

As a response to the challenges faced by the PES, a new profiling tool (the Assessment Support Tool, AST) has been introduced in the Swedish PES workflow to support caseworkers – for example, in deciding whether early action is appropriate – and to improve the quality of support programmes.

- Measures should be taken to improve the use and further development of profiling and early warning and tools as well as to provide adequate training to PES officers to interpret the resulting SAA information. According to recent analyses, the implementation of the AST tool has been too hasty and managers of local PES offices received little guidance on how to effectively use it. While many of the initial problems have been addressed now, issues remain in the interpretation of some of the statistical results by PES caseworkers. This, in turn, is reflected in the heterogeneous use made of the AST tool across PES local offices nationwide: around 45% of caseworkers have a fairly or very negative attitude towards the tool and see limited use for it.

A more effective match between workers' competences and labour market needs can also be fostered through the use of increasingly sophisticated skills proxies and indicators. The Swedish PES is already moving in that direction by refining its existing "digital matching tool" to allow both job seekers and employers to search for each other through a system of skill tags inputted by the final users. This tool should help improve the match between the skills of job seekers and those required in vacancies.

- The reliability of information provided through the digital matching tool could be improved. At present, no validation of the information inputted by users in the digital matching tool is required, hence job seekers' self-reported skills are provided to employers without verification. The quality of the information, therefore, can be heterogeneous and undermine the overall credibility of this valuable effort. A recent informal evaluation of the prototype skills-tag system revealed that (too) many competencies are entered by job seekers simultaneously as they have the incentive to populate their profile with the maximum number of competencies possible to make their profile more visible. Efforts are currently put in addressing these issues.

Employers' role in the Swedish SAA system needs to be stepped up

Employers play a fundamental role in the Swedish SAA system. They provide on-the-job training programmes and create some of the necessary conditions that enable working professionals to pursue lifelong learning and update their skills to keep up with fast changing labour market demands. Survey results show that 75% of Swedish firms provide entry-level training for general skills (e.g. problem-solving, analytics, teamwork, communication, leadership, creativity) and the vast majority (around 87%) of firms provide support to the development of skills that are specific to their industry or company. While it is difficult to assess the quality of the broad range of training activities across firms, evidence shows that the effectiveness of training programmes for new recruits improves when contents are regularly adjusted to the skill needs of the firm. Survey results show that around 55% of Swedish employers update or review the content of the training provided to new hires at least every year (but some firms do so every three months or even more frequently). The involvement of employers in finding solutions to skill mismatch could be strengthened further:

- Efforts should be stepped-up to create more effective platforms of co-operation and discussion among employers, with a specific focus on SMEs which tend to face more difficulties in consistently identifying their own skill needs. Survey results suggest that the co-operation among Swedish employers in skills development initiatives is modest. Less than one in two Swedish firms co-ordinate with other companies on skills-related activities such as developing consistent job descriptions, setting common standards for training programmes or advising education providers on curriculum development. Only around 27% of employers declare that this co-operation has been effective (or very effective) in developing the skills needed by firms.
- Co-operation between employers and education providers could be strengthened in some areas, notably upper-secondary and tertiary academic education. This is especially important for higher education as a recent survey shows that up to 52% of Swedish firms has never established co-operation with higher education institutions. As a consequence of that, disagreement on the existence, extent and urgency of skills challenges in Sweden can emerge. As an example, while more than 70% of education providers are confident that the skills of Swedish youth are adequate to enter the world of work, only 33% of employers and 43% young Swedes believe so.

This result suggests that much more should be done to involve employers, students and education providers in the joint discussion of labour market and skills challenges and in the identification of skill priorities as the observed disagreement on basic skills challenges may hinder the identification of skills targets and the development of a policy response.

Programmes to put the skills of migrants to use need to be improved based on SAA information

According to the latest figures from Statistics Sweden, approximately 17% of the Swedish population in 2015 was born abroad, up from 11% in 2000. These figures are now rapidly changing as more migrants and asylum seekers are fleeing Syria and other countries at war to reach the European Union and Sweden in particular. This is likely to put a great deal of pressure on the mechanisms in place to match migrants' skills to those required by the Swedish labour market, especially since more than 40% of total employment in Sweden is in knowledge-intensive jobs.

The integration of migrants' skills is a challenge as the difference between the performance in numeracy (and literacy) tests between native and foreign-born in Sweden is among the highest across the OECD (around 60 points difference in numeracy tests). That being said, more than 50% of the difference in skills proficiency between natives and foreign-born disappears when language and foreign qualifications are taken into account. This result underlines the importance of having an efficient system to validate foreign formal qualifications and to recognise formal and informal skills. This can contribute to greatly speed up and ease the match of migrants' skills to jobs and to reduce the negative effects of mismatch by promoting a more efficient use of available resources.

The government launched a round of tripartite talks with the social partners and the PES to identify measures for promoting the best use of valuable skills possessed by new arrivals (especially of those with education or experience in occupations in shortage) so that they can be matched more quickly to the needs of relevant industries and enterprises.

Migrants arriving to Sweden may seek the validation of their formal qualifications as well as of informal competences (or both). Despite recent reforms, the Swedish system for validation of foreign qualifications and competences is sometimes fragmented and slow.

Validation activities need to be standardised and streamlined by reducing overlaps between the activities of various agencies and stakeholders, especially those in regulated occupations and sectors (e.g. health care) where skill shortages are profound and quick validation of foreign qualification could help fill these skill gaps.

- The boundaries between the functions of the key agencies in charge of validation activities should be clarified. This would help streamline the whole validation process, avoid overlaps and limit confusion among migrants seeking to validate their qualification in order to obtain a better match of their skills to those required by the labour market.
- Recent steps have been taken to engage all relevant actors to work together and reach a more explicit consensus regarding the fundamental criteria informing validation but more could be done. The multiplicity of actors and stakeholders involved in the current validation system can, in fact, lead to different interpretations of the criteria used for validation and to heterogeneous and inconsistent procedures. An infrastructure to continuously monitor the ongoing validation activities through

the collection of relevant statistics on the validation activities and linking them to SAA intelligence is also needed to design responsive fast-tracking initiatives targeting qualifications and skills in shortage in Sweden.

- More should be done to seek the pro-active engagement of employers in identifying reliable criteria for validation, thus fostering trust towards foreign qualifications. Employers' uncertainty about the real value of migrants' qualifications and experience presents a significant hurdle limiting the match between migrants' skills and labour market needs. This is especially true in those cases where migrants have little work experience in Sweden and limited ability to prove their real competences. In fact, while employers acknowledge the importance of foreign talent to fill skills shortages, their attitude towards migrants, their qualifications and competences could be improved.

As a consequence of the recent sharp increase in the inflows of migrants and asylum seekers, many regulations and existing programmes are in the process of being simplified. Discussion is taking place at the moment on whether a formal obligation to undertake further education for those arriving to Sweden with a qualification lower than compulsory schooling should be introduced as well as on whether the vocational education system should be developed to provide more enrolment opportunities for new migrants.

SAA information has fed into the design of several recent initiatives. For example, the government has earmarked financial resources for the development of bridging programmes and complementary education that target migrants possessing skills that are in shortage in the Swedish labour market (e.g. higher education degrees in law, medicine, nursing dentistry and teaching).

Fundamental aspects of a SAA system and the structure of the review

The assessment and anticipation of skill needs relies on a variety of specific tools, co-ordination mechanisms and implementation devices that can/should be adjusted and tailored to suit the specificity of each country' institutional setting and the particular nature of their skills challenges (OECD, 2016). Common traits among well-functioning systems can be identified. A well-functioning SAA system encompasses both the "creation" of robust SAA information and the "effective use" of SAA information for policy making across different policy areas. More specifically:

- **The creation of strong and reliable SAA information entails** the identification of where (i.e. in what sectors, specific occupations or areas) and when (e.g. now, in the future or both) the demand and the supply of skills will be misaligned in the labour market.
 - Different statistical tools and methods are available to achieve this objective. SAA exercises usually differ in terms of the definitions used to approximate skills, the time span and frequency of the exercise, the methods used and the level of disaggregation chosen for the analysis (e.g. national/regional/sectoral analyses or a combination of these). A well-functioning SAA system is, however, one that is able to combine different tools, types of information and data sources together with the ultimate objective of diffusing the resulting information to relevant stakeholders (e.g. policy makers, job seekers, education providers, students or employers).

- **The effective use of SAA information for policy making** entails the creation of strong co-ordination among different stakeholders to develop an efficient and timely policy response to skills challenges and imbalances. Co-operation builds on:
 - the horizontal involvement of actors across different policies areas in the identification of skills priorities and of tailored policy responses cutting across various policy dimensions (e.g. education, employment or, for instance, the integration of migrants' skills)
 - the *vertical* integration of relevant stakeholders' activities across different administrative levels (e.g. national, regional and local) in the use of SAA information for the design and implementation of policy responses to skill challenges.

Part I of this review discusses the aspects related to the creation of SAA information in Sweden. Part II focusses on the uses of SAA information for policy making as well as the co-operation across stakeholders in the identification of skill priorities through the use of SAA intelligence.

Part I

Assessing and anticipating skills imbalances and mismatches in Sweden

Chapter 1

Skills mismatch and shortages in Sweden

Increased globalisation and rapid technological change, but also demographic, migration and labour market developments, have altered considerably the structure of skill requirements in most countries in recent decades. These trends are expected to continue in the foreseeable future. In such a rapidly changing world, the need for the assessment of existing skill shortages and for forward-looking information on how the labour market and the demand for skills might change has become increasingly acute.

This chapter provides an overview of skills imbalances in Sweden by focussing on mismatches and shortages and then examining their individual and aggregate negative effects on the economy and society. This chapter shows that: i) the costs of “getting skills wrong” are substantial in Sweden, with significant economic costs, for individuals, employers, as well as society as a whole; and ii) the extent of mismatch and shortages is high in certain areas, especially in teaching occupations and in health sector. Results pointing to differences in the extent of mismatch and the prevalence of shortages across occupations and sectors suggest that skills policies can make a difference.

Skills are a main driver for economic growth and prosperity, accounting for a substantial part of the marked differences in GDP per capita across countries. However, increasing the supply of skills does not necessarily ensure economic growth or allow for a return on investments in education.

Countries with high shares of skilled workers may struggle to extract the full potential from their educated workforce when the supply of skilled workers is unable to match the specific skill needs of the labour market. Some degree of skill mismatch is inevitable, as individuals may move from one job to the other and need time to acquire the experience necessary to perform their tasks adequately. However inability of a country to develop an effective policy response to skills imbalances results in prolonged periods of extensive skill mismatch and shortages which could be avoided.

The challenges posed by skills imbalances are common to many countries (OECD, 2016). Both developed and developing economies are increasingly devoting more resources and attention to designing tools and systems to assess and anticipate skill needs.

Main findings

- Skills mismatch and shortages are notably widespread across countries. Results from the OECD Survey of Adults Skills (2012) show that 34% of workers in Sweden (as opposed to 39% on average) are employed in a field which is not related to their studies (e.g. field of study mismatch). In Sweden, mismatches vary substantially depending on the field of study: up to 71% of graduates from the field of humanities, language and arts work in a different sector to their field of study, as compared with only 24% of those specialising in health and welfare. This result highlights the need to improve the dissemination of existing skills assessment and anticipation (SAA) information in the form of better career guidance and counselling, with the aim of better informing students of the employment opportunities related to their field of training.
- Field of study mismatch is usually associated with over-qualification, as employers can compromise on the field of study for a high(er) level of education and qualifications. Swedish workers who are both mismatched by field of study and over-qualified suffer a 14% wage penalty relative to well-matched workers: this is considerable but lower than the 23% average observed across countries participating in the OECD Survey of Adults Skills (2012).
- The share of workers mismatched by qualifications in Sweden (39%) is above the average of countries participating to the OECD Survey of Adults Skills (2012): the share of under-qualified workers in Sweden (21%) is the second highest after Italy and well above the average (12%).
- Qualifications are an imperfect measure of workers' skills. Apparent qualification mismatch – when workers are erroneously categorised as being over or under-qualified – is widespread in Sweden. Significant differences in apparent qualification mismatch appear across fields of study, suggesting that qualifications are better predictors of graduates' skills in some fields than in others.
- Recent survey evidence on skills mismatch suggests that Swedish workers develop and accumulate skills at work very rapidly. However many of these skills are not

reflected in formal qualifications and thus go unrecognised. In this context, the Swedish PES is currently upgrading its profiling and matching tools to capture job seekers' full set of hard and soft skills: the impact of these efforts should be monitored closely.

- Despite over-qualification and over-skilling being an issue in Sweden, around 33% of firms with ten or more employees claim to have faced difficulties in filling their vacancies due to the lack of workers with adequate skills. The lack of candidates with the right skills, professional experience or adequate education are the main reason for these shortages as reported by employers in 65 and 50% of the cases respectively. Employers in Sweden face major difficulties when trying to recruit workers with a specific education background or a certain education level: more than 60% indicate difficulty in finding workers with a higher vocational education title and around 55% indicate difficulty finding workers with higher education.
- Severe shortages in teaching and health-related occupations are expected to continue and much discussion is taking place now on how to increase the volume of graduates in these fields and raise the attractiveness of related occupations.
- A strengthening of career progression is imperative to raising the attractiveness of teaching as increasingly fewer graduates choose to pursue teaching education and the attractiveness of the profession has declined. This negative result can be explained in part by weak economic incentives, falling relative wages and limited career progression.
- As a result of the reduction in funding to the health care sector, practitioners have started receiving a greater volume and quantity of cases. Many general practitioners indicate working under unsatisfactory conditions: an unmanageable work-rate and high stress environment. Similarly, cutbacks led to a reduction in personnel which has almost exclusively concerned nurses and nurses' assistants. Providing health care specialists with a higher-quality work environment can help increase the incentives to develop skills in this sector and revive the attractiveness of the nursing occupations, which is suffering from severe shortages.

Skills imbalances: Different types of mismatch and shortages

The term “mismatch” is commonly used to refer to: i) qualification mismatch, (e.g. when workers have an educational attainment that is higher or lower than that required by their job); ii) field of study mismatch (e.g. when workers are employed in a field which is different from the one they have specialised in) or iii) skills mismatch (i.e. when workers' skills exceed or fall short of those needed to carry out the daily tasks of their job (Box 1.1).

The three different types of mismatches can be simultaneously present in a country, region or in an individual. Qualification and skills mismatches can overlap, but being over/under qualified does not immediately entail being over/under skilled or vice versa. Quintini (2011) shows that little overlap exists between qualification mismatch and literacy or numeracy skills mismatch. Results from the Survey of Adult Skills (PIAAC) show that, on average, only 14% of over-qualified workers are also over-skilled in literacy.

Box 1.1. Qualification, field of study and skills mismatch: some basic definitions

Qualification mismatch arises when workers have an educational attainment that is higher or lower than that required by their job. If their education level is higher than that required by their job, workers are classified as over-qualified; if the opposite is true, they are classified as under-qualified. Field of study mismatch arises when workers are employed in a different field from what they have specialised in. The matching is usually based on a list of occupations (see Wolbers, 2003; OECD, 2016) that are considered as an appropriate match for each field of study. Workers who are not employed in an occupation that is considered a good match for their field are counted as mismatched. Skills mismatch arises when workers have a level of skills that is higher or lower than that required by their job. If their skill level is higher than that required by their job, workers are classified as over-skilled; if the opposite is true, they are classified as under-skilled. The word skills, however, encompasses a variety of different (and sometimes interrelated) dimensions as skills can refer to literacy, numeracy or ICT abilities as well as to other job-related skills such as team-work, organisation or communication skills.

Source: Krahn, H. and G. Lowe (1998); OECD (2014); Pellizzari, M. and A. Fichen (2013); Wolbers, M. (2003).

Field of study mismatch does not immediately imply qualification or skill mismatch either. For example, an engineering graduate who works in a job requiring tertiary education but in a different field would be mismatched by field of study but not by qualification level. The same worker could also be well-matched by skills if her/his skills (numeracy, literacy or skills in technology-rich environments) match those required by the job. Recent evidence (Montt, 2015) shows, however, that field of study mismatch is usually associated with over-qualification as employers may hire workers who specialised in a different field as long as the different educational background is compensated by high(er) levels of education and qualifications.

If skills mismatch refers to the misalignment of a worker's skills to those required by her/his job, "skills shortages" refer, instead, to the inability/difficulty of employers to find workers with the adequate skills for the jobs they are advertising. Evidence from a survey of employers carried out across the European Union in 2013 shows that around 40% of employers face difficulties in finding employees with the required skills (Eurofound, 2013). Another survey shows that around 36% of employers in 40 countries (both European and non-European) find it difficult to fill vacancies requiring specific sets of skills (Manpower Group, 2014) where some of the largest shortages are found in the skilled trades (e.g. welders, electricians and machinists), engineering, technicians and generally in the manufacturing sector.

Skills shortages and mismatch can be intertwined. Prolonged periods of skills shortages can lead, for instance, to the emergence of mismatch as employers may be forced, in the urgency of filling their vacancies, to hire workers whose skills do not match the job requirements.

Definitions, proxies and measures vary greatly depending on the type of mismatch under analysis and care should also be put when comparing the extent of cross-country measures of mismatch and shortages as these may reflect different concepts and methodologies.

The aggregate and individual-level effects of skills imbalances

Recent empirical evidence shows that skills mismatch can have adverse effects both at the aggregate and individual level. At the aggregate level, labour productivity is negatively affected through inefficient allocation of resources making it more difficult for productive firms to attract skilled labour (Adalet McGowan and Andrews, 2015).

Similarly, the negative impact of field-of-study mismatch can amount to up to 1% of GDP, on average, due to losses in productivity and to the sunk cost of developing skills that are not fully used in the labour market (Montt, 2015). Skill mismatch also entails slower adoption of new technologies and sluggish productivity growth as human capital, the fundamental driver through which new ideas are turned into product or process innovations, remains unused.

At the individual level, mismatch is associated with a variety of adverse effects for workers. Over-qualified workers are shown to earn around 20% less than workers with similar qualifications but well-matched in their jobs (Quintini, 2011). Similarly, under-qualified workers earn on average 17% less than workers who are well-matched in similar jobs.

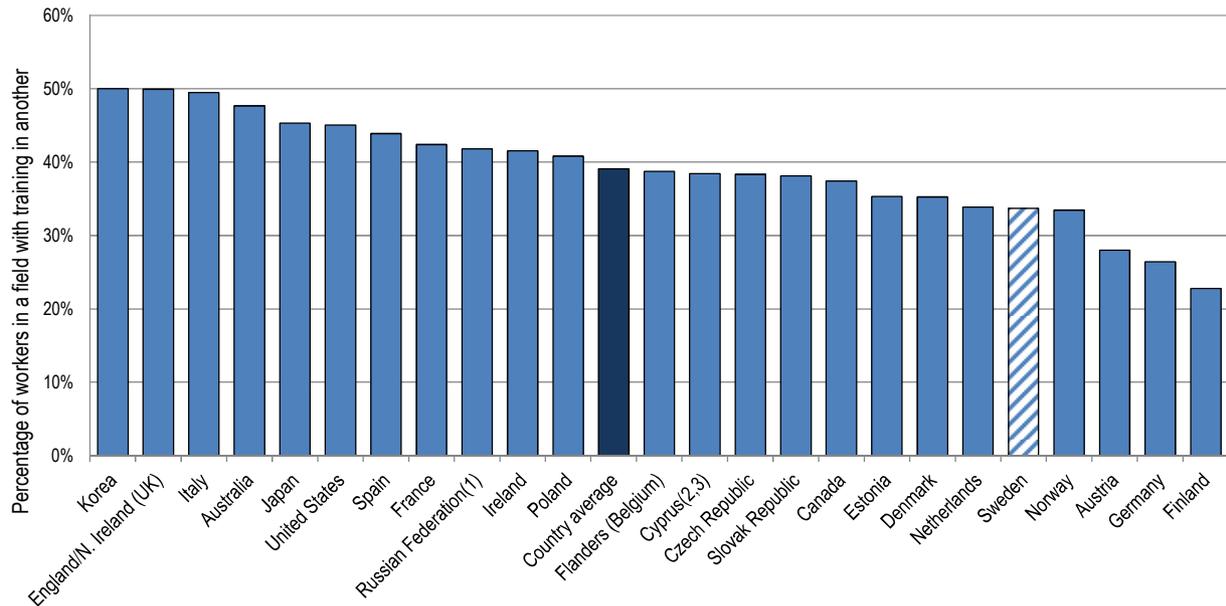
A further undesirable effect brought by skill imbalances relates to workers' reduced job satisfaction. Empirical analysis using the European Community Household Panel indicates that, after controlling for a large set of individual and job-related characteristics, overall job satisfaction is negatively correlated to perceived over-qualification (Vieira and Cabral, 2005). Similarly, over-qualification is shown to reduce satisfaction across other job dimensions such as security or the number of hours worked. Mismatched and unsatisfied workers are more prone to look for another job when feeling that their skills are not fully utilised or that their wages are lower than those of well-matched workers (Tsang et al., 1991; Sloane et al., 1999).

Skill shortages also hinder firms' productivity as vacancies can remain open for a long time before employers are able to find the right candidate to fill the job. While shortages can be absorbed (in principle) by hiring workers with lower (or different) skills than those required by the job, this solution comes at the expenses of generating additional skills mismatch, leading to the already discussed negative effects on the economy and individuals (Bennett and McGuinness, 2009; Haskel and Martin, 1993, 1996; Montt, 2015; Shah and Burke, 2005).

Field of study mismatch in Sweden

The extent of field of study

Recent evidence (Montt, 2015) shows that field of study mismatch is common across the 22 OECD countries for which information is available in the OECD Survey of Adults Skills (PIAAC).¹ Around 39% of workers, on average, are employed in a field that is different from the one they have studied and specialised in (Figure 1.1). In Sweden, however, the incidence of field of study mismatch is slightly lower than the average, with 34% of workers employed in a field which is not related to their studies.²

Figure 1.1. Incidence of field of study mismatch in Sweden and other OECD countries

Note: Countries are sorted in descending order on the percentage of workers mismatched by field-of-study.

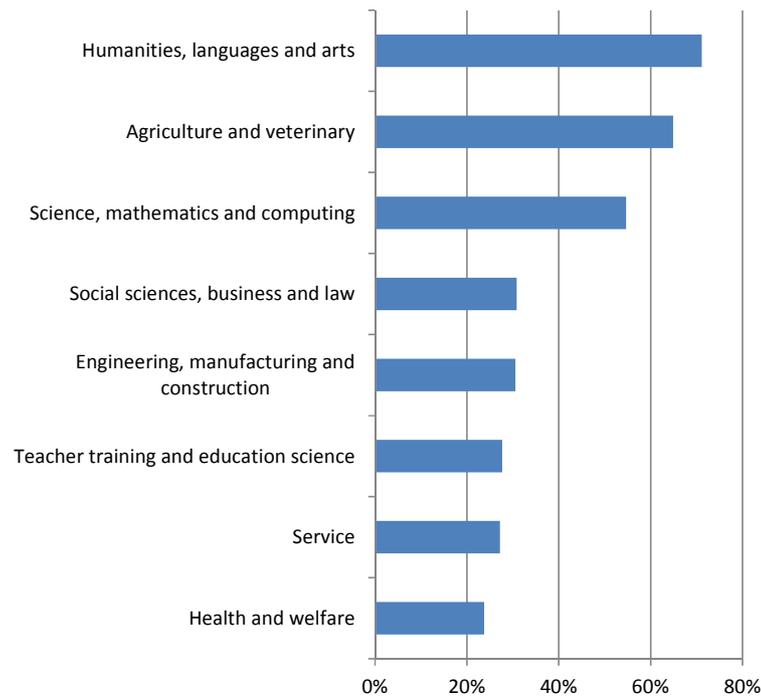
1. The data from the Russian Federation are preliminary and may be subject to change. Readers should note that the sample for the Russian Federation does not include the population of the Moscow municipal area. The data published, therefore, do not represent the entire resident population aged 16-65 in Russia but rather the population of Russia excluding the population residing in the Moscow municipal area. More detailed information regarding the data from the Russian Federation as well as that of other countries can be found in the Technical Report of the Survey of Adult Skills (OECD, 2013).

2. Note by Turkey: The information in this document with reference to “Cyprus” relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the “Cyprus issue”.

3. Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Source: Survey of Adult Skills (PIAAC) 2012.

The extent of field of study mismatch varies substantially across fields of study in Sweden (Figure 1.2). Results from the Survey of Adults Skills (PIAAC) show that 71% of those graduating from the field of humanities, language and the arts work in a different field, while only 24% of those specialising in the health and welfare field are mismatched by field.

Figure 1.2. Field of study mismatch by field of study in Sweden

Source: Montt (2015).

Field of study and wage penalties

Despite field of study mismatch being widespread, the available empirical evidence of its effects on wages is rather limited.³ For Sweden, Nordin et al. (2010) find a substantial wage penalty associated to field of study mismatch, amounting to 32% for men and 28% for women. This wage penalty is shown to decrease with work experience suggesting that acquiring work experience may compensate for the lack of job-specific skills.⁴

Recent empirical evidence (Montt, 2015) also puts in relation the extent of wage penalty to field of study mismatch using the OECD Survey of Adults Skills (PIAAC). After controlling for a variety of aspects (e.g. age, experience, skills levels as well as firm size and type of contract) regression analysis shows that field of study mismatch alone does not immediately imply a wage penalty for Swedish workers. Instead, a 14% penalty is observed for those workers who are mismatched by field and over-qualified at the same time (see Table 1.1). This result suggests that workers whose education field does not match that of their jobs do suffer a wage penalty but only when accepting jobs for which their education level is higher than required.

Table 1.1. Wages and field of study mismatch in Sweden

Dependent variable: Log wages	
Field-of-study mismatch only	0.03 -0.02
Over-qualification and field-of-study mismatch	-0.14*** -0.02
Over-qualification only	-0.08*** -0.02
Intercept	2.22 *** -0.12

Note: Linear regression with log(wages) as the dependent variable. Results control for age, experience, numeracy skills, firm size, type of contract. Dummies are used to control for fields of studies. Standard errors in parenthesis.

Source: Montt (2015).

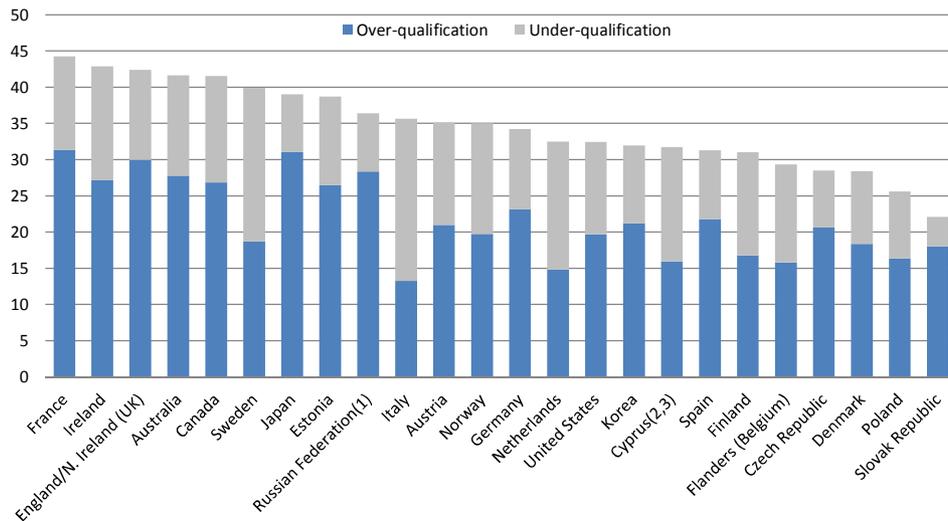
Finally, field of study mismatch also can entail negative consequences for employers. For example, when hiring mismatched workers, employers may need to provide training for field-specific skills that the mismatched workers do not already have (Nordin et al., 2010).

Qualification mismatch in Sweden

Results based on the OECD Survey of Adults Skills (2012) show that around 34% of workers across countries were mismatched by qualifications. In Sweden, this share (39%) is slightly above the average (Figure 1.3), second only to France, Ireland, England/N.Ireland (United Kingdom), Australia and Canada.

Over-qualification is approximately twice as common as under-qualification on average across the countries participating to the OECD Survey of Adults Skills (2012), but relatively equal in Sweden, with over qualification at 19% and under-qualification at 21%. Notably, the share of under-qualified workers in Sweden is the second highest across the countries analysed after Italy.

The factors leading to the high incidence of under-qualification in Sweden are varied and difficult to assess. Oscarsson and Grannas (2001) provide evidence that older workers who have spent most of the working time in the same company are more likely to be over-qualified than younger workers with less working experience. This would reflect the fact that older professionals, with time, end up being promoted to positions for which they may not have the adequate qualifications but, nonetheless, sufficient working experience. Another factor is the high share of foreign-born workers living and residing in Sweden with a relatively low level of education, as they could be employed in occupations where their formal qualifications (or those that have been formally recognised) are actually lower than those required by the jobs.⁵

Figure 1.3. Qualification mismatch, evidence from the 2012 Survey of Adults Skills

Note: Qualification mismatch is defined relative to the qualification needed to get the job, as reported by the respondents. Over-skilled workers are those whose proficiency score is higher than that corresponding to the 95th percentile of self-reported well-matched workers – i.e. workers who neither feel they have the skills to perform a more demanding job nor feel the need of further training in order to be able to perform their current jobs satisfactorily – in their country and occupation. Under-skilled workers are those whose proficiency score is lower than that corresponding to the 5th percentile of self-reported well-matched workers in their country and occupation.

1. The data from the Russian Federation are preliminary and may be subject to change. Readers should note that the sample for the Russian Federation does not include the population of the Moscow municipal area. The data published, therefore, do not represent the entire resident population aged 16-65 in Russia but rather the population of Russia excluding the population residing in the Moscow municipal area. More detailed information regarding the data from the Russian Federation as well as that of other countries can be found in the Technical Report of the Survey of Adult Skills (OECD, 2013).

2. Note by Turkey: The information in this document with reference to “Cyprus” relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the Cyprus issue”.

3. Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Source: Survey of Adult Skills (PIAAC) 2012.

In this regard it is important to note that while the share of migrants with tertiary education is higher than that with low-education across OECD countries, in Sweden (where the foreign-born represent a substantial fraction of the total population – approximately 16%), more than 32% of migrants aged 16-65 have less than upper-secondary education.

Apparent qualification mismatch

Qualifications are only an imperfect approximation of workers’ competences, skills and abilities. Consequently, workers are susceptible to being categorised as over or under-qualified while being well matched by skills in their job. This situation is usually referred to as “apparent qualification mismatch” and can be caused by so-called credentialism (i.e. the belief that academic or other formal qualifications are the best way to signal a person’s intelligence or ability to do a particular job). Bulmahn and Krakel (2002) argue, for instance, that employers may be tempted to inflate recruitment criteria

under the belief that this will facilitate the selection of the best candidates. Similarly, individuals may try to acquire higher qualification levels than really necessary (i.e. qualifications that bring only little marginal additions to their skill set while, however, inflating their curriculum) if they believe these extra-qualifications to be essential to signal their skills in very tight and competitive labour markets.

Apparent under-qualification (e.g. when a worker is categorised as being under-qualified but his/her skills well matched to the job), instead, manifests when workers are able to acquire informal skills and competence at work (or through experience) but these skills are only partially reflected in their formal qualifications and titles.

Whenever qualifications are imprecise and weak indicators of a worker's underlying skills, it becomes difficult for employers to take well-informed recruitment decisions.⁶ This can potentially lead to skills mismatch. The weak signaling power of qualification and its consequences on recruitment decisions can entail large costs, leading to lower productivity or to a need to provide additional training for workers lacking the skills required by their job.

The extent of apparent qualification mismatch in Sweden varies substantially across fields of study (Table 1.2). It is the highest among those graduating in the engineering, manufacturing and construction fields of study (55%) and lowest in the Agriculture and veterinary fields (4%). The large differences in the extent of apparent qualification mismatch indicate certain patterns in fields of study.

Most of the total apparent qualification mismatch in the engineering, manufacturing and construction field is due to apparent under-qualification. Evidence from the OECD Survey of Adults Skills (2012) shows that around 30% of the students graduating from the engineering, manufacturing and construction field of study were able to find a job in this area by showing lower qualifications than those nominally required while bringing the adequate set of skills to carry out the job.

Table 1.2. Apparent qualification mismatch by field of study in Sweden

	Over-qualified and matched by literacy (%)	Under-qualified and matched by literacy (%)	Total apparent qualification mismatch (%)
	1	2	(1)+(2)
Engineering, manufacturing and construction	23.85	30.82	54.67
Social sciences, business and law	21.62	24.26	45.88
Health and welfare	11.27	14.7	25.97
Humanities, languages and arts	8.36	3.27	11.63
Science, mathematics and computing	5.7	4.03	9.73
Services	6.49	2.9	9.39
Teacher training and education science	6.28	1.55	7.83
Agriculture and veterinary	1.23	2.8	4.03

Note: Fields are ordered by total apparent qualification mismatch.

Source: OECD calculations based on the Survey of Adults Skills (2012).

High shares of apparent under-qualified workers in certain fields such as engineering, manufacturing and construction or health and welfare, indicates that employers in those fields are more able to discriminate and understand the true skills of job seekers regardless of the graduates' official qualifications (e.g. hiring workers that are apparently under-qualified but truly skilled for their jobs). In these fields, employers may have been able to establish more robust links with potential job candidates than in others. The use of apprenticeships or internships in certain fields more than in others is, for instance, likely

to give employers “inside information” about a candidate true skills regardless of their qualification level.⁷

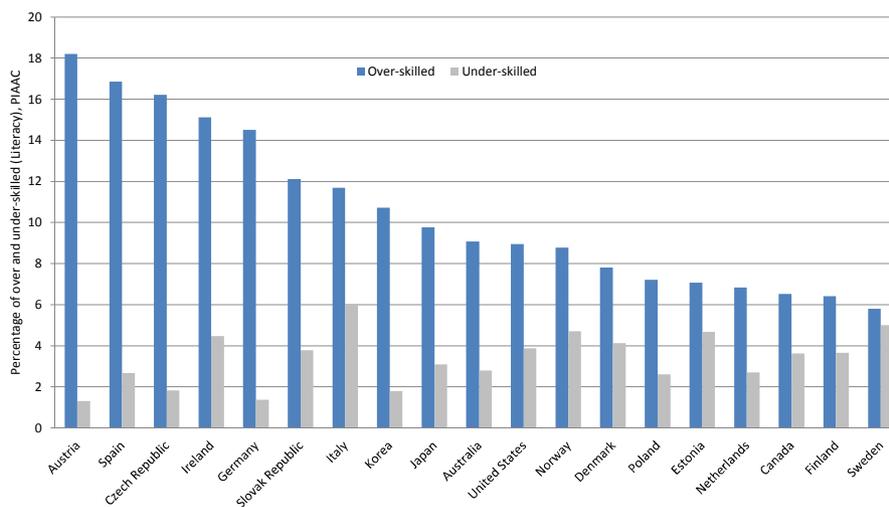
On the opposite side of the spectrum, total apparent qualification mismatch is relatively less common in fields such as teacher training and education science (8%) or services (9%) but this is mostly due to apparent over-qualification, which is almost three times larger than apparent under-qualification. In these fields, qualifications seem to be inflated relative to the underlying skills of graduates, suggesting that employers may find it more difficult to use qualifications as an adequate indicator of graduates’ true skills.

The extent of apparent qualification mismatch indicates a necessity to establish a robust framework within which employers, education providers and students are able to share information about their skills and their needs effectively. Recent survey evidence from McKinsey and Co. (2013) shows, in fact, that employers and students hold very different perceptions about the employment-qualification match than that of education providers. More than 70% of education providers are confident that the skills of youth are adequate to fill entry level positions but employers and young Swedes are far less confident (at 33% and 43% respectively).

Skills mismatch in Sweden

Evidence from the OECD Survey of Adults Skills (2012) (Figure 1.4) shows that Sweden experiences low levels of skills mismatch⁸ (10.7%) relative to the average of the countries participating in survey (13.8%). Ireland (19.6%) holds the highest share of workers mismatched by skills, with the lowest being in the Netherlands (9.5%). Sweden’s good performance is mainly due to the low incidence of over-skilled workers (5.8%) relative to the average of the sample (10.5%). Sweden shows almost equal shares of over and under-skilled workers (5%), which is consistent with the pattern observed for qualification mismatch.

Figure 1.4. Incidence of over and under-skilled workers across countries



Note: Over-skilled workers are those whose proficiency score is higher than that corresponding to the 95th percentile of self-reported well-matched workers – i.e. workers who neither feel they have the skills to perform a more demanding job nor feel the need of further training in order to be able to perform their current jobs satisfactorily – in their country and occupation. Under-skilled workers are those whose proficiency score is lower than that corresponding to the 5th percentile of self-reported well-matched workers in their country and occupation.

Source: Survey of Adult Skills (PIAAC) 2012.

Other sources of information such as the recent European Jobs and Skills (EJS) survey (Cedefop, 2015) collected evidence on adult employees' perceptions of their skills relative to those required by their jobs across 28 European countries.⁹

Table 1.3. Workers' perceptions of skills mismatch at the moment of hire and current

	My skills are higher than required (%)		My skills are matched to what is required by my job (%)		Some of my skills are lower than what is required by my job and need to be further developed (%)	
	A	B	A	B	A	B
Sweden	23.6	37	55.2	55.8	21.2	7.2
Male	24.91	38.4	54.85	55.74	20.25	5.86
Females	22.34	35.58	55.6	55.78	22.05	8.64

Note: Column A refers to the perception of mismatch at the moment of employment in the current occupation. Column B refers to the current perception of mismatch.

Source: Cedefop's European Skills and Jobs (ESJ) survey.

Around 55% of Swedish workers declared that their skills were well matched to those required by their jobs at the moment of starting their current job (Table 1.3). The shares of those replying to be either over-skilled (23.6%) or under-skilled (21.2%) were also similar, confirming previous evidence on the closeness in under and over skills mismatch in Sweden.

The ESJ survey allows to analyse the evolution of workers' perceptions on skills mismatch along the duration of their employment. Results indicate that while the share of workers declaring to be matched by skills remained rather stable, the percentage of under-skilled decreased substantially with workers reporting to be over-skilled increasing over time. The result for Sweden is in line with the pattern observed across the EU-28 where "for a significant share of adult workers (40%) the rate of growth in the complexity of their job lags behind their level of skill development, rendering their skills unused" (Pouliakas and Russo, 2015).

As noted in the ESJ survey, the fast development of skills at work emphasises the importance of developing a robust framework to recognise informal qualifications and competences acquired at work. Validation of informal competences is a key tool for employers to better understand the skills of the workforce and for workers to better evaluate their skills.¹⁰

Financial constraints, geographic mobility and skills mismatch

Various factors drive skills mismatch at the individual level. Results from the EJS survey (Table 1.4) indicate that the extent of skills mismatch varies amongst workers with different family obligations and financial constraints across Sweden. Results show that workers having considerable family obligations do not report significantly different shares of skills mismatch than other workers but that those experiencing financial difficulties declare to be mismatched by skills more frequently. Financial difficulties seem to be associated to over-skilling, as workers with financial difficulties may be obliged to accept jobs for which their skills are higher than those required by the job. While accepting a job offer for which the candidate is over-qualified may represent an immediate solution to her/his financial constraints, long-term this can result lower job satisfaction or higher job turnover (Quintini, 2011).

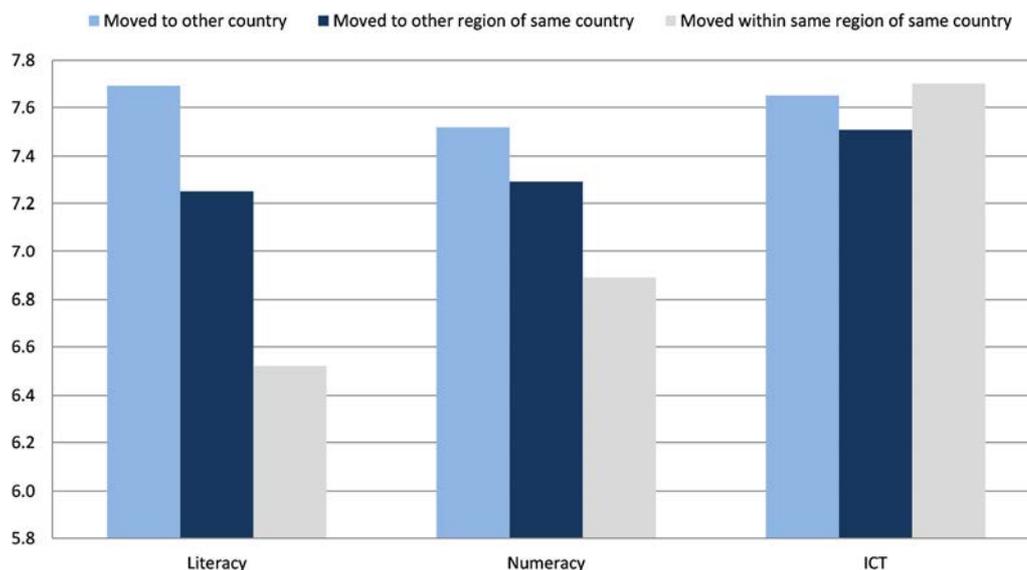
Table 1.4. Family obligations, financial difficulties and skills mismatch

	My skills are higher than required	My skills are matched to what is required by my job	Some of my skills are lower than what is required by my job and need to be further developed
	(%)	(%)	(%)
Considerable family obligations			
Yes	26.6	58.7	14.7
No	22.4	53.8	23.8
You and family had considerable financial difficulties			
Yes	35.2	36.1	28.7
No	22.5	56.9	20.6

Source: Cedefop's European Skills and Jobs (ESJ) survey.

Other aspects can also help understand the emergence of mismatch at the individual level. Workers' geographic mobility can lead to a better match between workers' skills and the needs of different local labour markets. Findings from the Netherlands show, for instance, that mobile graduates are more likely to find jobs that match their skill levels (Hensen et al., 2008). However results from the EJS survey (Figure 1.5) show that more mobile workers (e.g. those who moved from their municipality to a different one within the same region or to another country) report to be over-skilled more often. Explanations for this result are varied and probably intertwined with those discussed above, as more mobile workers may have moved as a result of financial hardship, accepting jobs for which they are over-skilled.

The existence of informal (or formal) networks of local labour market contacts can allow workers remaining in their region of origin to be employed in occupations where their skills better match their jobs. Recent OECD analysis (OECD, 2015) highlights that increasing emphasis has been put in Sweden on workers' mobility over their local retraining as a tool to match their skills to labour market demands, despite the will to maintain geographical neutrality of Swedish employment policies. However, results from the ESJ survey seem to suggest that skill matching could be spurred by the retention of local workers – rather than providing incentives to mobility – and by policy interventions aimed at directly tackling local skills imbalances.

Figure 1.5. Geographic mobility and skills mismatch in Sweden by type of skill

Note: How would you best describe your skills in relation to what is required to do in your job? Please use a scale of 0 to 10 where 0 means your level of skill is a lot lower than required, 5 means your level of skill is matched to what is required and 10 means your level of skill is a lot higher than required.

Source: Cedefop's European Skills and Jobs (ESJ) survey.

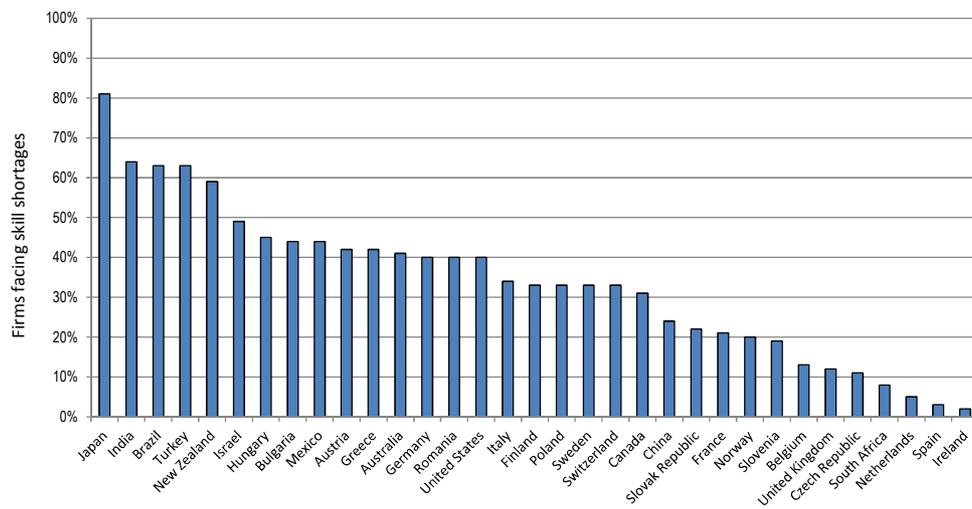
Skills shortages

Despite over-skilling and over-qualification being widespread across countries, evidence from surveys of employers highlights the existence of severe skills shortages in Sweden as well as in many other developed and developing economies.

The Manpower Talent shortage survey collects information on employers' perceptions of skills shortages in more than 40 countries (both European and non-European). Results show that on average, 36% of employers report difficulties in filling specific vacancies (Figure 1.6) due to the lack of skills in the available workforce. In Sweden, around 33% of firms with ten or more employees indicated facing difficulties filling vacancies due to the lack of workers with adequate skills.¹¹

Figure 1.6. Skill shortage in selected countries¹

As a percentage of all firms with 10 or more employees

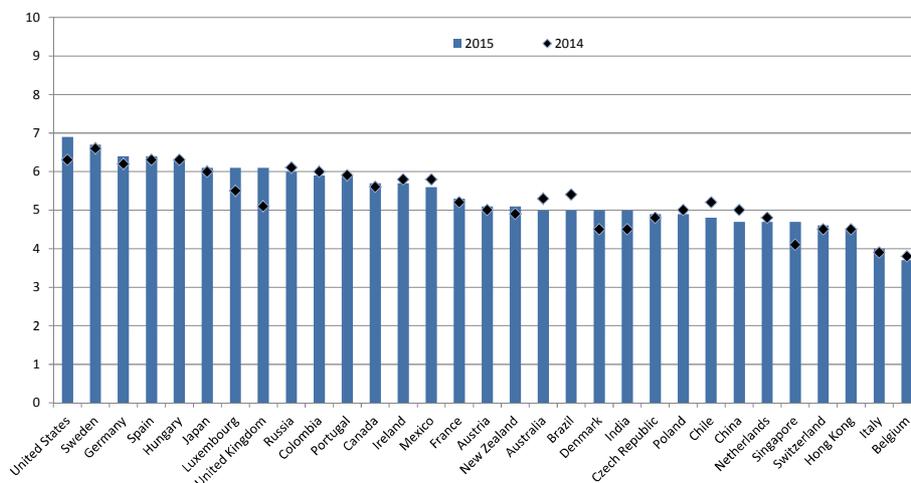


Note: Countries are sorted by the total skill shortage.

1. Firms are classified as facing a skill shortage if their manager reports having difficulties filling jobs.

Source: Manpower Talent Shortage Survey (2014).

The Hays Global Skills index (2015) provides additional cross-country information on skills shortages in national labour markets by combining data on wage pressures in the total economy, in high-skill industries and high-skill occupations with indicators on labour market flexibility and talent mismatch. The results point to substantial skills shortages in Sweden identified by the up-rising wage pressure¹² in occupations requiring high skills (Figure 1.7).

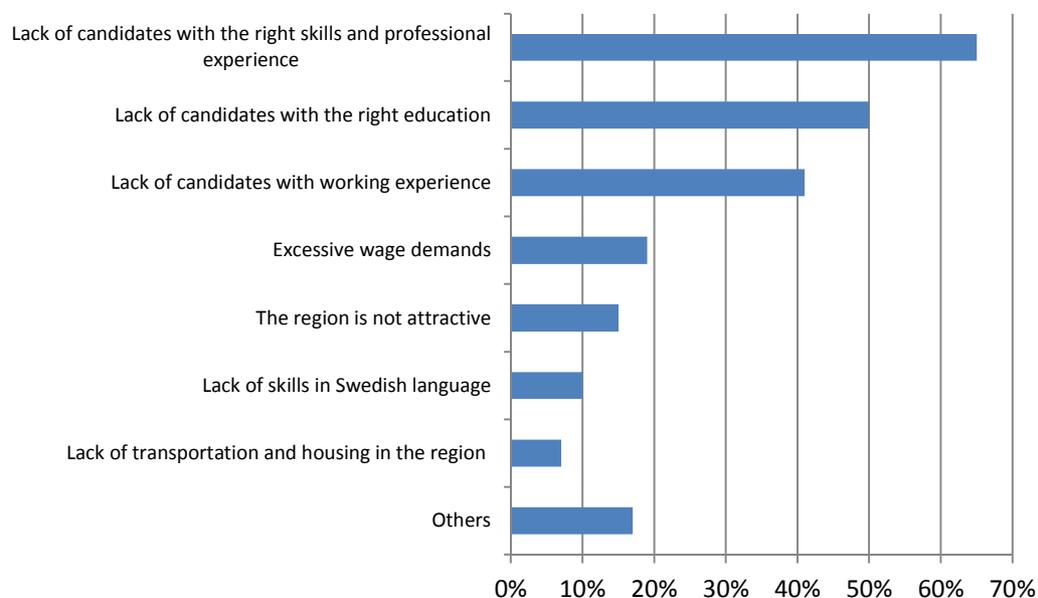
Figure 1.7. Hays Global Skills index, 2015

Note: Hays Global Skills index: Higher values indicate more pressure exerted on the national labour markets. Seven indicators are given equal weight when calculating the overall score for each country: education flexibility, labour market participation, labour market flexibility, talent mismatch, overall wage pressure, wage pressure in high-skill industries, wage pressure in high-skill occupations.

Source: Adapted from Hays Global Skills index, 2015.

Evidence from a survey of employers run by the Confederation of Swedish Enterprises (*Svenskt Näringsliv*) (Figure 1.8) indicates that Swedish employers attribute the causes of skills shortages to both the lack of candidates with the right skills and professional experience (65%) and a lack of appropriate educational qualifications (50%). In the opinion of the employers, excessive wage demands are not perceived as limiting the ability of employers to find skilled workers¹³ nor do factors related to geographical mobility (e.g. housing or transportation) at 7%.

Figure 1.8. Most important reasons for skills shortages in Sweden: employers' perspective

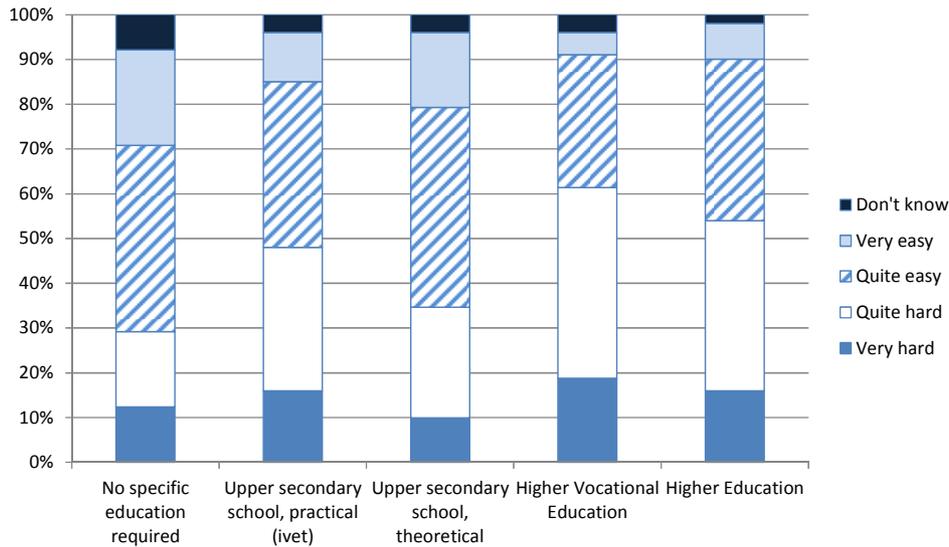


Note: What do you think are the main reasons why it has been difficult for your company to recruit the people you need?.

Source: Adapted from *Svenskt Näringsliv – Confederation of Swedish Enterprise* (2015). Results are averages of replies across employers in different sectors.

Swedish employers face major barriers, instead, when trying to recruit workers with a specific education background or a certain education level. Around 55% of employers indicates that it is moderately to very difficult to find workers with higher education (Figure 1.9). Results from Statistics Sweden's 2015 Labour Market Tendency survey confirm increasing shortages of new graduates in a large number of educational groups. More than 70% of employers declare an increased need for graduates with Bachelors and Masters of Science in engineering; structural engineering, electronics/computer technology/automation and architecture in order to attain their skills needs in 2018. However the deepest skills shortages are found within the health care and education sectors.

More than 60% of employers indicate that it is very difficult to find workers with a higher vocational education title.

Figure 1.9. Recruitment difficulties by level of education

Note: How difficult was it to recruit employees with the specified level of education?

Source: Adapted from Svenskt Näringsliv – Confederation of Swedish Entrepreneurs (2015).

Survey results¹⁴ of young Swedes shows the existence of a profound social stigma on Vocational Education and Training (VET). Students tend to opt for a formal academic education despite evidence that VET can provide a quicker transition from education to work. Information collected from the Swedish National Agency for Higher Vocational Education (Myndigheten för Yrkeshögskolan, MYH) highlights that demand for places in higher vocational education courses usually exceeds the supply and that this may be a contributing factor to the observed shortage of graduates with this type of education. Shortages, therefore, seem to be linked to insufficient supply of higher VET vacancies rather than excess in demand, with ample margin to enlarge the offer.

Severe shortages in teaching and health care professions

Addressing the severe shortages in teaching and health-related occupations is a priority in Sweden. Evidence collected by the PES (Table 1.5) points to the current lack of skills in tertiary occupations such as nurses of different kinds (e.g. operation, geriatric, psychiatric care) as well as of preschool, vocational and secondary school teachers.

Similar results are found in Statistics Sweden's Labour Market Tendency Survey. Recent analysis highlights the expected (and current) lack of nurses and a shortage of qualified teachers in mathematics, science, preschool, special needs and recreation. A large majority of employers also reported difficulties in recruiting first-level nurses and nurses in anaesthetic care, intensive care and surgical care. Dental nurses are expected to be in shortage for the first time in many years as the supply has gradually worsened over the last five years.

The skills shortages observed in many of the above-mentioned occupations seem to be associated with an overall better skill match of workers' employed in those fields. Results from the EJS survey (Table 1.6) show a good job-skills match of workers in the "teacher training and education science" (67%) and "medicine and health-related

occupations” (63%), far above the average for other fields. In turn, results show a higher incidence of graduates declaring to be over-skilled in occupations that show a current (and expected) excess of supply.

Table 1.5. Shortages across occupations

Occupations at <i>tertiary level</i> where there is the greatest shortage of candidates (the least competition for jobs) until the first half of 2016	
Operation nurses	Nurses (basic training)
Preschool teacher	Radiographers
Geriatric nurses	Technicians, building and construction
Nurses, psychiatric care	Children's nurses
Civil engineering, building and construction	Midwives
Nurses in emergency care	District nurses
Doctor	HVAC engineers
Software and system developers	Secondary school teachers of vocational subjects
Civil engineers, electric power	Flight engineer
Testers and test managers	Special educators
Occupations at <i>tertiary level</i> where there is the greatest surplus of candidates (the least competition for jobs) until the first half of 2016	
Biologists	Bank employees
Communicators	Staff issuer, vocational counsellor, etc.
Journalists	Administrator, public administration
Photographers	Shop's deck officer

Source: Arbetsförmedlingen – Swedish Public Employment Service (2015), “Getting Skills Right in Sweden: Skills Assessment and Anticipation Workshop”.

Occupations and fields where shortages are severe and skills are high in demand, therefore, seem to provide students who specialised in these with better job-skill match. Better dissemination of information on career prospects (i.e. information on those occupations for which the ratio of vacancies to graduates is higher) can play a fundamental role in providing students with incentives to enrol in these and help reduce, contextually, shortages and mismatches.

Table 1.6. New hires’ perception on skills mismatch by field of study

Field of study	My skills are higher than required	My skills are matched to what is required by my job	Some of my skills are lower than what is required by my job and need to be further developed
Teacher training and education science	16.4	66.6	17
Medicine and health-related	19.7	63	17.3
Economics, business, law and finance	36.3	52.5	11.2
Humanities, languages and arts	24.9	51.3	23.8
Maths and stats	41.8	49.3	8.9
Computing sciences	26.4	48.5	25.1
Engineering sciences	29.5	46.6	23.9
Natural sciences	34.4	44.3	21.3
Other social sciences	34.4	44.3	21.3
Security, transport or personal services	29.5	42.5	28
Other	22.7	53	24.3

Source: Cedefop’s European Skills and Jobs (ESJ) survey.

Teaching occupations

The teaching workforce in Sweden is ageing and, as of today, it is not replaced by new graduates pursuing teaching education. OECD (2014b) shows that while the share of teachers over 50 decreased from 44% to 39% between 2002 and 2012, 15% of teachers in Sweden were aged over 60 in 2012 at secondary level. Along with Norway and New Zealand this is the second-highest share across OECD countries and almost double the OECD average of 8%. The large share of teachers over 50 is not compensated by young teachers entering the labour market. The share of young teachers – those under 30 – is only 7%, while 11% of secondary teachers were under 30 in 2002.

Increasingly fewer graduates choose to pursue a career in teaching and the attractiveness of the profession has declined over time. Much of this situation can be explained by relatively poor economic incentives offered in teaching occupations and by the limited potential for career progression.

Research by Pareliussen et al. (2015) argues that, over the last decade, core working hours have increased while teachers' working conditions deteriorated with a contextual increase in the administrative tasks carried out by teachers. Several reforms implemented in recent years have led to earlier national tests, clearer learning goals and more stringent qualification requirements. A side-effect of these reforms, however, is that Swedish teachers and principals now face heavy administrative burdens which add to the teaching load with insufficient economic compensation. Wages (and especially wage progression) do not sufficiently compensate those employed in teaching. Starting salaries for Swedish teachers are around the OECD average, but the wage progression is limited. This discourages young Swedes from becoming teachers. In terms of career progression, data on earnings show that the highest teacher wages are only 33% higher than starting wages, compared to the OECD average of 58%.

Reforms should aim at freeing up teachers' time by reducing administrative burdens and increasing economic incentives. This would allow teachers to devote more of their time to prepare for teaching and, contextually, restore the attractiveness of the profession. Similarly, principals would be able to engage in pedagogical leadership more effectively.

In Finland, where the teaching profession is highly valued by society, high-level training furnishes teachers with the skills to autonomously choose methods to use in their classrooms. This, in turn, promotes a strong sense of self accomplishment and increase the attractiveness of the profession. Similarly, teachers are largely free from administrative requirements such as inspection, standardised testing and government control.

Strengthening career paths of Swedish teachers is therefore imperative. Reforms in this area (especially to reduce the administrative burdens on teachers) have been progressively implemented since 2012 but the incentives provided by the reforms to pursue teaching have not yet been fully realised. Strengthening the diffusion of SAA information to Swedish students, especially the information advertising about the lower share of skills mismatch among teaching professionals, can be key to provide additional incentives to pursue this career and thus to reduce skill shortages.

Health care professions

The health care system in Sweden has been traditionally hospital-oriented, with around 80% of total health care expenditures allocated to the hospital sector (UEMO, 2015). However financial cutbacks in primary health care have led to some important

structural changes in the organisation of the Swedish health care sector. The number of hospital beds has diminished along with the number of employees in the sector. The reduction in personnel has almost exclusively concerned nurses and nurses' assistants.

As a result of the reduction in funding to the health care sector, practitioners have started receiving a greater volume and quantity of cases. Many general practitioners indicate working under unsatisfactory conditions: an unmanageable work-rate; a high stress environment and limitations in influence on their daily workload (UEMO, 2015). Given this situation, incentives to pursue these occupations started worsening and shortages emerged.

According to a cross-sectional study of specialised nurses' earnings across Sweden in 2008 (Kenner and Molin, 2010), the wage premium (6.2%) associated with being a specialist nurse is low compared to an unspecialised one. Results also highlight that female nurses receive on average a lower wage than male nurses. The same study points to the hypothesis that health care specialisations experiencing the largest shortages correspond to those with the smallest wage premiums.

Finding effective solutions to the existing shortages in the health care sector is difficult. In other countries, experiencing similar shortages, domestic recruitment has been accompanied by substantial overseas recruitment to quickly increase capacity. However barriers exist for nurses and specialists coming from other countries in Sweden. National regulations stipulate that the National Health and Welfare Board (*Socialstyrelsen*) should process applications to become an accredited nurse within three months. Yet in many instances, the validation of foreign qualifications has been slow, hindering the effective use of specialised workers coming from abroad (see Chapter 4).

Providing health care specialists with a higher-quality work environment can also help increase the incentives to develop skills in this sector and revive the attractiveness of nursing occupations. In Ireland, a report of the National Taskforce on Medical Staffing (the Hanly report), stressed the importance of enhancing the roles of non-medical staff and that of multi-disciplinary team-working (HOPE, 2004). Extending the range of work which can be undertaken by different professional groups could also allow nurses to develop more skills and responsibilities, ultimately increasing the attractiveness of these occupations.

Notes

1. See Montt (2015) for the definition of how field of study mismatch is measured using PIAAC.
2. Similar estimates are found in Quintini (2011) using the 2004 data from the European Social Survey.
3. Empirical evidence on the effects of field of study mismatch on wages across countries is scarce. Existing international literature suggests that a considerable part of the wage penalty associated to field of study mismatch relates to the fact that workers mismatched by field are also usually over-qualified. For Ireland, Kelly et al. (2010) find a 6% wage penalty for those mismatched by field but well-matched by qualification while Kim et al. (2012), for Korea, find that (after accounting for qualification mismatch), the wage penalty associated to field of study mismatch amounted to 2% for women and 3% for men
4. To put it differently, this result hints to the possibility that part of the wage penalty associated to field of study mismatch may be actually driven by skill mismatch and, in particular, to the fact that field of study mismatched workers may be contextually lacking some of the skills required in their jobs that will be, however, eventually acquired through work experience.
5. Alternatively, or in parallel, the high share of under-qualified workers may mask “apparent qualification mismatch” where migrant workers with adequate competences (but whose qualification titles that have not been yet formally validated in Sweden) are employed in occupations that only nominally require higher qualifications than those they actually have.
6. Employers rely on qualifications as a signal of a worker’s true skills, but the more signals given by qualifications diverge from the candidates’ true skills, the larger the potential mistakes in the hiring process.
7. In some cases, stronger contacts between employers and students – prompted by the use of apprenticeships or internships – can lead to hire the candidate before she/he graduates and, therefore, when their actual qualifications are lower than those nominally required by their job. Other reasons behind apparent qualification mismatch can also be linked to field-specific hiring practices (i.e. firms in the economic consulting area may perform stricter and more systematic interviews than, say, those in the teaching and education field).
8. These are measured over literacy proficiency scores. Similar results are obtained using numeracy proficiency as measured in the Survey of Adults Skills (2012).
9. Cedefop’s survey was carried out using quota sampling collecting information on 48 676 respondents from different demographic groups took part either by telephone (9 154 employees) or online (39 522 employees). A mixed methodology approach ensured that data collected provided a representative sample of the 24 to 65 working age population in each of the 28 countries. Data for Sweden are based on 1 001 observations and have been collected through online interviews.

10. In this context, Sweden takes part in the European Qualifications Framework (EQF). The European Qualifications Framework (EQF) is a translation tool that helps communication and comparison between qualifications systems in Europe. Its eight common European reference levels are described in terms of learning outcomes: knowledge, skills and competences. This allows any national qualifications systems, national qualifications frameworks (NQFs) and qualifications in Europe to relate to the EQF levels. Learners, graduates, providers and employers can use these levels to understand and compare qualifications awarded in different countries and by different education and training systems.
See:
https://ec.europa.eu/ploteus/search/site?f%5B0%5D=im_field_entity_type%3A97.
11. Although surveys to employers are a common way to detect shortages through reports of hard-to-fill or unfilled vacancies, employer reports of shortages often mask their unwillingness to offer competitive wages or working conditions or invest in worker training (Shah and Burke, 2005). Another survey for 2013 finds that around 40% of employers in Europe faced difficulties in finding employees with the required skills (Eurofound, 2013). Skill shortages were most (least) common in the manufacturing (financial) sector.
12. Wage pressures are observed when wages are growing faster than the overall cost of living.
13. This is so in a relatively smaller number of cases (19%).
14. McKinsey and Co. (2013)

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Chapter 2

Building skills assessment and anticipation information: An overview of the Swedish initiatives

Skills assessment and anticipation exercises are carried out in virtually all OECD countries, but that the approaches used vary. This chapter describes four fundamental aspects of the Swedish SAA exercises. First, it discusses the ability of existing tools and exercises to identify where and when skills imbalances do (will) arise. Second, it analyses the specific methodological challenges faced by these exercises along with the solutions that have been found to produce reliable and robust information in Sweden. Third, it describes the governance of the SAA exercises and the way the main stakeholders involved in assessing and anticipating skill needs interact in the production of SAA information. Finally, the chapter reviews the diffusion channels for SAA information and the potential bottlenecks to its dissemination to an audience of policy makers, students, job seekers and education providers.

The development of skills assessment and anticipation (SAA) exercises is fundamental to respond to the negative effects that skills mismatch and shortages have on individuals and on the whole economy. In this context, SAA exercises are usually carried out by a variety of stakeholders with the aim of producing reliable labour market intelligence meant to feed into policy making and to inform a wide audience on current and future occupational prospects and on the skills and competences needed in the labour market. Given their importance, exercises of this type have been developed in virtually all OECD countries.

From a general point of view, SAA exercises should not be regarded as an attempt to plan the labour market from the top down but rather as a tool to inform relevant stakeholders (e.g. ministries, policy makers on different levels, Public Employment Services students, job seekers and education providers) on *where* (i.e. in what sectors, specific occupations or regions) and *when* (e.g. now, in the future or both) the demand and the supply of skills will be misaligned in the labour market.

SAA exercises vary across and within countries as does the ability to fine-tune where and when skill imbalances will emerge. SAA exercises differ in terms of the definitions used to approximate skills, the time span and frequency, the methods used and the level of disaggregation chosen for the analysis (e.g. national/regional/sectoral analyses or a combination of these).

Recent analysis has shown that countries carry out several exercises simultaneously as each specific approach has particular advantages and limitations (OECD, 2016a). In Sweden, current and future skill needs are assessed and anticipated through the use of surveys and of forecast methods. These exercises rely on multiple data sources, reducing potential biases and expanding scope of the exercises.

A recent overview of best practices in the assessment and anticipation of skill needs across OECD countries (OECD, 2016a) shows that successful SAA exercises are usually developed through the involvement of several stakeholders around specific objectives and realistic timelines. In Sweden the *Statistiska centralbyrån* (Statistics Sweden) and the *Arbetsförmedlingen* (the Swedish Public Employment Service, PES) are the main actors in charge of carrying out skills assessment and anticipation exercises but other stakeholders are also involved in the development of “skill needs” analyses. The Swedish Higher Education Authority, for instance, publishes regular reports on the balance between supply and demand of skills in the labour market with the aim of informing education providers and students entering higher education on the skills and competences required by the labour market. Swedish social partners, also, produce ad-hoc analyses on several important issues related to skills imbalances in the labour market.

Overall, SAA exercises are well developed in Sweden but some weaknesses and gaps still exist, some of which are common to other OECD countries. For example, the extent to which the output of SAA exercises is disaggregated at the sub-national and sectoral level could be improved. This would allow policy makers to tailor their policies and targets with more precise interventions aimed at specific occupations and skills that are (or will be) needed by the Swedish labour market. Some past skill analyses at the sectoral level have been discontinued and the analysis at that disaggregation level seems now to be under-developed, especially when compared to some other OECD countries where skill sectoral analyses play a prominent role in the SAA system.

As in most OECD countries, there is scope to improve on the type of variables used to approximate skills. Occupations, qualifications and education levels, commonly used as a

proxy for “skills” across several OECD countries and in Sweden, are an imperfect approximation of the whole skill sets required in the labour market. The Swedish PES is actively engaged in finding better ways to monitor and measure skills but more efforts should be put into developing ways to recognise formal and informal skills acquired at work.

Finding effective ways to disseminate SAA information to final users represents a challenge for several OECD countries. Recent measures have been taken in Sweden to spur a better diffusion of SAA information to students, job seekers and migrants. More could be done, however, to reach a wider audience and to better inform students on future education and training investments.

Main findings

- In Sweden, current and future skill needs are assessed and anticipated mainly through the use of surveys and forecast methods. Swedish SAA exercises rely on several data sources, reducing potential biases and expanding the scope of the exercises.
- Statistics Sweden and the Swedish Public Employment Service are the main actors carrying out SAA exercises in Sweden but trade unions and employers organisations are actively engaged in spurring the dialogue on skill needs and skills development.
- The methodological issues, intrinsic to each different approach for assessing and anticipating skill needs, are mitigated by the variety of different exercises and data sources used. The level of disaggregation of SAA results could be expanded to allow policy makers to tailor their policies and target interventions on specific areas where skills imbalances are more pronounced (e.g. teaching and health care occupations).
- Robust SAA information is available in Sweden but its dissemination to a wide audience could be strengthened. The interaction between the PES and the municipalities that provide career advice is an *ad-hoc* activity with the PES input sought late in the decision-making process.

The “WHEN”: assessing current skill needs and forecasting future ones

Generally, SAA exercises can either assess current skill imbalances or anticipate future skill needs. Sometimes (but less commonly) exercises can do both by looking at immediate skill needs and at medium- to long-run trends (Box 2.1).

Box 2.1. Assessing and anticipating skill needs: Definitions and examples

Skill assessment exercises analyse the supply and demand for skills, with a particular focus on the identification of current mismatches or shortages. These exercises exist in virtually all OECD countries (OECD, 2016a). In Australia and New Zealand occupation and region-specific shortages are identified through vacancy surveys and other quantitative and qualitative methods (e.g. wage pressure analysis and feedback from employers). In other OECD countries, current skill needs are directly assessed by employer organisations as is the case of the TEC Observatory (*Observatoire Tendance Emploi Compétence*) in France which collects information from firms on vacancies and recruitment needs to identify skills that currently lacking in the labour market.

While skills assessment exercises analyse current skills imbalances, other exercises anticipate skill needs by identifying future imbalances. This kind of exercises can run over the short term (six months to two years), medium term (two to five years) or long-term (five or more years). OECD (2016a) shows that across OECD countries, skill forecasts commonly cover a medium-term time-span, focusing on a period ranging between two to five years. Long(er)-term skill forecasts are particularly common in Nordic countries. Norway forecasts skill needs in the health sector 10 to 80 years ahead and 35 years for the teaching sector.

Though less common across OECD countries, Skills foresight exercises also exist. These exercises provide a framework for stakeholders to think about future scenarios and jointly shape policies to reach specific objectives. A key distinction between forecasts and foresight exercises is that the latter go beyond the exploration of future scenarios by promoting decision making and mobilising action to shape the future and bring about such scenarios (ETF, 2014).

Source: OECD (2016a).

The “now”: The assessment of current skills imbalances in Sweden

Statistics Sweden and the PES are the main actors involved in the assessment of short-term skills imbalances in Sweden but other actors such as the Swedish social partners also carry out interesting and valuable exercises on specific and ad-hoc skills issues (Box 2.2).

Box 2.2. Social partners’ skills assessment exercises

Social partners usually carry out independent analyses of the status of the Swedish labour market. These exercises are less frequent than those carried out by Statistics Sweden or by the PES but nonetheless play a crucial role within the Swedish SAA system, as they usually fill some of the gaps in the existing analyses. The “*Sverige behöver 400 000 fler jobb*” and “*Ny kunskap för nya jobb. Eftergymnasialt utbildningsutbud för yrkesverksamma*” are two examples of the latest analyses carried out by the Swedish Confederation of Professional Employees (TCO) in 2013 and 2015 respectively. In the case of the *Sverige behöver 400 000 fler jobb* study, the analysis of skills imbalances was based on the information provided by the National Agency for Higher Vocational Education on admissions to polytechnic education. TCO’s analysis covered 4 388 higher vocational education institutions/providers and the activities of a wide range of education providers with the objective of filling a specific information gap. The study analysed the extent to which the provision of higher education is available for working professionals who want (or need) further training to meet the skills requirements of an evolving labour market. Conclusions of the *Sverige behöver 400 000 fler jobb* study highlighted that more should be done to enhance the provision of specific education paths by increasing the offer of one-year Master’s programmes and of short courses as well as that of distance-learning courses and other flexible education programmes to those working professionals looking for further training and lifelong learning. Similarly, the results of the study highlight the need to strengthen the validation of competences acquired at work as this may help to design education paths that will be more in line with the current and future needs of the Swedish labour market and more flexible to meet the needs of working professionals to retrain and upskill.

In Sweden, three major exercises provide information on current skills shortages and mismatches over slightly different time spans: the *Yrkeskompassen* (Occupation Compass), carried out by the Swedish PES; the *Labour Market Tendency Survey* (LMTS) and the *Job Vacancy Survey* (Table 2.1), carried out by Statistics Sweden. They differ under a variety of aspects while sharing a number of features and challenges. An important commonality between these short-term skills assessment exercises is their use of survey methods as a tool to collect information from firms and employers both in the private and public sectors.¹

Differences are notable, however, in the way each survey is administered (Table 2.1). The coverage of the exercises as well as the issues related to the measurement of skills and the specific methodological challenges associated to each exercise are discussed in the following sections.

Table 2.1. Current skill needs assessments in Sweden

Approach	Current skills assessment		Anticipation of skill needs (forecasts or foresight)		Advantages	Disadvantages	In Sweden
	Very short-run (current)	Short to medium-run	Short to medium-run	Medium to long-run			
Surveys of employers asking about skill deficiencies and skill gaps	X	X			Direct "user/ customer" involvement. Easy to set up and carry out	May be very subjective and inconsistent, with too much focus on marginal and ephemeral situations	Surveys are used extensively in Sweden The PES' Occupation Compass is able to limit the potential subjectivity of the information by building strong ties with employers interviewed and by directly contacting them to ask further questions whenever misunderstanding and subjective replies may be biasing the result. A similar approach is followed for the Job Vacancy Survey. Manual and automatic checks on the consistencies of the replies are used to validate the information collected.
Forecast-based projections and quantitative models at the national level			X	X	Comprehensive, consistent, transparent and explicit	Data demanding, costly; not everything is quantifiable and may give a false impression of precision/ certainty	These methods are widely used and well developed in Sweden for both national and regional forecasts Statistics Sweden's Trends and Forecasts is a robust forecast model based on extensive use of register data. The integration of the analysis with additional qualitative information could, however, enhance the results PES' Occupation Compass forecasts are based on both qualitative and quantitative information. Limitations to the analysis are related to data availability. Forecasts are not provided at the full regional disaggregation level but only for macro-geographical areas. In depth sector analyses are missing
Focus groups/round tables, Delphi style methods, scenario development				X	Holistic (considers a broader range of factors than just economic) Direct "use/customer" involvement	Can be non-systematic, inconsistent, and/or subjective	Absent
Sectoral/ occupational / regional studies and /or observatories (using both quantitative & qualitative evidence)	X	X		X	Holistic (for the sector). Partial (ignores other sectors). Strong on sector and other specific labour market dynamics	May introduce inconsistency across sectors	National results are usually disaggregated at the regional level. REGLAB is developing matching indicators but some of its features are still in their infancy. Limited analytical capability of regional actors also hinders the use of results for policy making Results at the sectoral level are presented in some exercises but explicit, focused and structured sectoral analyses are somehow lacking
Summary: Sweden							
A variety of different exercises in Sweden encompasses the use of some of the most important methods and tools. This helps mitigating the biases inherent to having a narrow set of exercises and expands the scope of the SAA system overall. Results are consistent across exercises, providing coherent information for policy making.	Swedish SAA exercises span from the very short (quarterly) assessment to long-run forecasts (around 20 years). This allows to assess current needs while anticipating skills challenges in the future and to design policies to respond to such challenges more broadly.				Subjectivity of certain approaches (mainly that of surveys) has been tackled by building strong bounds with interviewed employers as well as by involving different stakeholders in the definition of forecasts' scenarios	Regional and sector results are available but the strength of these exercises could be enhanced. Sectoral analyses seem to be somehow under-developed while regional analyses are currently being developed further.	The approach to the production of SAA information in Sweden makes a coherent use of different tools and methods spanning from the very short to the long-run. Some of the common challenges (e.g. subjectivity of survey data and of forecasting scenarios) have been dealt with. More effort should be put in developing further regional and sector analyses and in enhancing analytical capabilities of regional actors to exploit such information

The coverage of the skills assessment exercises in Sweden

The strength of the skill needs information collected through survey methods is tied to the representativeness of the examined sample (i.e. how well the group of surveyed individuals approximate the characteristics of the total population). A distinctive feature of Swedish skills assessment exercises is seen in their extensive coverage of private and public employers and in the overall robustness of the statistical infrastructure underpinning the exercises (Table 2.1). Statistics Sweden's *Labour Market Tendency Survey* (LMTS) and the *Job Vacancy Survey* (JVC) cover a large fraction of employers and firms in Sweden. Around 10 800 forms are sent to about 7 500 employers at selected workplaces² in the LMTS while the JVC covers approximately 16 700 stakeholders and up to 62 300 and 30 000 job openings in the private and public sector respectively.

A large set of interviews with private and public employers is also at the core of the PES Occupation Compass (*Yrkeskompassen*). In the Occupation Compass, the sample of private employers is designed to resemble, as much as possible, the economic structure in all Swedish regions.³ The design of the Occupation Compass puts particular emphasis on the measurement of both nation-wide and local skill needs. Two different survey samples are built for this purpose: i) a master sample, which stands at the basis of the main analyses done at the national level and ii) an additional sample, which extends the number of workplaces analysed and used to provide a more precise picture of local labour markets' needs by weighting the replies according to the number of employees in each occupation/municipality.⁴

The measurement of current shortages and mismatches

OECD (2016a) highlights that well-developed SAA exercises usually combine the use of quantitative and qualitative data sources. In Sweden, the questionnaires used to collect information for the PES Occupation Compass gather both qualitative information on employers' current and short-term recruitment needs and quantitative data on wages for approximately 200 different occupations. In addition, the PES survey is designed to collect information about companies' capacity utilisation, the demand for goods and services and the existence of any redundancies. The collection of this information has the objective of approximating the amount of skilled labour force that will be required to satisfy the current economic demand. Finally, additional qualitative information about the type of tasks, the responsibilities and the education level required in each one of the 200 occupations analysed is collected to integrate the final analysis.

Similar to the Occupation Compass, the questionnaire used for Statistics Sweden's LMTS has the objective of assessing the availability of jobs in the short-run and to compare the demand for skilled workforce to the current supply of skills. However, while the Occupation Compass focuses on skill imbalances measured at the occupation level, the LMTS is designed to provide information on the labour market outlook of 72 educational and training categories.⁵ To this end, employers are asked to express their opinion on whether a "surplus", "balance" or "shortage" of skills is experienced by their firm. A similar exercise, though with a more limited scope (see Box 2.3), is also carried out by the National Institute for Economic Research (NIER).

Box 2.3. National Institute for Economic Research’s Economic Tendency Survey

The Economic Tendency Survey collects information on business and consumers’ view of the economy. NIER’s report is published monthly and it is based on results contained in the Business Survey collecting information from approximately 6 000 firms on their economic outcomes as well as on their future expectations. This information is intended to provide a rapid qualitative indication of current and future prospects on several economic variables for which quantitative data is not yet available. Along with the Business Survey, the Consumer Tendency Survey provides qualitative indications of households’ plans to purchase consumer durables. It also collects information on consumers’ confidence towards the economic situation in Sweden, inflation and savings. The latest release of the Economic Tendency Survey highlights that the share of Swedish companies experiencing some sort of workforce shortage rose since 2013 reaching 28% in 2016. However companies’ recruitment plans are currently more optimistic than in the past as indicated by an increase in employment levels in the industry sector.

Source: NIER’s Economic Tendency Survey, April 2016.

Among the different skills assessment exercises carried out in Sweden, Statistics Sweden’s *Job Vacancy Survey* has the peculiarity of providing information on very short-term skill shortages in the Swedish labour market. The Job Vacancy Survey collects and disseminates quarterly information on job openings and unmet labour market demand in both private and public sectors.

The use of supplementary information

Despite the wealth of information collected by each assessment exercise, additional sources of information are occasionally used to integrate employers’ replies or to validate the qualitative opinions gathered from respondents on the status of the Swedish labour market. In the Occupation Compass, statistics describing historical trends as well as other various relevant economic indicators are used to provide additional strength to the analysis of current skill needs.

Notably, most of the supplementary information used in the Occupation Compass usually comes from data officially collected by Statistics Sweden and links to Statistics Sweden results are in turn provided on the PES webpage. This indicates a relatively high degree of integration in the use of statistical information across the main providers of SAA information. Efforts to build bridges and share information between Statistics Sweden and the PES are, therefore, evident and laudable. However, during the OECD visit to Sweden, the PES and Statistics Sweden stressed that linkages and co-operation activities could be further strengthened to create additional synergies aimed at reducing the potential duplication of efforts in both institutions. Sweden is already well-placed in this regard since co-operation could be enhanced within some of the existing formal working groups, such as that established by Statistics Sweden (see later: “Users’ councils”).

The “future”: anticipating long-term skill challenges in Sweden

Along with the exercises analysing “current” skill mismatches and shortages, other tools have been designed in Sweden to provide indications about “future” trends in skill supply and/or demand in the labour market. Statistics Sweden and the Swedish PES are the main actors involved in the development of skills *anticipation* exercises in Sweden. The Swedish Higher Education Authority (UKÄ) is also in charge of conducting regular analyses to anticipate the balance between supply and demand of graduates by analysing how students with first and second-cycle qualifications integrate into the labour market after the completion of their studies (Box 2.4).

Box 2.4. Swedish Higher Education Authority (UKÄ) skill needs analyses

The Swedish Higher Education Authority (UKÄ) produces regular reports that analyse the foreseen balance between the supply and demand of graduates in the Swedish labour market for about 30 different first and second-cycle fields of study. Results from UKÄ's latest forecasts are in line with those produced by Statistics Sweden and the PES, indicating that future shortages are expected in the teaching and health care occupations for those beginning their studies in the academic year of 2015/16. Shortages are expected to be especially pronounced for vocational teachers, teachers in extended education, special needs teachers and pre-school teachers. As highlighted by the UKÄ, the possible reasons behind the emergence of these shortages are either due to a lack of interest in these education programmes among students or to the failure by the HEIs to admit an adequate numbers of students to such programmes. Shortages in the health care sector have been increasing in Sweden and the supply of graduates in this field has not been able to fill the needs of the Swedish labour market which has instead relied on immigrants with medical qualifications from abroad to fill these gaps.

Results from UKÄ's analyses also show that there is a high risk of having a surplus of graduates in the fields of applied and performing arts; journalism; the humanities; human resources; behavioural sciences and natural sciences. Amongst other things, information collected and produced by UKÄ monitors how HEIs determine the size of their educational offer. Survey information reveals that the number of places offered depends on the funding allocated to first and second-cycle programmes and on the resources available (in terms of infrastructure and qualified teachers). Given that funding is tightly linked to the number of students who begin and complete programmes, the number of applicants per place also plays a major role in determining how many places are offered. This system carries the risk that if students' choices are based on poor career and counselling support, funds will be directed towards areas where skills are not in demand in the labour market, eventually driving the emergence of skills imbalances (see Chapter 3).

Source: UKÄ (2015), "Higher Education in Sweden: 2015 Status Report", Report 2015:16, Swedish Higher Education Authority, Stockholm, <http://www.uka.se/download/18.68b9da0d14d8a7e2f5aab4e/1434628864514/eng-arsapport2015.pdf>.

The Swedish PES has been carrying out skills and occupational forecasts since the 1960s but the structure of the current exercise was updated and finally introduced in the mid-1990s. The anticipation exercise is built around the use of different data sources that are combined to produce an estimation of the future development of the Swedish labour market and of its skill needs. The backbone of the PES skills forecast lies in the information collected for the PES Occupation Compass (see above): this information plays a dual role, being used by the PES to assess short-term labour market needs and as the starting point for the development of skill needs forecasts over the medium- and long-run (five to ten-years ahead).

Skills forecasts at the national level are carried out also by Statistics Sweden and published in the *Trends and Forecasts* report every third year. The time span covered by the Trends and Forecasts analysis is longer than that of the PES forecast exercise and runs over a horizon of 20 years.⁶

The coverage of the skills anticipation exercises in Sweden

One major difference between the forecasts in the Occupation Compass and the analyses compiled for the Trends and Forecasts reports lies in the level of disaggregation with which results are presented to the final users. PES skills forecasts are disaggregated at the occupation level but only available at the national level due to data availability constraints and methodological issues. Statistics Sweden's Trends and Forecasts provide information on the future development of the labour market in 101 education groups covering compulsory, upper-secondary and tertiary education. Detailed results are

presented for the main 57 education groups (i.e. results span across very different types of education such as, for instance, social work education or veterinary education). The report also includes sections focusing on specific areas such as, for example, higher education.

Forecasts and scenario building

Statistics Sweden's Trends and Forecasts anticipate skills imbalances under the assumption that education outcomes (i.e. the number of graduates in each field as well as the current enrolment rate and the investments in training and education) will remain relatively stable and that the choices and preferences of individuals on education acquisition will not change over time. Under these assumptions, Trends and Forecasts 2014's calculations estimate that the education level in Sweden will continue to rise and that, all being equal, 43% of the population aged 16-74 will have completed a post-secondary education in 2035 as opposed to 36% in 2012.

Under such constant assumptions on the supply of educated people, skills imbalances (e.g. mismatches and shortages) are expected to emerge solely due to changes in the demand for skills in the labour market. The calculations of the future demand for educated workers are based on various “nested” steps where total employment trends are disaggregated at the sector and occupational levels in order to come up with an estimate of “future educational requirements” per occupation. The final outcome relies on the complex interaction of various assumptions and data disaggregation.

The approach followed by the PES to build forecasts scenarios puts, instead, relatively more weight on the use of qualitative information (e.g. the interviews and opinions of employers) than that of Statistics Sweden.⁷

In this broad context, building methodologically robust assumptions and scenarios is a crucial step for the success of any forecast exercise, as usage of different scenarios may change the results of forecast exercises rather dramatically. Equally important, scenarios and assumptions need to be shared and trusted by those stakeholders who are going to use the information for policy making. An incomplete understanding of the assumptions behind the forecasts combined with doubts about their quality can lead to difficulties in agreeing on skill needs and policy priorities. This, in turn, can prompt the design of poor policies to address skill imbalances.

Mechanisms exist in Sweden to foster the dialogue across different stakeholders about their specific statistical needs but also on the accuracy of results and assumptions used for SAA exercises. In the case of the Trends and Forecasts analysis, for instance, various ministries and the PES are invited to sit on the “Users’ Council” with the overall objective of building trust and shared knowledge about scenarios, limitations and scope of the forecast exercises.

The “*WHERE*”: Assessing and anticipating skill needs at the national, regional or sector level

Skills assessment and anticipation exercises also differ in that they can provide information about national, regional or sector-specific skill needs (both current and/or future). Notably, differences in the level of disaggregation of the analysis are reflected in the use that can be made of the proceeding information for policy making.

As an example, national-level assessments (based more aggregate data) may sometimes overlook specific skill needs emerging in a particular region or sector even

though results of exercises running at the national-level are crucial for broad training policy and labour market monitoring (Shah and Burke, 2005). Labour market mobility often occurs within sectors or regions meaning that mismatches and shortages observed in one region or sector may not exist in others. Regional and sector-specific exercises, carrying in-depth analyses narrower skill challenges, can facilitate the creation of more targeted policies and enhance the robustness of interventions specifically when these need to focus on specific skills or occupations in shortage (OECD, 2016a).

To achieve national, regional and sectoral coverage, some countries carry out national assessments which allow for the disaggregation of results at the regional and/or sectoral levels. In other OECD countries national exercises are complemented by independent regional or sectoral analyses. The analysis of all three disaggregation levels simultaneously (with specific exercises devoted to each one of them) can require large investments in statistical infrastructures, making their implementation difficult. Some countries have been able to reduce such burdens. Finland's skill needs analyses follow, for instance, a rotating structure where, in addition to the exercises providing information at the national or regional levels, sector-specific analyses are carried out for two or three different sectors each year.

Swedish regional and sector assessment and anticipation tools

The short-term analyses of skill needs and the forecasts carried out by the Swedish PES and Statistics Sweden (see above) represent the backbone of the Swedish national SAA analyses. That being said, SAA exercises exist in Sweden, though much less developed, that provide insights at other disaggregation level. Swedish regions, for instance, through the network REGLAB,⁸ have been devoting recent efforts to the development of “regional skills matching indicators”. The matching indicators are composed of approximately 20 sub-indicators representing the basis for the assessment of the labour market outlook of 100 educational groups for the population aged 20-64. The design of REGLAB's matching indicators is geared at remaining consistent with other existing indicators; the disaggregation into educational groups follows SUN2000 classification, the same used in the Statistics Sweden's *Trends and Forecasts* (Box 2.5). Skills are currently proxied by education levels and field of study, however this classification may soon change and improve, moving towards the use of more sophisticated proxies. At the moment of writing, statistical information was available in the form of an excel database sent to regions interested in using the information for policy planning. New efforts have recently been put in place to build a web platform aimed at providing a greater dissemination of regional skills information enhancing the usage of local policy makers. Statistics Sweden is playing a major role in assisting REGLAB's data-building efforts by suggesting technical alternatives on how the regional data should be organised, handled and diffused to local stakeholders.

As for the disaggregation level of the matching indicators goes, similarly to the experience of other OECD countries, limited data availability has been one of the major barriers to the development of skills analyses at the local level (Box 2.6). Despite these obstacles, REGLAB's matching indicators are currently being developed at the county level.

Box 2.5. The appropriate local disaggregation level?

Different geographical disaggregation levels could be used to carry out analysis. Functional-analysis regions (FA) and local labour units (LA) would represent the best methodological choice. However specific advantages and disadvantages are associated with each: for example the use of FA homogenously groups geographical areas that resemble each other not only in terms of commuting patterns but also in their population trends. Data at such disaggregation levels are of limited availability and are updated over the medium- to long-run period of five to ten years. LA, like FA, are finely disaggregated units of analysis, holding the advantage of being updated each year but bearing the disadvantage of looking exclusively at commuting patterns in their analysis.

Box 2.6. Statistics Sweden, co-operation with and support to local and regional stakeholders on skills issues

While Statistics Sweden produces a wide set of freely available national indicators, regional statistical products are usually also available at a cost depending on the level of disaggregation or the nature of the analysis. Some regional statistics include specific information tailored to regional planners or ad-hoc statistical datasets created for individual customers. Such information usually consists of statistical tables and a number of PX-Web matrices with the aim of filling the needs of different planning purposes. As the planning process at local government level often calls for a more detailed geographical breakdown than that provided by the official statistics, Statistics Sweden has developed the Key-Code system (in Swedish “NYKO”), which is designed to generate statistics on sub-areas within a municipality. Such data include demographic, income and labour market statistics. Despite having established a strong network of collaboration activities with external stakeholders, during the OECD visit the Statistics Sweden’s representatives expressed a desire to reinforce the on-going co-operation with the Swedish PES as productive synergies could emerge leading to the development of new or improved tools for assessing and anticipating skill needs. It was also noted that the type of information collected by the PES (in some cases very much qualitative) and the one provided by Statistics Sweden (mostly quantitative) are complementary, and that better co-ordination over the use of both types of information could improve SAA exercises.

Statistics Sweden takes the lead in the development of another regional skills anticipation tool: the System for Regional Analysis and Forecasts (rAps). Statistics on regional population, housing and labour market developments feed into the rAps forecast model, which is built around a complex set of parameters, most of which can be calibrated by the end-users to simulate a variety of scenarios on the evolution of regional labour markets. One of the main strengths of rAps comes with providing final estimates that are comparable across regions and consistent with country-level forecasts of the national labour market.⁹

Results of the current skill assessment carried out in PES Occupation Compass are also usually disaggregated at the regional and sector level¹⁰ while Occupation Compass’s long-run forecasts are only available at the national level due to limited data availability.

Despite the fact that national analyses can be disaggregated and presented at the sectoral level, specific in-depth sector analyses are missing. *Ad hoc* projections of the maritime and of the mining industry, for instance, have been produced in the past but now discontinued. Similarly, in the early 2000s, the PES discontinued the sectoral skills analyses carried out for the health care, construction and industry sectors.

During the OECD visit to Sweden, several stakeholders argued that sector-based skill analyses are underdeveloped, lacking a robust structure and a clear focus especially when compared with experiences of other countries such as Australia, the United Kingdom or Finland where *ad-hoc* analyses focus on sectors’ specificities and skills challenges. Concerns were raised, for instance, on that the sectoral disaggregation provided in rAps is still insufficient to meet the needs of policy makers. More in-depth and structured sectoral skill analyses are needed to provide policy makers with adequate information to be used in the design of policy intervention.

Box 2.7. Social partners involvement in the production of skill needs information

Social partners play an important role within the Swedish SAA system as they usually carry out *ad hoc* analyses that integrate already existing tools or exercises. These analyses usually focus on emerging skills challenges. As an example, Sweden faces today major demographic challenges, migration inflows and an ageing population which combined are going to affect the characteristics of Swedish regional labour markets. TCO’s *Regionernas arbetsmarknad 2011–2030: Tre demografiska scenarier* (Regional labour markets 2013: three demographic scenarios), developed in collaboration with Statistics Sweden, proposes a projection of future regional employment trends under three different scenarios for the period 2011-30. The forecasts are developed under specific assumptions on the expected development of migration flows and the concentration of new arrivals in Swedish municipalities. Trends in ageing population and in the participation of older workers to the labour force are also anticipated.

Challenges, barriers and useful solutions in the production of SAA information

When deciding on the use of a particular methodology to assess skill needs, the analyst faces a trade-off between the need to satisfy some explicit policy objectives (e.g. informing labour, education, migration policy or the general audience) and that of addressing the methodological challenges that are inherent in each approach (i.e. data availability, the design of robust scenarios etc.). Recent analysis has shown that countries carry out several exercises simultaneously as each specific approach has particular advantages and limitations (OECD, 2016a). Table 2.2 provides an overview of the main advantages and disadvantages of the different SAA approaches taken in Sweden against some of their main features and strengths. The following sections discuss these in detail.

Table 2.2. Advantages and disadvantages of skills assessment anticipation methods, tools and exercises

Approach	Advantages	Disadvantages	In Sweden	
<p>Surveys of employers asking about skill deficiencies and skill gaps</p> <p>Usual time span:</p> <ul style="list-style-type: none"> • Very short-run • Short to medium-run 	<p>Direct "user/ customer" involvement. Easy to set up and carry out</p>	<p>Can be very subjective and inconsistent, with too much focus on marginal and ephemeral situations</p>	<p>Surveys are used extensively in Sweden.</p> <p>The PES' Occupation Compass is able to limit the potential subjectivity of the information by building strong ties with employers interviewed and by directly contacting them to ask further questions whenever misunderstanding and subjective replies may be biasing the result.</p> <p>A similar approach is followed for the Job Vacancy Survey. Manual and automatic checks on the consistencies of the replies are used to validate the information collected.</p>	
<p>Forecast-based projections and quantitative models at the national level</p> <p>Usual time span:</p> <ul style="list-style-type: none"> • Short to medium-run • Medium to long-run 	<p>Comprehensive, consistent, transparent and explicit</p>	<p>Data demanding, costly; not everything is quantifiable and may give a false impression of precision/ certainty</p>	<p>These methods are widely used and well developed in Sweden for both national and regional forecasts.</p> <p>Statistics Sweden's Trends and Forecasts is a robust forecast model based on extensive use of register data. The integration of the analysis with additional qualitative information could, however, enhance the results.</p> <p>PES' Occupation Compass forecasts are based on both qualitative and quantitative information. Limitations to the analysis are related to data availability. Forecasts are not provided at the full regional disaggregation level but only for macro-geographical areas. In depth sector analyses are missing.</p>	
<p>Focus groups/round tables, Delphi style methods, scenario development</p> <p>Usual time span:</p> <ul style="list-style-type: none"> • Medium to long-run 	<p>Holistic (considers a broader range of factors than just economic)</p> <p>Direct "use/customer" involvement</p>	<p>Can be non-systematic, inconsistent, and/or subjective</p>	<p>Absent</p>	
<p>Sectoral/ occupational / regional studies and /or observatories (using both quantitative & qualitative evidence)</p> <p>Usual time span:</p> <ul style="list-style-type: none"> • Very short-run • Short to medium-run • Medium to long-run 	<p>Holistic (for the sector). Partial (ignores other sectors). Strong on sector and other specific labour market dynamics</p>	<p>Can introduce inconsistency across sectors</p>	<p>National results are usually disaggregated at the regional level. REGLAB is developing matching indicators but some of its features are still in their infancy. Limited analytical capability of regional actors also hinders the use of results for policy making</p> <p>Results at the sectoral level are presented in some exercises but explicit, focused and structured sectoral analyses are somehow lacking.</p>	
Summary: Sweden				
Approaches	Time span and coverage	Strengths	Weaknesses	Overall
<p>A variety of different exercises in Sweden encompasses the use of some of the most important methods and tools. This helps mitigating the biases inherent to having a narrow set of exercises and expands the scope of the SAA system overall.</p> <p>Results are consistent across exercises, providing coherent information for policy making.</p>	<p>Swedish SAA exercises span from the very short (quarterly) assessment to long-run forecasts (around 20 years). This allows to assess current needs while anticipating skills challenges in the future and to design policies to respond to such challenges more broadly.</p>	<p>Subjectivity of certain approaches (mainly that of surveys) has been tackled by building strong bounds with interviewed employers as well as by involving different stakeholders in the definition of forecasts' scenarios</p>	<p>Regional and sector results are available but the strength of these exercises could be enhanced. Sectoral analyses seem to be under developed while regional analyses are currently being developed further.</p>	<p>The approach to the production of SAA information in Sweden makes a coherent use of different tools and methods spanning from the very short to the long-run. Some of the common challenges (e.g. subjectivity of survey data and of forecasting scenarios) have been dealt with. More effort should be put in developing further regional and sector analyses and in enhancing analytical capabilities of regional actors to exploit such information.</p>

Source: Adapted from Wilson et al. (2004) and OECD (2016a).

Issues in the assessment of current skill needs in Sweden

Survey methods, like those used to assess current skill needs in the Swedish labour market, have the advantage of being flexible tools to collect employers' opinions on the current (and foreseen) development of both the demand and supply of skills.

One weakness of such approaches lies in the potential subjectivity of the collected information. The use of survey methods grants the respondents more flexibility when providing information but it also introduces an element of subjectivity which could potentially undermine the robustness of the final results. Respondents to the LMTS are free to provide their own interpretation of what a skills "shortage" or a "surplus" means in their particular context. This interpretation, however, may not be consistent with that of other respondents. One way to strengthen the robustness of survey information is to involve respondents in the validation of the results.

The skill assessment exercises carried out in Sweden differ in the extent to which respondents/employers are involved in the validation of the surveys' final results or provide additional feedback to improve the robustness of the analysis.

In the case of the Job Vacancy Survey, for instance, the need to collect quarterly information led to the decision of administering the survey mostly in electronic form¹¹ giving the respondents one month to reply. Even if instructions on how to complete the survey are provided, Statistics Sweden acknowledges the possibility of misunderstandings and in some cases misinterpretation of some of the questions (due to lack of time or of involvement of the respondent). Validation of the results is therefore crucial and in the case of the Job Vacancy Survey, this is carried out both manually and mechanically. The "logical" relation between different answers provided by each respondent is used to search for inconsistencies in filling in the questionnaires. Whenever incongruences are found to be substantial, Statistics Sweden verifies with the respondents through phone interviews or via e-mail to collect additional information and to validate the information collected.

In the PES exercises, employers are, instead, surveyed in person or by phone. The overall response rate is high despite the fact that employers have no obligation to provide information to the PES. This is partly due to the fact that local PES officers have been able to create strong contacts with employers that, among other things, have been functional to the purpose of validating the survey information collected.¹² The information collected through such regular contacts does not only feed into the production of SAA information but it is also crucial to all PES job-matching activities more broadly.¹³

Additional robustness checks on survey results are also carried out by contacting regional and/or labour market analysts and through the discussion of the results with employers and trade unions (e.g. the Swedish Trade Union Confederation or the Swedish Association of Local Authorities and Regions).¹⁴

Contacting employers and respondents to validate survey results is, nonetheless, a resource-heavy activity and may not be feasible when the sample of respondents is very large. In the case of the LMTS alternative strategies have been designed to minimise the impact of "outlier-replies" as well as to provide additional robustness and consistency to the results. Among these strategies, Statistics Sweden collects information from actors who have a robust knowledge and understanding of the current labour market and of the specific situation of the firm under examination. Human Resources managers are among

those that receive targeted interviews focusing on their recent recruitment activities and on their skills needs.

Forecasts, challenges and some solutions in the Swedish system

Anticipation exercises and forecasts are not meant to predict the future with certainty or precision (OECD, 2016a). Results from this type of exercise are intended to be one of the inputs for policy making discussion and not the sole input in manpower planning techniques.

Generally, methodological and data limitations can hinder the development of long-run forecasts. Scarce data availability, for instance, represents a limitation for the PES long-term projections and these are provided only for those occupations for which the underlying data is sufficiently large to enable the necessary calculations.

Different challenges are also faced by other forecast exercises. Statistics Sweden's Trends and Forecasts calculations focus, for instance, on the imbalances between supply and demand of skills. Various scenarios are built in order to depict what would happen if the development of the supply of skills continued along the current path. By construction, however, such forecasts come with a great deal of uncertainty as they cannot fully take into account the effects of potential changes in the educational choices of individuals, the effects of reforms carried out by the central governmental, or changes by municipalities in the allocation of financial resources for education. As argued by Statistics Sweden, the fact that their skills forecasts may show a considerable difference between the expected future supply and demand of skills does not necessarily mean that such skill mismatches and shortages will emerge with certainty. Instead, forecast results indicate that there will be a considerable "*demand for adaptation*". Qualitative judgement and the continuous monitoring of the labour market should accompany the analysis of quantitative results and this information should be disseminated in a way that final users are fully aware of the strengths but also of the underlying limitations of forecast exercises.

Managing expectations on what forecast exercises are actually capable to deliver is, in other words, crucial to helping policy makers design sensible policy responses to skill challenges as these should put adequate weight on the forecasts results as well as on other (usually more qualitative) sources of information complementing the quantitative analysis.

Issues in regional and sector SAA analyses

A recent study (OECD, 2016a) highlights how SAA results are sometimes not sufficiently disaggregated at the regional, sub-regional or sectoral levels and that this prevents skill needs information from being used more widely and effectively across a number of OECD countries.

New regional SAA indicators (see the discussion on REGLAB matching indicators, above) are currently being developed to meet the needs of local and regional users and policy makers in Sweden. Efforts have been put into developing a robust statistical structure which should facilitate access to regional data and enhance their use. However barriers exist that limit the use of the already available information.

The analytical capabilities of local users (e.g. municipalities and regional governments) to analyse and use SAA information is limited in many cases. This hinders the use of regional skills information.¹⁵ For example, it has been argued that the complexity of the rAps model along with the necessity for end users to have a full

understanding of the tool (if they are going to accurately calibrate parameters) may potentially undermine its correct use. Increasing the analytical capability of Swedish local users through dedicated training courses is key to enhance the use of regional skills information, but the simplification of certain complex characteristics of current exercises could also help in reducing the burden on users.

As argued during the OECD visit to Sweden, sectoral SAA analyses are relatively underdeveloped compared to those carried out in other OECD countries. Stakeholders interviewed confirmed the need to further develop these analyses by creating more structured and focused exercises. The experience of other OECD countries should serve as an example of suitable ways to strengthen sectoral analyses. In Australia, a well-developed system for assessing current skill needs has been built allowing the identification of national shortages while also conducting independent occupational and sector-specific forecasts. The Australian “Environmental Scans” required by Industry Skills Councils assess current skill needs in a particular sector of the economy drawing on interviews or focus groups with experts and actors involved in developing and using skills in that sector. The United Kingdom’s sector-specific holistic approach to forecasting relies, instead, on a broad range of sources such as econometric models, surveys of employers’ opinions, skills audits, Delphi methods, case studies, focus groups, scenario development and consultation with experts and employers (Cedefop, 2008; UKCES, 2010). Finland’s sector-specific analysis follows a rotating structure so that, in addition to the exercises providing information at the national or regional levels, sector-specific information is provided for two or three different sectors each year. This helps limiting the financial burden on statistical offices while allowing for coverage of more dimensions (national, local and sectoral) at the same time.

Mapping SAA results into policy relevant domains

The success of SAA exercises is also linked to the efficiency with which the results and the proxies used to identify skill challenges are able to map to variables that are useful for policy making (OECD, 2016a). Around 50% of Ministries interviewed across OECD countries, reported some sort of misalignment between the skills proxies used in the SAA exercises in their country and their policy uses. This has been argued to be one of the most important barrier to the development of a robust policy response and, therefore, to the use of SAA information.

In Sweden, the links between the PES, employers and social partners in the collection of information as well as in the validation of the forecasts’ carried out by Statistics Sweden contributed to the design of exercises adjust well to the needs of policy makers in most cases. However, some challenges still exist. Social partners, for instance, have repeatedly stressed the importance of recognising formal (e.g. education titles, qualifications) but also informal skills (i.e. skills that are acquired at work for which no titles are provided) (Box 2.8).

Some OECD countries have systems in place to record information on those skills acquired at work and are able to formally validate them. In Australia and New Zealand, the Recognition of Current Competence (RCC) (also known as Recognition of Prior Learning – RPL), allows to recognise skills and knowledge acquired at work, home or through hobbies and the like and to translate these into credits.¹⁶ Such system of validation reduces the amount of time spent studying on subjects that are already known and avoid having to take unnecessary training.

Box 2.8. National Qualification Frameworks and ESCO

National Qualification Frameworks can mitigate the lack of RCC systems as they can help compare qualifications from studies as well as from professional life. The Swedish framework for higher education has been in place since 2007. When Sweden introduced a framework for qualifications for lifelong learning in 2015, the government included formal qualifications from secondary to higher education level within the new overarching framework. Starting in 2016 providers of education outside the formal education system can to apply for their qualifications to be included in the framework. The Swedish National Agency for Higher Vocational Education has been given the task to administer applications from providers, to be the national co-ordination point for the European Qualifications Framework and to be responsible for its national implementation. This is carried out in co-operation with other concerned authorities, such as the Swedish Higher Education Authority and the Swedish Council for Higher Education and the PES.

Sweden also participates to the European Skills/Competences, qualifications and Occupations initiative. This new tool has the aim to identify and categorise skills, competences, qualifications and occupations in a standardised way, using a common terminology and providing translation in all European languages. One immediate advantage of developing ESCO is that this enables users to exchange CVs and job vacancies stored in different IT systems and across countries. Similarly, education/training institutions have a new tool to describe the output of national qualifications by using a common ESCO's skills and competences terminology, making qualifications more transparent and adapting their programmes based on feedback received from the labour markets. Currently the PES and the Swedish Agency for Higher Vocational Education co-operate around the development and alignment of the Swedish National Qualification Framework, SeQF, to ESCO.

A second challenge, widespread across OECD countries, relates to the use and design of more sophisticated proxies that better identify skills. Occupations, qualifications or education levels are readily available from statistical offices, yet imperfect proxies of skills. Starting from this consideration, the PES has developed a skills taxonomy which feeds into the PES “Digital Matching Service” web tool. The web tool works with two parallel channels, one for job seekers and another for employers. Job seekers can upload their CV into the PES system and create their own profile by providing information on their education titles, availability to move geographically (at the municipality level) as well as (and most importantly) their actual skills and competencies. Skills and competencies are, then, listed within a taxonomy consisting of approximately 5 300 hard skills across 3 400 occupation titles. The taxonomy is structured according to the Swedish Standard Classification of Occupations (2012), based on the International Classification of Occupations ISCO-08. New efforts have been recently put to develop a complimentary taxonomy (*tax+*) which supplements and links popular synonyms, commonly used by job seekers/employers, to the already existing taxonomy. The ongoing development work will also look at the possibility of including soft skills and more transversal skills in the taxonomy. Despite these developments, the Digital Matching Service web tool currently faces issues: the quality of the information can be compromised as it is self-reported and no system for validation is yet in place. In addition, it has been observed that job seekers enter too many competencies to their profiles, with the aim of populating their profile with the maximum number of competencies possible thus increasing visibility. To counteract this problem the PES is planning to reduce the number of competencies that a user can have and to provide “smart guides” suggesting the “appropriate” competencies that a user may consider to upload according to their occupational profiles.

Finally, another barrier to the use of SAA results for policy making relates to the potential misalignment between the time span covered by the exercise(s) and the policy cycle. As argued in OECD (2016a), while shorter-term forecasts and current skill

assessments provide an accurate picture of the current labour market skill pressures, their policy usefulness may be restricted to short-term skills policies (e.g. integration of migrants, active labour market policies). They are therefore of limited use for longer term education and vocational training policy as these programmes typically run for periods of two to five years. The Job Vacancy Survey is an example of a very short-run exercise that is able to provide timely and up-to-date information on shortages and skills mismatches whose results, due to the short-term nature, find limited use in specific policies areas and initiatives. Overall, however, the multitude of different exercises carried out in Sweden makes the Swedish SAA system capable of providing skills information across very different time spans and satisfying policy makers' needs at virtually any stage of the policy cycle.

Tools and methods: How does Sweden compare?

As discussed above, every SAA approach has its advantages and drawbacks (OECD, 2016a). The Swedish SAA system employs a broad variety of methods and tools compared to other OECD countries (Table 2.3) so that, the limitations of one tool/method can be compensated by the strengths of others.

Table 2.3. Methods and tools used in skills assessment and anticipation systems

	Employer surveys	Surveys of workers or graduates	Quantitative forecasting models	Sector studies	Qualitative methods	Labour market information system	Other
Australia	X	X	X	X	X	X	X
Austria	X	X	X	X	X	X	X
Belgium (Flanders)		X	X	X	X	X	
Belgium (Wallonia)				X	X	X	X
Canada	X	X	X	X	X	X	X
Chile	X			X	X	X	
Czech Republic			X	X			
Denmark	X	X	X	X	X		
Estonia			X				
Finland	X		X		X	X	
France	X	X	X	X	X	X	
Germany	X	X	X	X	X	X	X
Greece	X			X		X	
Hungary	X				X		
Ireland			X	X		X	
Italy	X	X	X	X			
Japan	X	X		X		X	X
Korea	X	X		X	X	X	
Netherlands	X		X	X	X	X	
Norway	X	X	X	X	X	X	X
Poland		X				X	
Portugal	X	X		X	X	X	
Slovak Republic						X	
Slovenia	X						X
Sweden	X	X	X		X	X	
Switzerland							
Turkey	X	X		X	X	X	
United States		X	X		X	X	X

Note: Only the 28 countries that replied to either the Ministry of Labour or the Ministry of Education are included. If a tool or method is mentioned in either questionnaire it is marked as used.

Source: OECD (2015), “Questionnaire on Anticipating and Responding to Changing Skill Needs”, Ministry of Labour and Ministry of Education questionnaires.

Using several different tools and methods simultaneously bears advantages but it can also be problematic whenever results obtained by one tool are not consistent with those of other approaches. This situation can potentially affect the credibility of the exercises and hinder the identification of skills priorities by making the policy message confused and incoherent. This is not the case in Sweden: results of the various Swedish SAA exercises coherently point to similar results (i.e. persistent shortages in the health care and teaching professions) and up to now have identified policy goals and priorities that are widely shared by the final users of the information.

The governance of SAA exercises: striking the balance between independence and users' needs

The way SAA exercises are designed and the degree of co-ordination across stakeholders (i.e. “the governance of the exercises”) varies depending on the degree of independence between who collects information and who uses it for policy purposes. Three different models underlying the governance and production of SAA information are identified in OECD (2016a): the “*independent model*”, the “*policy model*” and the “*hybrid model*”.

In the “*independent model*”, SAA information is collected for general purposes and aimed at a wide audience. The information produced under this approach is not usually subject to political influence and it is designed for a broad use across policy domains. One risk with the independent model is that the level of aggregation and the characteristics of the output may not necessarily be useful for specific final users and/or for particular and targeted policy-making purposes. OECD (2016a) shows that the output developed by “independent” exercises could end up being too technical, their level of aggregation insufficient to satisfy the need of specific users (for instance local and sub-national stakeholders), or the proxies used to map skills of difficult use for policy makers in the design of concrete policy initiatives.

In the “*policy model*”, the SAA exercises are, instead, linked to specific policy objectives and the approach taken to produce and collect information is designed by its final users. This approach has the advantage of feeding directly into evidence-based policies since most of the dimensions of the exercise (i.e. the choice of skills proxies, the time span and the frequency of the analysis) are aligned to the needs of policy makers. That being said, the exercises developed under this model are narrower in their focus and can prevent other users from benefitting from their results.

Finally, the “*hybrid model*” is a mixture of the two previous models. Different exercises fall within the independent and policy models: therefore, the whole SAA “system” (e.g. the sum of the different exercises) is able to satisfy different purposes simultaneously.

Statistics Sweden and the “independent model”

The SAA activities of Statistics Sweden can be categorised under the “*independent model*”. Statistics Sweden produces and maintains independent statistics on a wide range of areas and of labour market issues (including skills, occupational assessments and forecasts). The shortcomings associated to the independent model such as the potential lack of relevance to policy makers or insufficient/incorrect level of aggregation of the skills proxies for policy making are mitigated by the extensive involvement of the main final users of SAA information in the validation of the SAA exercises’ output. Such

validation takes place through the establishment of two specific working-groups: the Users' councils and the Group of Experts for Labour Market Statistics.

Users' councils

The users' councils were established by a decision of Statistics Sweden's director-general who dictates the involvement of other members (around ten in total) and on the chairpersons (usually external from Statistics Sweden) in charge of steering the discussion. The purpose of the users' councils is to create a network of "user contacts" to provide Statistics Sweden with regular inputs about new and changing needs for statistical information. The relevant national Ministries involved in developing policy responses to skill challenges are usually invited to participate in the users' councils along with the PES. The invited stakeholders are granted an advisory role in the councils and they suggest improvements in the current statistical infrastructure as well as propose new areas where data should be collected and analysed to better suit specific policy making needs. Notably, social partners do not sit on the Statistics Sweden users' councils but are invited to participate in special expert groups (EFAM – see below). The users' councils gather for 2–4 meetings each year. The discussions are documented and feed into Statistics Sweden's annual activity report.

Group of Experts for Labour Market Statistics (EFAM)

The Group of Experts for Labour Market Statistics (EFAM) was founded in 1963 when Statistics Sweden took responsibility for the production of Sweden's official statistics.¹⁷ The group consists of representatives from employers and employees organisations and several government agencies. The members are labour market experts and their task is to ensure that the statistics of the Swedish labour market are correctly presented. An important objective of the group is also to discuss and analyse statistical needs as well as the design and scope of the available statistical tools.

The PES and the "policy model"

The PES plays a dual role within the Swedish SAA system. On the one hand, it is tasked with job-matching activities and with the development of active labour market policies. On the other hand, the PES is also a major provider of SAA information. Both activities are evidently interrelated and characterise the PES approach as a policy model where the production of SAA information is also functional to the PES own policy activities. The SAA information collected for the *Yrkeskompassen* (Occupation Compass) is used, for instance, to enhance and streamline PES job-matching tasks. The design of the PES Occupation Compass and the approach followed to collect information can be, therefore, understood within a broader and twofold strategy of the PES to i) collect and diffuse labour market information to a wide audience (e.g. job seekers, students, workers, education providers) and ii) use the network of contacts with employers for the PES job-matching activities.

One of the strengths of the "policy model" is the ability to organise the collection of the SAA information around the real needs of the policy users. This comes, however, with the risk that the SAA information may end up being too narrow in nature to satisfy the needs of other users. This risk is reduced in Sweden by the effort made by the PES to disseminate information to a wide audience of employers, job seekers and students.

In summary, the Swedish SAA system relies on both independent as well as policy-oriented exercises. The involvement of final users in the validation (and, to a certain

extent, in the development) of the independent exercises helps design exercises whose results are relevant to policy makers and adjusted to their needs. Similarly, exercises following the “policy model” have been structured in such a way that a broad range of employers can still broadly benefit from them.

The dissemination of the SAA information to final users

The final objective of SAA exercises is to feed policy makers with sound statistics to assist their policy action and disseminate skill information to a wider range of actors (Box 2.9), ranging from public institutions (e.g. universities, academia, and training organisations) to workers, job seekers and students.

Both Statistics Sweden and the PES are actively involved in the dissemination of SAA results. Statistics Sweden promotes regular publications and reports that frequently update the general public as well as researchers on the development of the Swedish labour market. Conferences and seminars are also organised to enhance SAA information’s diffusion. The *Prognosdag* (the Forecast day) is an important event taking place every third year that gathers a variety of stakeholders (e.g. national Ministries, Agencies and researchers) to discuss new forecasts on education and the labour market.

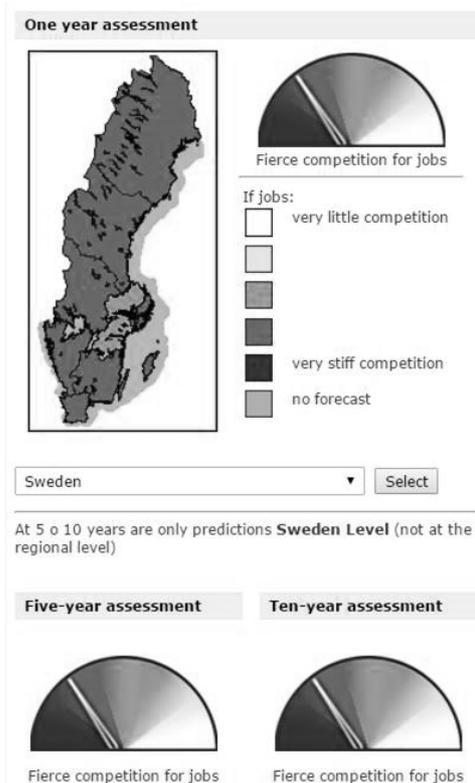
Box 2.9. Digital services and APIs to access statistical information

The ambition of the Swedish Government’s digital agenda is to improve conditions for the reuse of public information from government agencies for both commercial and non-profit purposes. Companies and private individuals have access to Statistics Sweden’s statistics. A large part of this information is available for use in new products and digital services developed by third-parties. Data from Statistics Sweden’s Statistical Database can be digitally transferred via a programming interface called an API (Application Programming Interface) allowing the use of tables or selected information from the Statistics Sweden’s Statistical Database to build applications for smartphones or new web services.

The *Yrkeskompassen* (Occupational Compass) web portal is used by the PES to disseminate skills and labour market information at the national and regional levels. Information is presented graphically through a user-friendly interface and by using a scale indicating the degree of competition that job seekers will face when applying for a selected occupation (Figure 2.1). Skill assessment information is provided one-year ahead for a selection of major geographical areas and for Sweden as a whole.

Information on shortages is accompanied by a description of the characteristics of the job under examination; the workers’ main responsibilities and tasks; the level of education and the field of study that best matches the requirements of the job’s daily tasks. In a specific section of the web portal – “*Inspired by*” – the PES publishes interviews with people working in different occupations and across different industries with the aim of informing on skills requirements across occupations. The material provided includes several professional videos, tests, and information on how to start and run a business and become self-employed. Finally, the Occupational Compass website provides additional discussion of the “abilities” required for/associated with the job (i.e. soft and hard skills such as analytical or communication skills).

Figure 2.1. Example of dissemination in the PES *Yrkeskompassen* (occupation Administrator/Analyst in the Public Administration)



Source: Arbetsförmedlingen's website.

This latter approach is similar to that of other exercises across OECD countries. In the United States, for instance, the O*NET database contains detailed information about the knowledge requirements, tasks and skills requirements of more than 800 occupations. In O*NET, this information is arranged in a freely accessible large database. User have access to a web interface to quickly browse through occupations and to obtain a snapshot of their occupational outlook and of the average wages in that occupation (by state). Sweden can inspire the further development of their dissemination tools from the experience of the O*NET. Though a good starting point, in fact, the Swedish Occupational Compass still lacks the statistical robustness and breadth of the O*NET exercise when describing skills and competencies. Information on tasks and abilities is only currently available for a limited set of occupations while for other occupations web links are provided to external data sources such as Graduates Associations, Student Unions, Trade Unions and Employers Organisations as well as, more generally, to school counsellors.

Another important area for development, as acknowledged by the PES, will be to connect the database that contains the information about occupations, qualifications, skills/competencies with the taxonomy that is the basis for the PES digital matching tools (see above) in order to create synergies between the two sources of information.

Other gaps exist in the transmission of information to local stakeholders (OECD, 2012). The interaction between the PES and the municipalities that provide career advice and are in charge of the dissemination of SAA information is, for instance, an *ad hoc*

activity with PES input sought late in the decision-making process. Strengthening the links between SAA information and municipal career advisors is key for all municipalities,¹⁸ but especially important for smaller ones with limited analytical capabilities that can potentially benefit the most from receiving and exploiting SAA information produced by the PES.

A recent study carried out by the PES highlighted how both the PES front staff and guidance practitioners for elementary and secondary schools highly value the importance of the Occupational Compass's SAA information. However this information feeds into their activities only sporadically with around 60% of PES front staff and guidance practitioners declaring to use this information a couple of times per month (Table 2.4).

Table 2.4. Informing practice for the PES Occupational Compass

	PES front staff	Guidance practitioners for elementary and secondary schools	Job-Seekers in contact with the PES
I'm using the Occupational Compass at least a couple of times per month	61%	60%	19%
Feel that it is important to have access to this kind of information in my work	8.5	8.3	-

Source: Tord Strannefors Jan Sundqvist Karin Berglind, Swedish Public Employment Service Department of Analysis.

Notes

1. The PES exercises also rely on the professional assessment made by the PES staff at the local level.
2. The same workplace can be sampled for several educational groups.
3. The sample is random and stratified on the basis of economic activity (following NACE 2007 classification) according to Statistics Sweden's Business Directory.
4. This is to say, for instance, that replies from employers in the mining sector will receive a high, or low, weight in those Swedish regions where mining activity is clustered (e.g. northern Sweden) or scarce (e.g. southern Sweden). The weights for each occupation sum to 1 for the whole country.
5. Of these categories, 59 are higher education programmes.
6. The recent "Trends and Forecast 2014" presents calculations of both the supply and demand of educated persons up to the year 2035 and shows in which education groups future skills imbalances are likely to materialise.
7. The Occupation Compass forecasts also incorporate statistical information on population projections, changes in employment (both due to foreseen changes in retirement rates, in production or in the Swedish economic structure) or data on migration flows. Part of this information comes from official statistical sources, but other information is collected through the well-established dialogue with employer organisations and labour unions that are in a privileged position to advise on foreseen structural changes in the economy. Additional information is also gathered from labour market analyses and other forecasts (e.g. Statistics Sweden's Trends and Forecasts).
8. REGLAB is a network of 24 members: 21 RCPs, the Swedish Agency for Economic and Regional Growth, the Swedish Governmental Agency for Innovation Systems and the Swedish Association of Local Authorities and Regions (SALAR). The objectives of REGLAB are to meet a general need for joint learning about regional development issues. More information is provided in Chapter 3.
9. Accompanying rAps, the Regional Information System (RIS) is a statistical package where the contents are provided in pre-built tables focusing on the development of a particular county or municipality (this latter being the smallest unit of analysis in rAps). Results from the rAps model can be also disaggregated at the sector level.
10. Among those analysed there are both private and public industries. For the private sector: transport, hotel and restaurant, information and communication, financial and business services, personal and cultural services. For the public sector: public administration, education, and health care. It should be emphasized that this division of public services does not distinguish between public and private providers. The PES uses Statistics Sweden's industry classification (based on NACE 2007) as a starting point for the disaggregation of the survey results collected in the Occupation Compass.

11. Receiving it by standard mail is also an option, but used less frequently.
12. Additional questions and clarifications are, in fact, asked by local PES officers directly to respondents whenever the information is unclear or potential misunderstandings arise.
13. Also, information remains confidential, providing additional incentive to disclose information about business' trends.
14. Source: Occupational Compass – Sweden Strannefors, Sundqvist and Berglind-*Arbetsförmedlingen*
15. A more detailed discussion is provided in Chapter 3.
16. Several options are available to recognise skills acquired at work, but candidates usually go through an assessment process that involves submitting evidence through certificates, qualifications or through testimonials or references from the employer/workplace supervisor.
17. The members of EFAM are appointed based on an ILO convention (C160 Labour Statistics Convention 1985).
18. OECD (2012) argues that the Skåne region could do more to co-ordinate the active dissemination of skills information to municipalities in charge of career advice.

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Part II

Using skills assessment and anticipation information to build policy in Sweden

A coherent and well-functioning SAA system encompasses the “*creation*” of robust SAA information and the “*effective use*” of such information for policy making. The way Sweden collects SAA information on *where* (i.e. in what sectors, specific occupations or areas) and *when* (e.g. now, in the future or both) the demand and the supply of skills will be misaligned in the labour market has been discussed in Part I.

Part II discusses the *use* that is made of SAA information for policy making in Sweden to develop an efficient and timely policy response to skills challenges and imbalances. The effective use of SAA information entails two separate but intertwined aspects:

1. the horizontal involvement of actors across different policies areas (e.g. education, employment and integration of migrants’ skills).
2. the vertical integration of their activities across different administrative levels (e.g. nationally, regionally and locally) when implementing a policy response based on SAA information.

Horizontal (policy) challenges

Skills challenges are in many instances *horizontal*: their solutions should be based on the use of SAA information and sourced from different policy domains spanning the whole economy transversally. Within a well-functioning SAA system, SAA information can be used to tackle skills shortages and mismatches by providing input on the design of national education policies which will shape the country’s supply of skills in the medium to long-run. SAA information also feeds into employment policy and activities that aim to match the skills of job seekers to the needs of the labour market. SAA information can also be used to tackle the imbalances produced by migration flows or to identify skills absent from the labour market and thus inform policies to attract foreign talent. Finally, SAA information can be used to design policies that span all these policy areas simultaneously within the same initiative.

While the Swedish SAA system ensures effective horizontal co-ordination across policy areas, some barriers to the development of an effective policy response to skill imbalances has emerged in specific policy fields.

Education policy

Past education reforms leading to the decentralised provision of school education granted school managers greater flexibility but decreased the incentives to implement strategic choices (some of these should have been based on SAA information) for the long-term development of skills required at the national level. The design of the economic incentives behind the decentralisation of education provision prompted the emergence of competition across municipalities to attract students while weakening the link between the supply of education and the needs of the labour market.

Similarly, while most stakeholders acknowledge today that Vocational Education and Training (VET) should be promoted to enhance the transition of young students to jobs, the incentives to pursue upper-secondary Vocational Education and Training (VET) and those to continue to higher VET are weak. The transition between upper-secondary and higher VET is not always ensured within the same field of study, as funding can be discontinued at any time. Contextually, career guidance and counselling have also been a

low priority in Sweden for a long time and they should be strengthened at all levels given that they play a fundamental role in informing students on skills imbalances.

Employment policy

Gaps exist in the way employment policy tools are used to respond to the skill challenges identified by SAA exercises. The job-matching tools used by the PES are sometimes not up to the challenge, but reforms are underway to modernise the way the PES exploits SAA information for its skills-matching activities. The usage of the available profiling tools should be strengthened to provide an effective response to current skill mismatches and shortages. Other stakeholders could play a more pro-active role in many sectors when addressing skill imbalances. Employers, for instance, should co-ordinate better with other stakeholders and among themselves to identify skill needs. Smaller enterprises in particular struggle to identify the skills they require and in communicating this information to the PES. Co-operation between employers and education providers is rather modest and this is reflected in certain difficulties in agreeing on broad skills challenges and priorities.

Integration of migrants' skills

The current system to validate foreign qualifications and informal competences is sometimes confusing and slow. This poses concrete challenges to the integration of migrants' skills into a knowledge intensive labour market like the Swedish one.

Vertical (co-ordination) challenges

Creating robust *vertical* ties across the activities of stakeholders working in different administrative levels (e.g. from national to regional and local) is another fundamental aspect of a well-functioning SAA system. From a general point of view, a coherent policy response to skills imbalances requires objectives and targets to be consistent with the policies implemented in all parts of the system.

In Sweden much of the policy response to skills imbalances is designed by national actors (e.g. ministries and national agencies) but the implementation of the response is in many cases left to the activities of local actors (e.g. municipalities) whose interests are not always aligned to national ones. Such misalignment partly lies in the inability of some municipalities to make a full use of SAA information due in part to the lack of local statistical and analytical infrastructures. At the sub-national level, regions and municipalities have very different resources and analytical capacity to use SAA information, partly as a consequence of differences in population size. Such differences have led some large regions (or big municipalities) to buy services and support from Statistics Sweden (e.g. buy ad-hoc studies on their regional labour market) while other (smaller) local actors (unable to reach the critical mass required to carry out a robust full scale analysis) are less well equipped to assess and/or understand their current and future skill needs and to develop an effective policy response. The vertical co-ordination in skills planning and in the development of an integrated policy response to skills imbalances could benefit from a more substantial involvement of regional actors.

Chapters 3 and 4 discuss the horizontal and vertical barriers in more detail by providing examples of best practices used Sweden to address some of these challenges.

Chapter 3

Challenges of using skills assessment and anticipation information to develop policies to tackle skills imbalances in Sweden

This chapter reviews the policy uses that are made of the information produced by skills assessment and anticipation exercises by highlighting the wide spectrum of applications in the areas of employment, education and training, and migration policy in Sweden. While Sweden is a leader among OECD countries in the production and use of SAA information, this chapter focuses on some important barriers that hinder such information from being more fully or effectively exploited for policy purposes.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

The factors behind the emergence of skills imbalances can vary from country to country. However, prolonged periods of skills mismatch and shortages reflect the inability of a country to develop an effective policy response to skill challenges. The effective use of SAA information plays a crucial role in helping countries develop a response to skill challenges which span different policy areas such as education, employment and the integration of migrants' skills.

In education policy, SAA information can be used to reduce and prevent the emergence of medium to long-run skills imbalances by informing the content and design of the educational offer (OECD, 2016a) in order to meet the skill needs of a fast-changing labour market. SAA information can also feed into employment policy and shape the design of active labour market policies strengthening the match between the supply and demand of skills. SAA information can also feed into migration policy. Recent migration flows and the dramatic increase in the number of asylum seekers from countries at war have drawn the international attention to the challenges related to the design of adequate measures to introduce migrants into the civil society and match their skills to those required by the labour market. SAA information can play a fundamental role to alleviate the potential mismatch following such migration flows by providing valuable information about the current and foreseen skill needs of a country.

Main findings

- In the 1990s, far reaching reforms of the Swedish education system devolved the provision of education to municipalities. These reforms prompted the fragmentation of national education goals into a constellation of locally bounded interests which promoted the emergence of competition across municipalities and schools to attract students and funds. The incentives to use the available SAA information to plan the educational offer to meet labour market needs decreased in favour of short-sighted and uncoordinated initiatives at the local level contributing to the emergence and persistence of skills imbalances.
- Strengthening co-operation in education planning at the local level to reach a “critical mass” is fundamental to reap the full benefits of investments in education and in SAA infrastructures in Sweden. The experience of Teknikcolleges or municipalities in the Gothenburg region that co-operate in planning the supply of secondary education could be used as examples for other regions on how to reduce local competition and foster the rational use of resources to meet skill needs.
- Reforms in the 1990s also dictated how the educational offer should follow students' wishes and preferences. However, the much needed development of an effective career and guidance system able to inform students on labour market needs has been a low priority in Sweden. Sweden should devote more resources to increase the counsellor to students ratio and to provide teachers with more regular contacts with employers and the labour market.
- VET and lifelong learning (LLL) play a fundamental role in addressing current skills imbalances and shortages. In Sweden, SAA information is used to decide on the allocation of funds to promote higher VET education, but the continuity of funding between upper-secondary and higher VET (where the funds for the latter can be suddenly discontinued if labour market needs change) reduce the already poor incentives to enrol in VET. Young Swedes could be encouraged to apply to VET

through more stable funding schemes; by building stronger links between employers and education providers. An overall effort to increase VET visibility and reputation is also needed. Adult education and LLL should also be strengthened by providing working professionals with adequate financial incentives to re-train and upgrade their skills to match those needed by the labour market.

- Despite considerable investments, the Swedish Public Employment Service (PES) is struggling to become a professional skills-matching broker and the quality of its skills matching services should be further strengthened to meet the fast changing needs of employers. Recent efforts have been put to modernise the PES skills-matching tools through the introduction of new profiling and Digital Matching tools but their effective use is still limited.
- The establishment of frequent contacts between employers and education providers can lead to more effective dissemination of SAA information to students. However local co-operation programmes between employers and education providers tend to be concentrated in male-dominated vocational programmes and in specific sectors. More incentives need to be provided to smaller industries and sectors (e.g. tourism and hotels, natural resources, food and beverage services) to establish stronger contacts with education providers and to develop training and education programmes able to meet a broader range of labour market needs.
- The integration of the skills brought by migrants represents a challenge in many OECD countries. In Sweden, many initiatives exist to integrate migrants into the civil society and the labour market but bottlenecks exist. The effectiveness with which foreign qualifications are validated and migrants' skills quickly integrated into the labour market can be strengthened. Overlaps and co-ordination issues between different national agencies in charge of skills' validation slow down the validation of migrants' skills and their match to available jobs. More should also be done to involve employers in the identification of criteria informing the validation process and in building trust on the quality of the validated qualifications, credentials and informal competences of migrants.

Education policy: Challenges in the development of a SAA-based skills response

Two major reforms prompted a radical change in the Swedish education system in the early 1990s: the devolution of education provision to municipalities and to higher education institutions (HEIs) and the introduction of the principle for which the supply of education should be adjusted to students' choice and demand.

Both reforms were designed to rationalise and improve the delivery of education but difficulties in their implementation led to the fragmentation of national objectives having far-reaching negative effects on the ability to address skills imbalances through education policies.

On the one hand, the system of financial incentives associated to the decentralised provision of education has created competition across schools and municipalities as resources to education are linked to the number of pupils enrolled in primary, secondary and in upper-secondary schools (MoER 2015; OECD 2015). The allocation of financial resources to Higher Education Institutions (HEIs) is also linked to the number of students enrolled in each programme, contributing to the emergence of competition across HEIs to

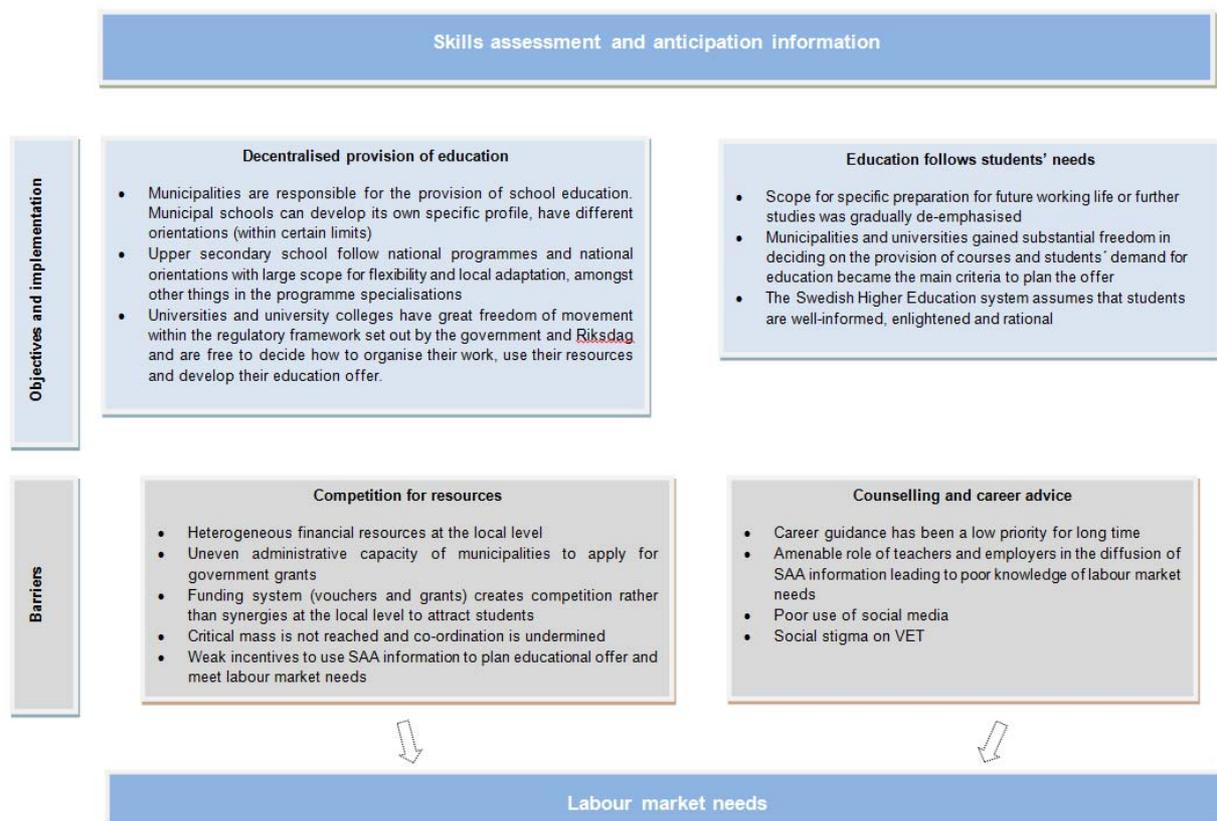
attract students.¹ Under competition pressures, short-sighted policies tend to arise and these lead to a sub-optimal use of the available SAA information to plan the educational offer throughout the Swedish territory.

On the other hand, counselling and career advice do not sufficiently inform students' education decisions. Limited resources devoted to train career advisors and counsellors as well as insufficient contacts between employers and education providers means poorly informed students enrol in programmes that supply skills not required by the labour market (or in surplus), eventually contributing to the emergence and persistence of skills imbalances.

Overall, in the effort to maximise the number of students enrolling in their institutions, education providers and municipalities have not had enough incentives to plan the education offer according to the skill needs identified by SAA analyses. Instead, they have favoured programmes that are popular among (poorly informed) students but whose skills are not necessarily aligned to the needs of the Swedish labour market.

Table 3.1 provides a snapshot of the different barriers (e.g. competition for resources at the local level and weak career guidance) that have undermined the incentives to use SAA information to meet labour market needs and to tackle mismatch. The following sections discuss these issues more in detail.

Table 3.1. Mapping the barriers to the use of SAA in the implementation of the decentralisation and students' choice reform



Decentralised provision of education and the barriers to a SAA-based response to skills imbalances

The Swedish education system was largely centralised until the 1990s, when a number of far reaching reforms devolved most of the responsibilities for the provision of primary, secondary, upper-secondary and adult education to municipalities.² In parallel, ample discretion on matters related to course offering and allocation of resources to universities was granted at the tertiary education level. As a result, the Swedish education system became highly decentralised (Box 3.1).

Box 3.1. A decentralised education system

In Sweden, the Education Act determines that municipalities and the independent school providers are responsible for the implementation of educational activities and in charge of ensuring that national goals for education are met. Within the broad national framework, each municipal school can develop its own specific profile, have different orientations (such as Montessori, English classes or cultural and sports profiles) (National Agency for Education website). From an organisational point of view, school principals report to the Education Committee appointed by the Municipal Assembly and they are granted ample discretion in fulfilling national goals based on their interpretation of the Education Act (OECD, 2015). Upper-secondary and tertiary education providers follow a similar principle. At the upper-secondary level, municipal and independent schools are the providers of education. Within the framework dictated by the national programmes and orientations, upper-secondary schools have flexibility to adapt programmes to local needs through courses offered within the programme specialisations defined by the NAE (NAE, 2011). As an example, upper-secondary schools can create specific educational profiles by deciding what courses should be offered from the programme specialisations and from the individual options. Yet, the National Agency for Education should quality-assure and approve all deviations from the national system. Higher Education Institutions (HEIs) are also relatively free to decide on their own organisation, allocation of resources and course offerings within the parameters of the Higher Education Act and the Higher Education Ordinance.

The decentralisation of education provision, proposed to make the allocation of resources more efficient and directed to where funds were most needed (NAE, 2009), shifted responsibility from the national government to local authorities without providing homogenous financial resources and incentives to accomplish national skills goals systematically.

While the current decentralised system grants ample freedom to municipalities to allocate funds at the local level, it also puts a considerable burden on municipalities' finances as almost 60% of local resources are raised through municipal taxation.³ Crucially, this situation has led to the emergence of competition to attract students (and, ultimately, funds for education) across public and independent schools (Box 3.2) both within the same municipalities and across municipalities within the same region.

Studies confirm the existence of incentives to compete across schools and municipalities: an in-depth review of the impact of the decentralisation reforms on educational offer (Statskontoret, 2013) shows that the cost per pupil in Swedish schools is negatively correlated with the overall number of pupils in each municipality. These results highlight the existence of strong economic incentives for municipalities and schools to attract students and to compete with one another for funding.⁴

Box 3.2. Independent schools: implementation issues

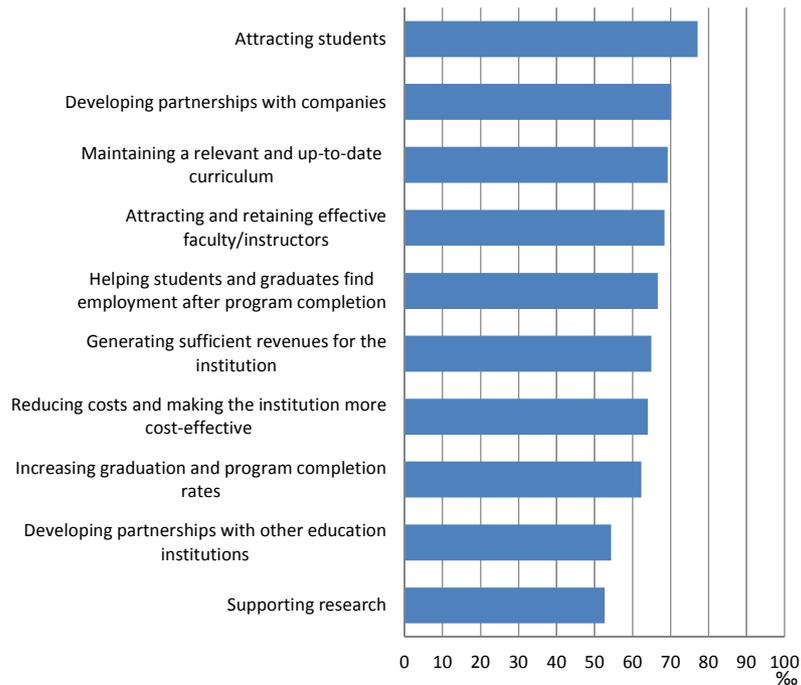
The education reform in the early 1990s encouraged the creation of independent schools by establishing new rules governing funding. Currently, independent schools are entitled to public funding through a “voucher system” which grants resources according to the number of pupils enrolled. The amount of funding per pupil is roughly the same as that for the public schools and the sum is decided according to the same principles applied to public municipal schools (MoER, 2015). The Education Act determines that municipalities and independent school providers are responsible for implementing educational activities and ensuring that national goals for education are met. In every municipality, the Local Government Act establishes that the Municipal Assembly (an elected body) has to appoint an education committee to govern its public education system. School principals report to the education committee and their tasks are governed by the central government through the Education Act and the goals set out in curricula and syllabi (Blanchenay et al., 2014). Principals and teachers can fulfil these goals based on their own interpretation and adopt practices taking individual students’ needs and wishes into consideration. Unfortunately, municipalities, principals and teachers were never given the opportunity to fully prepare themselves for their new mandates (MoER, 2015). While the introduction of the school choice system as well as the independent school and of decentralisation reforms made the municipalities’ task of running schools more difficult, the national follow-up and evaluation of municipalities’ implementation of the reform were weak and the NAE provided only limited support to school organisers and teachers as the objective of decentralisation was precisely that education providers would had to find ways to satisfy the government’s objectives independently (MoER, 2015).

Source: MoER (2015).

Survey data collected by McKinsey and Co. (2013) on 114 Swedish education providers also confirm that “attracting students” ranks at the top in the list of Swedish education providers’ priorities⁵ (Figure 3.1). Conversely, “developing partnerships with other education providers” stands at the bottom of education providers’ ranking of priorities.

Evidence collected by Statskontoret (2013)⁶ also highlights the emergence of large differences in the allocation of resources to education at the local level since the implementation of the decentralisation reforms. Notably, these financial differences emerged despite efforts of the national government to create equal financial conditions for all municipalities through the establishment of a national equalisation system⁷ consisting of government grants to municipalities.⁸

In stark contradiction to the ultimate goal of redistributing funds from wealthier to poorer municipalities,⁹ many small local actors have not yet been able to handle their participation in a number of state campaigns. One reason is that the application process to national grants is usually lengthy and complex and the administrative capacity of smaller municipalities is limited and sometimes insufficient. This situation led to a redistribution of resources that is currently skewed towards larger and already better equipped municipalities (Box 3.3), eventually putting them in a privileged position to address skills challenges and imbalances.¹⁰

Figure 3.1. Education providers' priorities

Source: OECD calculations based on McKinsey and Co. (2013) data on 114 Swedish education providers. Question: Below is a list of priorities that education providers may have. Please indicate how important each item is to your institution, using a 0 to 10 scale where 0 means not at all important and 10 means extremely important. Share of education providers reporting each item to be important (8) to extremely important (10).

Box 3.3. Municipalities and their participation to education government grants

On average, the ten municipalities that have taken part in most state funding application processes during the last three years account for 60% of all applications (individually, around 13.5 applications per year). Municipalities have been able to apply on average for 22.3 government grants per year in 2011-13. No municipality has participated in all of the national calls but Stockholm has taken part in most; on average 16 per year followed by two other major municipalities, Malmö and Gothenburg. When aggregating the participation rate at the regional level, the Stockholm region participates most and northern Norrland the least.

Source: MoER (2015).

The emergence of competition across municipalities has reduced the incentives to use SAA information in favour of more short-sighted and locally uncoordinated policy objectives (i.e. attracting students at all costs rather than planning educational offer to tackle skills imbalances in the medium to long-run). The pressure to attract students and to secure funding for education has led to high-level municipal decisions being based on a narrow set of information in the form of few key figures, rather than on qualified analyses of the municipalities' entire responsibility for education and schools (OECD, 2015). Difficulties in agreeing on education objectives have also led to the cherry-picking of priorities at the local level, hindering the coherent implementation of policies to tackle skills imbalances. Priority has instead been given to forms of evidence (for example, media-friendly rankings and the like) that are important politically at the local level but

that do not capture the depth and breadth of information that is necessary for taking strategic choices for the long-term development of education.

Best practices exist in Sweden and these can set examples to inspire the design of platforms to co-ordinate local interests producing synergies and reducing competition. *Teknikcollege* and the regional framework in the Gothenburg region are interesting examples discussed below.

Teknikcollege as a tool to spur skills synergies

An important exception to the fragmented scenario described above is the experience of Technical Colleges (*Teknikcollege*). Education providers from various municipalities are encouraged to form a local network with firms in their geographical area¹¹ with the objective of providing technology-oriented courses at different levels. The idea behind *Teknikcollege* is based on the principle that education providers from a minimum of three municipalities are required to co-operate through explicit agreements. The *Teknikcollege* framework creates a horizontal bridge between actors at the municipal level, reducing incentives for competition. The objective is to increase resource efficiency and improve the quality of the educational offer to meet the needs of regional labour markets more effectively. Synergies are achieved by sharing the costs and benefits associated to reaching a larger critical mass (starting from a minimum of three different education providers) to provide high-quality education.

From a practical point of view, each *Teknikcollege* is organised around a regional steering group formed by members coming from industry and firms. The steering group is in charge of influencing the scope, structure and content of the courses for these to meet the specific needs of the local/regional labour market.¹² This allows, among other objectives, employers and education providers to build strong links at the local level. The regions and municipalities are also encouraged, in *Teknikcollege*, to form part of a larger national network with the goal of promoting the exchange of experiences and provide quality assurance of the different local education providers in a co-ordinated manner (<http://www.teknikcollege.se>).

Another important trait of *Teknikcollege* is that both large and smaller actors can contribute and benefit from the establishment of co-operation. Small firms can collaborate with local education providers by hosting study visits, giving lectures or by providing inputs to education courses such as problems and exercises taken from real life daily job tasks. They can also participate in regional or local steering groups by offering practical experience and employment vacancies during summer vacation.

Finally, while the content of *Teknikcollege*'s courses is mainly of a vocational nature,¹³ the establishment of close co-operation with universities is an important requirement for creating a certified *Teknikcollege*. This is highly important as the existence of linkages with universities provides students with the much needed incentives to enrol in VET courses by increasing the status and social acceptance of this education path.

Aggregating interests at the regional level: the case of the Gothenburg regional network

Another example of best practice is seen in the Gothenburg Region (GR). The establishment of well-defined co-operation agreements specifically designed to address

the distinctive features of its regional labour market and school system has promoted the aggregation of local interests to address skills imbalances in an effective manner.

The GR's regional network is based on three principles that allow to address many of the shortcomings related to the existing competition across municipalities: i) a joint (voluntary) policy planning over the medium-term at the regional level, ii) the establishment of a robust statistical infrastructure (e.g. the collection of SAA information at the local level) and iii) the creation of co-operation ties among the main stakeholders embedded in the regional labour market with the aim of identifying skills priorities for the development of a systematic local response.

Arguably, the major strength of the GR approach lies in the establishment of a voluntary¹⁴ joint planning of the educational offer (Box 3.4). This groups all the municipalities in the region around a common goal by simultaneously rationalising the use of available resources through the development of a coherent planning to meet local labour market needs 1 to 5 years ahead.

Box 3.4. Building trust among local actors

The GR regional network is composed by various local stakeholders and it is tasked to propose ideas on what issues should be prioritised at the regional level rather than at the local/municipal level with the objective to deliver an educational offer more aligned to both the regional labour market needs and the specificities of the regional school system. The establishment of an explicit platform contributes to build trust among local actors and municipalities. Building trust around a set of joint goal is fundamental as each municipality remains, nonetheless, individually responsible for its own organisation and funding decisions. When a draft agreement on the content of the regional objectives has been produced by the local stakeholders, this proposal is presented to the senior officers in their regional network and then passed on to the political network/steering group (i.e. *Utbildningsgruppen*) which gathers local politicians from the member municipalities. Interestingly, while the chairman of the network is usually from the Göteborg municipality, the network is built so as to preserve a good balance between smaller and larger municipalities so that the number of politicians sitting in the network is not tied to the size of each municipality but all are equally represented.

It is important to notice that, once agreement at the regional level has been reached this is sent back to each municipality which is, finally, in charge of enforcing it through the use of its own local resources. The existence of the regional network, therefore, does not replace the role of municipalities in the delivery of education but plays a fundamental role by shaping municipalities' objectives in a more coherent and co-ordinated way. This limits overlaps and short-sighted policy planning while simultaneously promoting local synergies that are effective to reduce skills imbalances.

The development of a robust statistical infrastructure is another peculiar trait of the GR's framework and reason of its success. While many small Swedish municipalities lack the statistical capabilities (as well as the incentives) to use SAA intelligence, the strength of the GR's regional network lies in the establishment of a shared statistical platform and in the development of robust analytical capabilities to collect, interpret and use SAA information. Regional maps of dependence, statistics on the amount of student places or students' preferences in selected programmes are among the data collected and analysed by the Gothenburg region framework. Statistics are also used to monitor the number of students enrolled in each municipality as well as the costs associated to the provision of education.

The GR statistical infrastructure has been built over the last 20 years through the joint funding of the region's municipalities. It is based on explicit agreements whose aim was to rationalise the investment in statistical infrastructures while at the same time, maximising their potential use across all stakeholders in the region. Regional statistics are available to all senior officers in each municipality.¹⁵

An additional advantage of setting up regional co-operation is the ability to apply for European Social Funds (ESF) with larger project proposals pooling more municipalities together. This in turn has increased the chances of receiving funds for larger and more ambitious projects.

Finally, the development of a joint regional planning – based on robust statistical infrastructure – has allowed local policy makers and education providers to engage labour market stakeholders and employers more effectively. Statistics on the regional range of education programmes and the total capacity to supply skills at the regional level are disseminated to employers (e.g. regional industry and the health care sector) to establish co-operation activities at a high level and enhance the contacts between the labour market and the local education providers.

While enhancing co-operation among local actors leads to many positive effects, some stakeholders in the GR have also reported the emergence of some tensions. For instance, in some municipalities the provision of courses was discontinued in cases where too few students were enrolled but increased in others where demand was stronger. This has led to discussions about the reorganisation of the overall supply of education within the region. The establishment of the GR regional framework has been able, nonetheless, to rationalise the overall costs for all stakeholders involved and currently all municipalities are strongly engaged in its development.

The principle of students' choice, counselling and career guidance

The reforms in the early 1990s aimed at creating a more flexible education system, not only to meet the requirements of a society undergoing an increasingly rapid change, but also to satisfy the individual wishes of students and their aspirations. A new fundamental characteristic of the Swedish education system was introduced with the reforms: the supply of education would be determined by students' choice; funds for education would, therefore, follow the students' demand.

Following the reforms, scope for specific preparation for future working life or further studies was gradually de-emphasised in favour of greater elements of common subjects and increased individual freedom of choice (NAE, 2011). Contextually, municipalities and universities also gained substantial freedom to decide on the provision and content of courses and students' demand for education became the main criteria used to plan what courses/skills should have been provided and where resources allocated.

As a result of both the ample autonomy in the provision of education at the local level and the students' choice principle, the educational offer at the upper secondary level became more varied but somewhat opaque. The number of specially designed programmes increased substantially as did the supply of local orientations and local courses. The wide range of education programmes made it difficult for students and parents to have a clear overview of where the different education paths could lead to in terms of employability outcomes. It was also difficult to assess what students were capable of after completing their education and to understand whether the links with labour market needs should have been strengthened.¹⁶

Against this backdrop, career advice and counselling activities should have played the fundamental role of supporting a decentralised system such as this by informing students' education decisions and promoting the alignment between students and labour market's needs. Career and guidance activities have been, instead, a low priority for a long time.

Support to students is carried out on a local or regional basis and no effective central organisation co-ordinates career advice support.¹⁷ Municipal education providers plan their guidance and counselling services separately with the financing allocated to these services coming from total municipal resources.

Funds to career and guidance support can, therefore, end up being very different between large and small local education providers. Analyses conducted by the NAE in 2007 confirmed that the weak supervision of guidance activities in schools was linked to the uneven distribution of financial resources across the territory and that this allowed some larger municipalities to offer guidance services through a higher-quality external guidance centre while the rest (the majority of smaller municipalities) offered these services in-house.

As for tertiary education, the Higher Education Ordinance¹⁸ clearly states that higher education institutions (HEIs) and universities need to provide career advice and guidance services to their students. The delivery of such services is again left to a largely decentralised system (Euroguidance.eu) where HEIs assume that students are well-informed, enlightened and rational (Haikola, 2015).

All in all, despite the existence of guidance and counselling services at the compulsory, upper-secondary and tertiary education level, the system has proven to be inadequate to effectively inform students. This is inevitably reflected in the poor knowledge that many Swedish students have of disciplines, fields of study, job opportunities and wages. McKinsey and Co. (2013) recently surveyed 500 young Swedes aged 15 to 29 on their understanding of the Swedish labour market and on their opinions on the quality of the information received prior to deciding on education pathway or professional career. Only around 30% of respondents indicated a good understanding of which disciplines have the best employment prospects and 36% knew the salaries associated with a given career path. In only 27% of the cases the respondents indicated a clear knowledge of which education providers have successful job placements prior to deciding where to study (Table 3.2).

Table 3.2. Share of Swedish youth well informed on labour market needs and educational offer

I knew which disciplines had many jobs when I was choosing what to study	30%
I knew which careers had high wages when I was choosing what to study	36%
I knew which education providers had successful job placement rates when I chose where to	27%
I received sufficient information about job opportunities related to various fields of study	21%

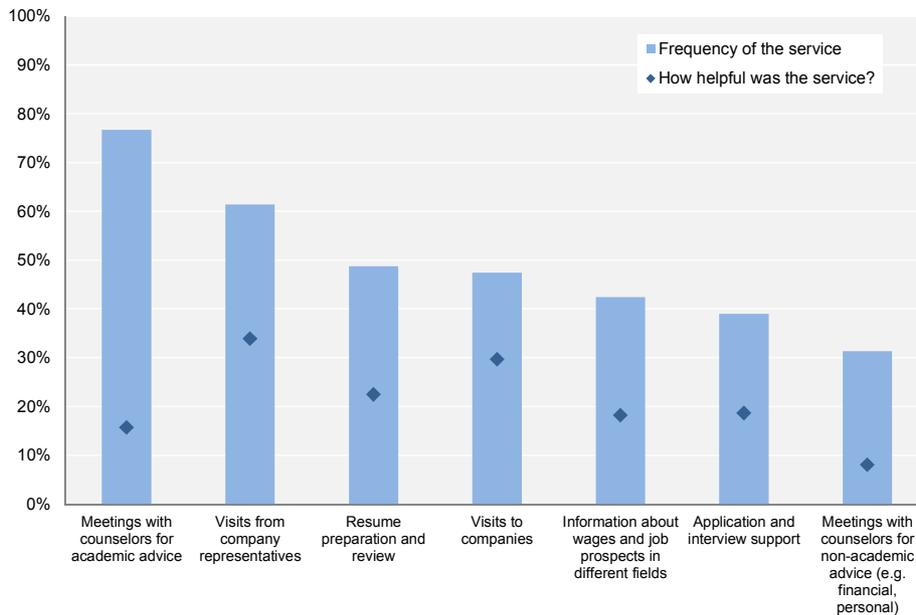
Source: OECD calculations based on McKinsey and Co. (2013) survey data of 500 young Swedes aged 15 -29. Share of youth that agrees or strongly agrees with the above statements.

In Sweden, skills mismatch is substantial in certain fields of study: around 71% of humanities, languages and arts graduates work in an unrelated field and approximately 65% of those graduating in agriculture and veterinary (Montt, 2015). Survey results (Figure 3.2.) show that only around 21% of young Swedes declare to have received sufficient information about job opportunities related to specific fields of study¹⁹ prior to deciding what to do/study following high school. Results suggest that poor information

can be a contributing cause of the substantial field of study mismatch in certain disciplines in Sweden.

Quality rather than quantity of the career and counselling services is one of the major bottlenecks in students' understanding of the Swedish labour market and of its skill needs. Meetings with counsellors for academic advice are frequent in Sweden but their quality could be improved. Around 78% of survey respondents (McKinsey and Co., 2013) attended one of these meetings but only 16% indicated that the service was helpful (Figure 3.2).

Figure 3.2. Career and guidance services at school and their usefulness for youth



Source: OECD calculations based on McKinsey and Co. (2013) survey data of 500 young Swedes aged 15-29.

Confirming the need to strengthen the quality of the career and guidance support to students, the NAE emphasised the necessity to provide better training to career counsellors while also giving a more prominent role to teachers in the diffusion of labour market and skill needs information among students (Box 3.5).

Box 3.5. Understaffed counsellors?

The NAE and the Ministry of Education and Research emphasised the important role that teachers should play in disseminating SAA information. This is extremely important as the ratio of counsellors per student is usually low. While there are no official statistics of the number of guidance practitioners in Sweden, a recent evaluation of the guidance services within the Swedish school system conducted by the Swedish National Agency for Education, shows that an average Swedish counsellor handles about 522 pupils within compulsory school and 470 pupils at the upper secondary level on average. Within municipal adult education (Komvux) approximately 323 students are allocated to each full-time working guidance counsellor. No figures are available for study counsellors at the university level or for job counsellors within the public employment offices (Euroguidance.eu).

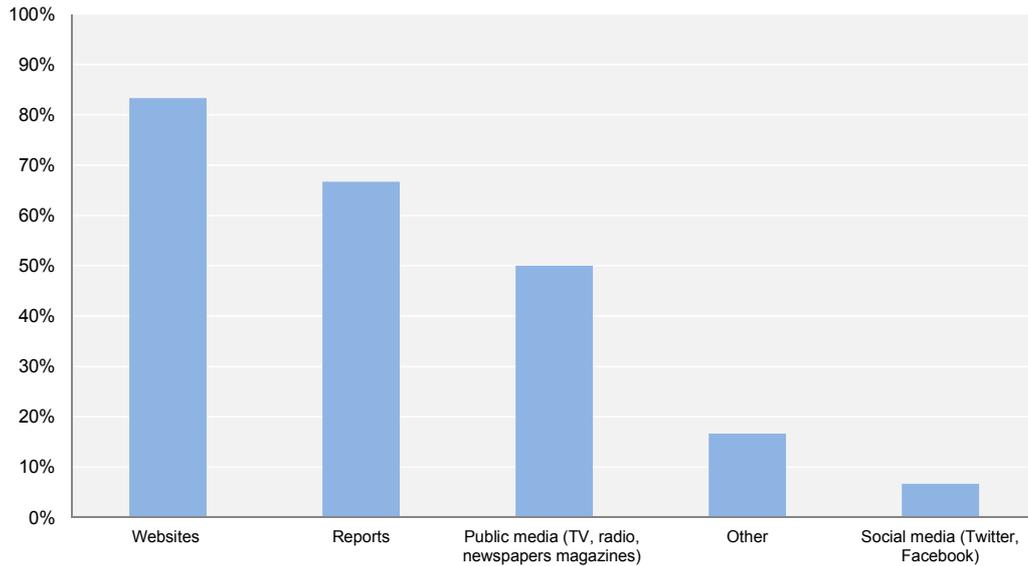
Efforts are currently underway to improve the quality of the career and guidance system in Sweden. Around 1 000 teachers from all parts of Sweden are required to participate each year in specific training sessions, organised in close collaboration with the PES and representatives from firms. During these two-day sessions, the PES is responsible for providing information on its SAA activities (e.g. forecasts and current assessment of skill needs) making suggestions on how to diffuse the available wealth of labour market and SAA information to students and teachers.

The establishment of robust links between employers and education providers on issues related to guidance and career support is vital. Visits from and to companies are frequent in Swedish schools: they are well-established and relatively well-regarded channels of diffusion of labour market information (Figure 3.2 above). Career fairs are promoted in different parts of Sweden on a regular basis and they are often organised in close co-operation with local employers. Every year the Swedish Confederation of Professional Associations (SACO) and Nolia²⁰ organise national fairs to disseminate information about post-secondary opportunities for students from secondary schools and adult education. Individual career guidance is also usually offered during these events (Euroguidance.eu).

Around 60% of Swedish education providers surveyed in McKinsey and Co. (2013) indicate having communicated or co-ordinated with employers several times per year and that this was effective in preparing students to be productive employees.²¹ However, the pro-active involvement of employers in the diffusion of skill needs information could be strengthened further as only 37% of employers reported to have shared up-to-date information about vacancies, wages, and employment prospects through public forums accessible by a wider audience.

Co-ordinated efforts between the NAE and the PES are underway to close this information gap through the continuous development of a publicly funded web service that provides guidance and counselling services on recent occupational trends as well as on current and foreseen labour market skill needs. The national education portal *Utbildningsinfo.se* is a platform designed for students, parents and professionals in the field of education and career guidance which aims at disseminate information about skills, qualifications and training opportunities. This website also provides useful links to the SAA information produced by the PES in the Occupation Barometer (see Chapter 2). In addition the NAE developed in 2013 a specific website geared to pupils in compulsory education that provide information on different vocational courses (*Gymnasieinfo.se*). This web platform has been adapted to be used in a wide range of IT devices including smartphones and tablet computers and filled with, among others, multimedia contents.

The use of websites and reports to diffuse skill needs information is widespread in Sweden as in the rest of the OECD countries (OECD, 2016a). This channel of diffusion of information entails the active participation and engagement of the final users who are required to browse through webpages looking for relevant information. Other tools are available to encourage a wider dissemination of skill needs information: social networks (e.g. LinkedIn, Facebook or mobile phone applications) represent an example of alternative/additional ways to diffuse information requiring a less intense engagement from final users (as these platforms are designed to update social media profiles automatically with new information as this becomes available). However, usage of these tools is still significantly low across OECD countries (Figure 3.3) and should be strengthened to reach a wider audience.

Figure 3.3. The main channels used to disseminate skill needs information across OECD countries

Note: Percentages based on responses from 28 countries [Australia, Austria, Belgium (2), Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Sweden, Switzerland, Turkey and the United States]. If more than one questionnaire was received per country, a definition is considered if reported in any questionnaire received.

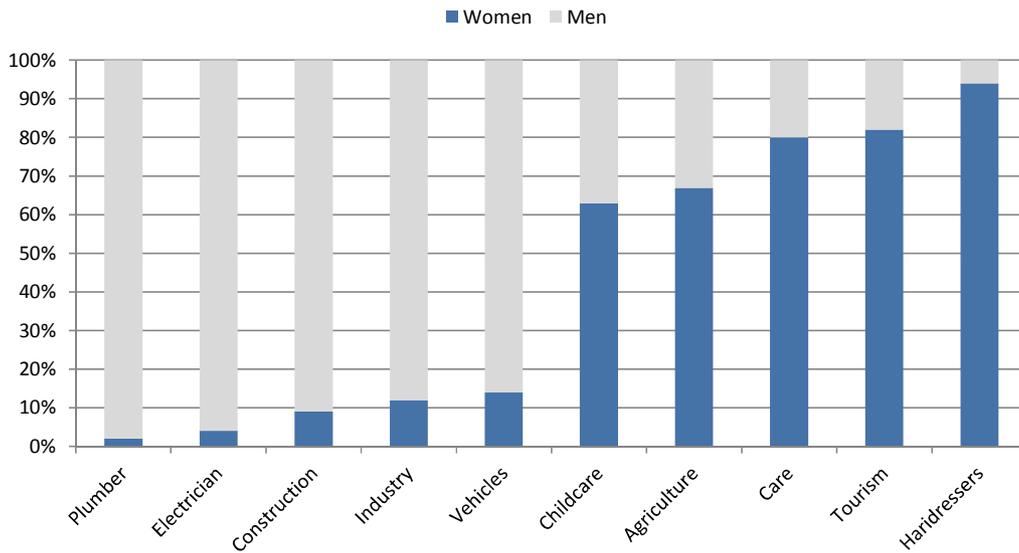
Source: Questionnaire on Anticipating and Responding to Changing Skill Needs.

VET as a response to skills imbalances?

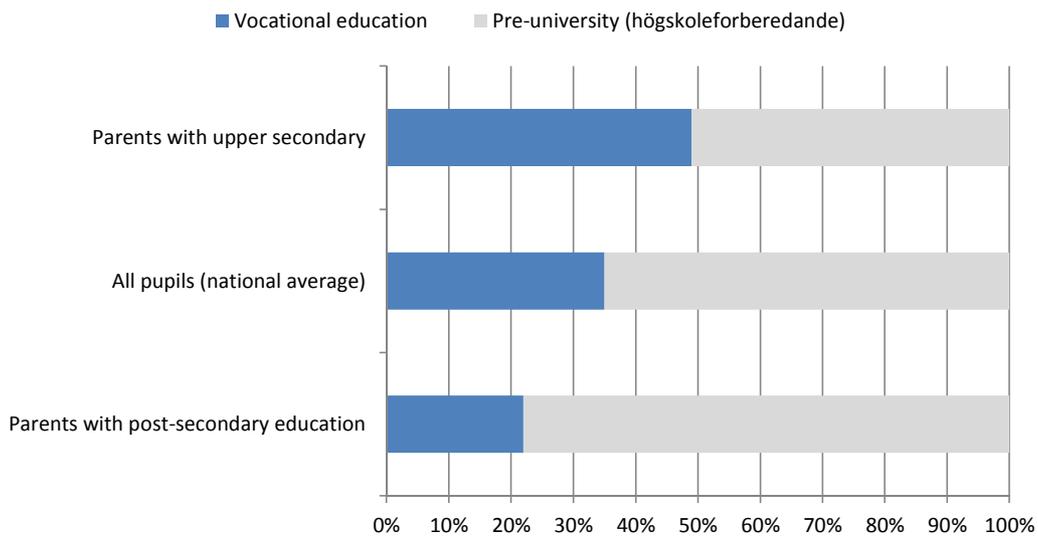
A more effective diffusion of skill needs information can also play an important role in promoting VET education, ensuring a smoother transition from education to work and a effective skills match. Unfortunately, the status and attractiveness of VET education is still low in Sweden. A recent study published by the Commission for Initial and Upper-secondary VET (CIUV), “*Välja yrke*” (CIUV, 2015), highlights a strong gender-biased pattern when it comes to education investment decisions (Figure 3.4) with male students concentrating on fields such as plumbing or construction and female students in others such as care, tourism or hairdresser occupation. Results also indicate a relationship between the socio-economic background of students’ families and their decision to pursue academic qualifications rather than VET programmes (Figure 3.5).

Interestingly, around 77% of young Swedes surveyed (McKinsery and Co., 2013) believe that VET is most helpful in job-seeking with around 66% indicating they would pursue VET rather than an academic education. However, only 21% felt that VET is well valued by society in Sweden (Figure 3.6): the social stigma towards VET still limits the incentives to enrol.

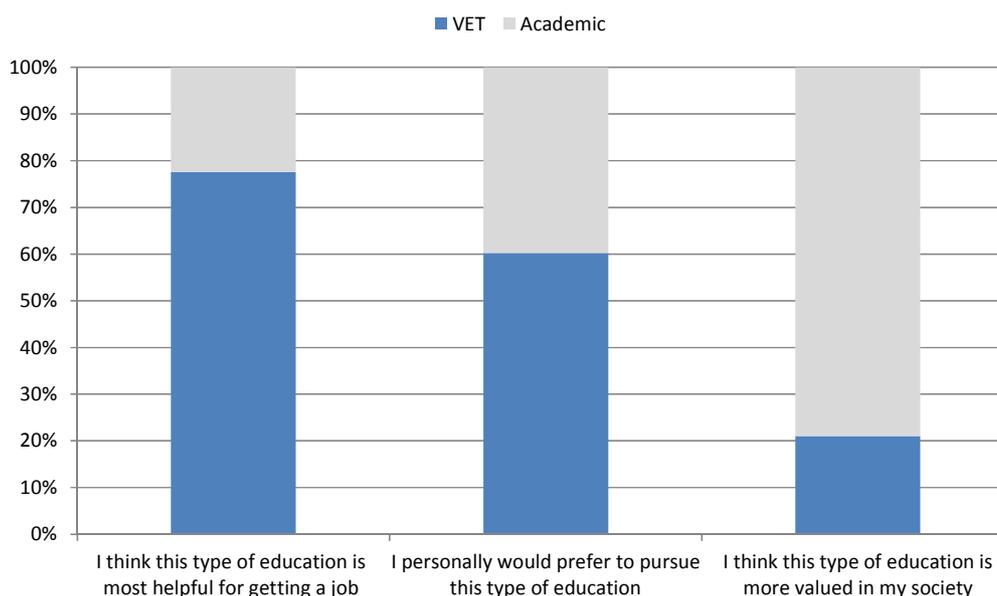
Other factors play an important role and undermine Swedish students’ incentives to pursue VET. The transition from upper-secondary education to higher VET is not automatically assured: an upper-secondary diploma (or equivalent) is required to access higher VET but depending on the programme, students might be required to meet additional criteria such as proving they have relevant work experience. VET students who wish to continue to higher education may also have to complete additional courses within their vocation tracks or in municipal adult education.

Figure 3.4. Gender biased study options

Source: Commission on Initial and Upper-secondary VET (2015), “Välja yrke” [Choose an occupation], Report SOU 2015:97, Swedish Government Official Reports.

Figure 3.5. Socio-economic bias in education decisions

Source: Commission on Initial and Upper-secondary VET (2015), “Välja yrke” [Choose an occupation], Report SOU 2015:97, Swedish Government Official Reports.

Figure 3.6. Social stigma on VET in Sweden

Note: Share of youth replying to each item by type of education (e.g. VET and academic education).

Source: OECD calculations based on McKinsey and Co. (2013) survey data of 500 young Swedes aged 15-29.

The funding scheme used to promote VET plays an important role in shaping incentives to enrol. Funds to promote higher VET education are made available to respond to explicit current labour market needs (Box 3.6). The allocation of funds follows an accurate analysis of the current labour market needs in Sweden. Higher VET is, therefore, a powerful tool for responding to current skills imbalances and shortages. However, linking the availability of funds to higher VET to current and short-term labour market needs entails the risk of specific programmes being suddenly discontinued if labour market needs change. The potential volatility in the allocation of funds to higher VET courses creates uncertainty amongst students in a specific VET field, which in turn undermines the incentives for students to enrol in VET education in the first place.²²

In addition, the relatively short duration of national grants that fund higher VET contributes to the financial instability of VET providers and reduces the incentives to invest long-term in high quality higher VET. Professionals working as VET teachers, for instance, might not be willing to take up pedagogical training if they are uncertain that teaching activity will continue beyond the two periods of training funded by national grants. Ensuring financial stability in the provision of higher VET, while maintaining the principle for which programmes should be designed to react to skill shortages and imbalances, can help increase the incentives for younger students to enrol in upper-secondary VET at early stages of their lives.²³

The government has recently started discussing new regulations to expand the duration of national grants funding higher VET with the objective to facilitate the progression from upper secondary school. These recent efforts need to be closely monitored.

Box 3.6. Labour market needs and the provision of VET education

The Swedish National Agency for Higher Vocational Education is in charge of analysing the demand for qualified workforce in the labour market and to decide on the allocation of funds to higher VET programmes. A key source of information, used to decide on the allocation of financial resources, is the application submitted by the education providers to the agency to start a higher VET programme. The application will contain an objective description of employers and trade demands for the specific qualifications to which the programme leads, including an explanation as to why there is a specific need for higher VET in those fields (OECD, 2013). The application for funding has to contain information on how employers and industries will support the programme and how they will contribute to development and quality assurance. Along with the information provided in the application for funds, the Agency for higher VET carries out its own independent assessment of the demand for different professions and qualifications through occupational analyses. Based on this SAA information, the Agency for higher VET decides which programmes are to be provided and how many places of study each programme should be allocated.

Lifelong learning and adult education: Tools to respond to skills mismatch

Lifelong learning (LLL) and adult education are important tools that can be used to reduce the emergence of skills mismatch among older workers. LLL represents a way of upgrading basic skills in the short-run as well as a long-run investment in education that can enhance skills matching in the labour market. Adult education provides a second chance to those who dropped-out of education early in their lives and who want to update/upgrade their skills to match those required by the labour market.

Several barriers can hinder the access of older workers to further education: the Swedish Confederation of Professional Employees (TCO) recently analysed the educational offer targeted to Swedish working professionals who seek (or need) further education either through formal academic education at the university level or in a polytechnic institute (TCO, 2015). Results show that the existing set of financial incentives to pursue LLL or adult education is insufficient to spur demand, which undermines older workers' access to further education. The rules governing the provision of financial aids and of grants, for instance, tend to favour the application of younger students, which undermines access to further education for working professionals. In these circumstances, adults face a trade-off between the time spent acquiring new education and working to sustain their income while studying.

A more flexible educational offer should also be provided to those who are already working but seeking to pursue lifelong learning. This could be done by increasing the offer of one-year Master's programmes, short(er) courses or by increasing the availability of distance learning.

Furthermore, the validation of prior learning and of informal competences acquired on the job is relatively weak in Sweden. This reduces the incentives for older workers to participate in further education as many working professionals are obliged to follow unnecessary training and courses to gain credits for skills and knowledge they already possess but that have not been validated.

Across the OECD there are several cases where SAA information has been used to reinforce the validation of informal learning. In Australia and New Zealand, for instance, SAA information feeds into the revision of occupational standards or in the update of qualifications frameworks (OECD, 2016a). Similarly, this information can inform the design of education programmes and help policy makers to prioritise the allocation of funds to courses and education paths that are aligned to the needs of older workers and to those of the labour market.

Employment policy: The challenges facing the skill matching activities in Sweden

An effective response to skills imbalances requires the co-ordinated action of several stakeholders, such as public (e.g. national ministries and agencies) and private actors (e.g. employers and social partners' organisations). Among the most important stakeholders involved in the assessment and anticipation of skill needs, the PES usually holds a strategic and prominent position (OECD, 2016a) as do employers and social partners.

The PES is tasked to connect job seekers with employers in order to match the skills supply with demand: this requires flexibility, capacity and autonomy to be able to turn national/regional matching objectives to effective policies and programmes and satisfy job seekers and employers at the national and local level (Froy et al., 2011; OECD, 2016a).

Employers and social partners are important users of SAA information (OECD, 2016a). They use this information to lobby education or employment policy, but also to advise employees on the development of specific skill needs.

Despite acknowledging the importance of both PES and employers' engagement in job-matching activities, Sweden faces some challenges that undermine its ability to match the available skills to the needs of its labour market.

The activities of the Swedish PES are not always sufficiently flexible at the local level and earmarked resources within the agency can remain unspent. This hampers the many valuable efforts that are underway to modernise its skills-matching tools and in turn, is reflected in the low satisfaction of employers and job seekers regarding the PES matching services.

The dialogue between the PES and employers should also be strengthened by engaging employers in the identification of skills priorities. The role of social partners within the Swedish SAA system should also be clarified and strengthened as they act, in most cases, merely in an advisory capacity. These issues will be analysed more in detail below.

Matching skills in Sweden: The role of PES

Despite a relatively low unemployment rate, the involvement of the PES in job-placement activities in Sweden is well above the average of the EU-28. The job-matching activities of the Swedish PES are structured around the establishment of national agreements with companies and providers with the ultimate objective of providing a wide set of services to match the competences of young people, the long-term unemployed, persons with a functional disability or newly-arrived immigrants to the skills required by Swedish employers.

The PES is also in charge of providing support to job seekers via labour market programmes whose design can change according to the specific situation. Generally the PES support targets job seekers who have been unemployed for a long time; with poor language skills and with a work-related functional disability or lacking in relevant training (Box 3.7).

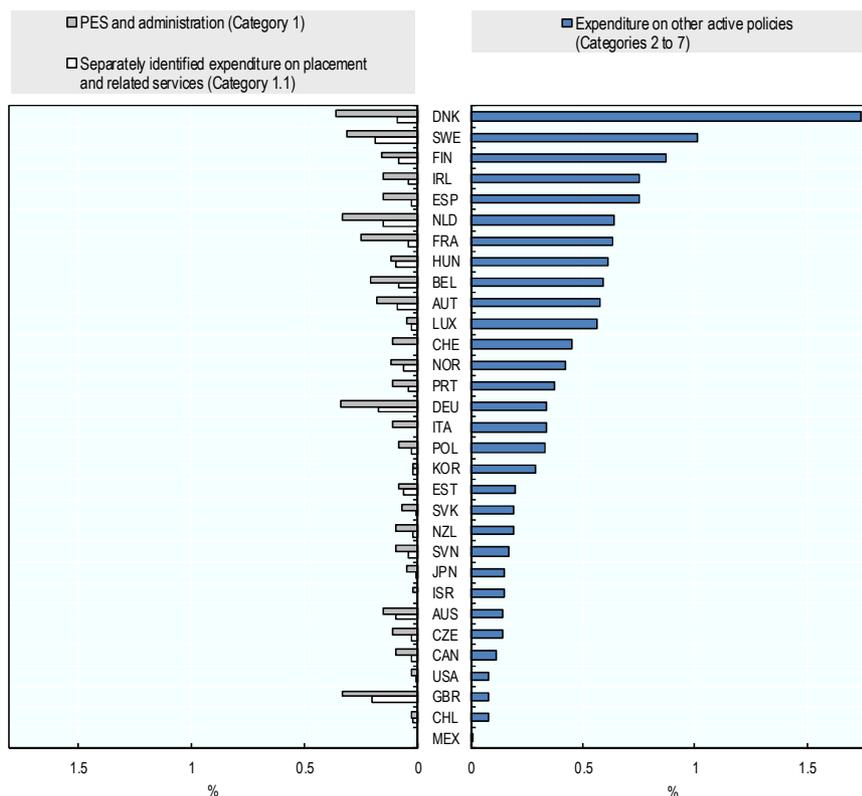
Box 3.7. PES services for employers and job seekers

The Swedish PES provides a wide array of services free of charge to both employers and job seekers. Among the services to employers there is the free publishing of job offers in the Platsbanken job bank or the access to a register of about 170 000 job seekers, “Sök CV” (Search CV) at arbetsformedlingen.se. The PES also provides support to employers during the recruitment process and allows recruitment meetings at its premises free of charge. As for job seekers, the PES manages labour market programmes such as the Job and Development Programme and the Youth Job Programme. Support for people with a functional disability that results in a reduced working capacity is also provided along with vocational and preparatory labour market training. Finally, for those who aim to become self-employed, the PES provides support while starting a new business.

Financial resources allocated to the PES administration and to its job-placement activities are above the OECD average (Figure 3.7) and the PES is now facing an increasing number of challenging tasks every day. For example, a recent health insurance reform has led to a substantial change in the number and composition of those who are currently registered as unemployed. This has gradually put responsibility on the PES to match an increasing number of unemployed, most of whom have lower education-levels, to the needs of employers who require workers with secondary or even tertiary education. According to the PES labour market outlook for spring 2015, a total of 366 000 people were registered as unemployed in April 2015 and around 68% of these belonged to disadvantaged groups.

Figure 3.7. Expenditure on active labour market programmes in OECD countries, 2012

Public expenditure, percentage of GDP



Note: Data refer to 2010 for the United Kingdom; data refer to 2011 for Australia, Ireland, Israel, Luxembourg, Poland and Spain.

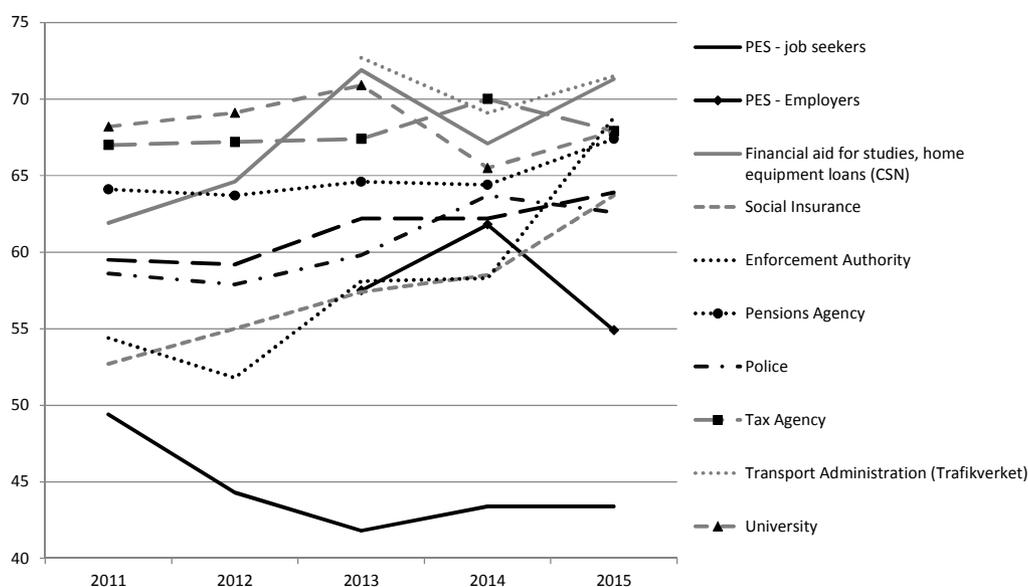
Source: OECD (2013), “Labour Market Programmes: Expenditure and Participants”, OECD Employment and Labour Market Statistics (database), <http://dx.doi.org/10.1787/data-00312-en>.

The increasing number of responsibilities and challenges faced by the PES as well the economic crisis are possible causes for the growing dissatisfaction amongst employers and job seekers towards the PES matching activities (Figure 3.8).

In these circumstances, Swedish employers are increasingly seeking the support of professional job-broker providers. During the OECD visit to Sweden, employers' organisations argued that professional recruitment companies are able to provide more effective business contacts and have a more developed understanding of business needs than the PES. Most importantly, private job-brokers react quickly to short-term and unforeseen skill gaps and have the flexibility to adapt to rapid changes in demand.

In contrast to private job-brokers, the breadth and complexity of the PES activities – most of which run simultaneously (e.g. job matching, delivery of active labour market policies, the production of SAA information etc.) – has contributed to slowing down the delivery of skill-matching support to both employers and job seekers. Against this backdrop, the Swedish Government has recently set up a commission to investigate the mission of the PES and to propose ways to strengthen the delivery of labour market policy. The commission will examine solutions to strengthen interaction of the PES and other stakeholders in job counselling, schools, universities and adult education.²⁴ conclusions are expected by the end of 2017.

Figure 3.8. Swedish quality index; satisfaction towards Swedish agencies and authorities



Source: Swedish quality index – Svenskt Kvalitetsindex (2015). Satisfaction is measured on a scale ranging from 0 to 100.

New tools to enhance skill matching

The relatively slow response of the PES to the needs of employers and job seekers has been one of the most important challenges that faced the Swedish PES since the onset of the economic crisis. A new profiling tool (the Assessment Support Tool, AST) was introduced in 2012 to support and speed-up PES caseworkers' matching tasks.

The AST uses statistical forecasts of the applicant's risk of long-term unemployment based on the analysis of SAA information collected in-house by the PES. Results of this

exercise are used to improve the accuracy of the PES support programmes by helping case workers to decide on whether an early action is appropriate or not in each specific case.

Two recent studies (Assadi and Lundin, 2014a and 2014b) have investigated the use of the AST profiling tool by PES caseworkers. According to these analyses, despite of the potential value of this tool, its implementation had been too hasty (Assadi and Lundin, 2014a) and managers of local PES offices received little guidance on how to effectively use the tool.

Problems persist with the PES caseworkers' interpretation of the statistical results. A survey of 1 970 caseworkers and 325 PES managers (Assadi and Lundin, 2014b) shows considerable differences in the way the AST profiling tool is used and its outcomes interpreted. Around 45% of caseworkers have a fairly or very negative attitude towards the AST.²⁵ This in turn reflects the different use of the AST tool by local PES offices across the country. Measures should be taken to improve its use and to encourage further development, as well as to providing adequate training to PES officers on how to properly interpret SAA information.

Other OECD countries have also developed sophisticated profiling tools²⁶ and their experiences could inspire the development of the AST in Sweden. The Vlaamse Dienst voor Arbeidsbemiddeling en Beroepsopleiding (VDAB, Belgium's Flanders PES),²⁷ is now using skills profiling to facilitate matches, assess job seekers' risk of unemployment and to capture and describe a job seeker's potential in terms of her/his "generic" and "soft" skills. The development of these tools led the Flemish PES to enhance co-operation with employers to include more detailed information on skill requirements in their future vacancies (including technical, generic and soft skills) in accordance with the skills described in the profiling tool.

While many countries are developing increasingly sophisticated tools, it has become evident that many of the proxies that are currently used to measure skills (e.g. education or qualification levels, job titles) are an imperfect approximation of each individual true skills and competencies. In this context, the Swedish PES is working to refine its existing "digital matching tool" to allow both job seekers and employers to search for each other through a system of skill tags inputted by the final users. This system goes beyond the use of the usual occupations, fields of study or qualifications proxies and it will enable job seekers, employers and PES caseworkers to have a greater amount of information when searching for specific skills as well as when matching vacancies to job seekers.

Job seekers, for instance, will be able to provide information on their education titles as well as on the specific skills they acquired both formally (e.g. through education, for which they have a title) or informally at work. An IT engineer will be able to promote her/his CV (listed in the PES website) by adding skills like C++, Javascript, HTML or PHP. Employers, in turn, will be able to look for those specific skills instead of being constrained to search through job titles or qualifications, proxies that are unable to capture the depth and specificity of the competences required for the job or the skills owned by the job seeker.

Additionally, the digital matching tool will provide information on the job seekers' availability to move geographically (nationally or only locally) and this will be used along with other variables to produce a ranking of the "quality of the match" between the job seeker's attributes and the skills sought by the employers. Interestingly, one of the major improvements relative to the old PES matching system will be that those

job seekers whose profiles do not “exactly” match the request of a specific employer’s vacancy will still show up in the list of possible candidates for that job, even if the match between job seekers’ skills and the job requirements is imperfect.²⁸ A similar interface, based on the same set of skill tags and taxonomy, is also under development with the aim to extract skills-tags from the job offers uploaded by employers to the PES system in form of free-text. This refinement is expected to speed up and improve job seekers’ search of available jobs that are matching their skills. Further developments should address some existing methodological issues (Box 3.8).

Box 3.8. Skill tags and unresolved issues of the Digital Matching tool

In order to streamline the development of the skill-tag system, the Swedish PES has built a large skill taxonomy which is meant to help job seekers to input her/his own skills into the system. The taxonomy, updated in co-operation with employer’s organisations, professional boards and PES officers, consists of approximately 3 400 occupation tags. These are structured according to the Swedish Standard Classification of Occupations 2012, based on the International Classification of Occupations ISCO-08. The taxonomy for skills/competences consists, instead, of approximately 5 300 hard skills. Users can input as many tags as they think necessary to describe their skills. Along with those job seekers can also input, more generically, a job-title that represents their competences. More job-titles can be inputted at the same time and associated to each CV to increase its visibility. So far, no validation of the information is required by the PES and job seekers’ self-reported skills are provided to employers on a “as it is basis”. The quality of the information, therefore, can be extremely heterogeneous. A recent informal evaluation of the prototype skills-tag system revealed that (too) many competencies are entered by job seekers simultaneously as they have the incentive to populate their profile with the maximum number of competencies possible to make their profile more visible. Further developments should be able to address these issues soon.

Opening skills matching activities to complementary actors (providers/operators)

The ongoing efforts to refine and develop new skill matching tools are laudable but, as mentioned in previous sections, the PES is currently struggling to provide a quick response to employers’ needs. A recent report from the Ratio Institute (Wennberg et al., 2013) surveyed companies and employers in Sweden and identified several bottlenecks in the delivery of skills-matching activities. Results from the Ratio Institute’s analysis show that employers are dissatisfied with the quality of the candidates proposed by the PES, as they feel they generally lack drive and genuine interest in the jobs. More problematic is the divergence between the skills supplied by the job seekers managed by the PES (usually low-skilled individuals) and the skills required by most Swedish employers (usually, but with some notable exceptions,²⁹ medium to high skills).

The current government has recently put emphasis on the need for the PES to support all job seekers and employers, based on their individual needs. This, however, seems to be in conflict with the original mandate of the PES³⁰ and with the opinion of several employers who report the fact that the PES has tended to prioritise its support to those job seekers that are further removed from the job market rather than providing support to those whose skills are closer to the requests of employers.

This situation presents the question of whether private service providers should be more involved in the delivery of skills matching activities. This would rationalise the use of available resources and deliver more tailored services to both employers and job seekers with specific and urgent skill needs.³¹

The Confederation of Swedish Enterprises (*Svenskt Näringsliv*) has highlighted the need to open up the delivery of job-matching activities to private providers in light of experiences in other OECD countries, such as Australia. While the Australian and Swedish systems differ in many respects, some elements of the former could be used as a basis to discuss new ways to strengthen the delivery of job-matching services in Sweden.

In Australia, emphasis has been put on the design of a system of incentives that spurs competition among private providers in the delivery of matching activities (OECD, 2012a). Skill matching support has been strengthened as job seekers are able to freely choose their own private job-matching provider³² based on their reputation or the package of services provided. A second crucial element has been the design of funding schemes to pay job-brokers which has encouraged competition among providers and enhanced the delivery of high-quality skills matching services. In Australia, payments to private providers emphasise successful employment or training outcomes, the fees being higher according to the barriers for labour market reintegration. Job mediators receive a larger reimbursement when they find employment for job seekers whose profile is more difficult to reintegrate in the labour markets. However, full payment is not made for services until the assignment is completed.

The creation of a competitive model where the quality and effectiveness of employment services are measured against objective criteria (e.g. the speed with which matching takes place or the duration of employment after the matching took place) is fundamental and it can go a long way towards reducing skills imbalances in Sweden.

The role of employers and social partners in skills-matching activities in Sweden

Across the OECD, social partners are important users of SAA information (OECD, 2016a). For both trade union confederations and employer organisations, the most common use of this information is to lobby education or employment policy but SAA intelligence is also used to advise employers and employees on the development of specific skill needs.

While employers usually tend to emphasise the deficiencies of the education system as some among the most important challenges leading to skills shortages and mismatch, they are themselves key actors of the SAA system with important responsibilities when it comes to develop and implement a policy response to skills imbalances based on SAA information.

Employers play a fundamental role in the provision of on-the-job training programmes as well as in creating some of the necessary conditions to enable working professionals to pursue lifelong learning and to update their skills in order to keep up with fast changing labour market demands.

On the job training can play a double role: it is both crucial for workers to maintain their skills up-to-date and to ensure that these match those required by their jobs. Training is also a tool to provide new hires with the necessary entry-level skills if missing at the time of hire. In both cases, the training provided by employers can help reduce the extent of mismatch.

Survey results (Table 3.3) show that 75% of Swedish firms provided entry-level training for general skills (e.g. problem-solving, analytics, teamwork, communication, leadership, creativity) and the vast majority (around 87%) of firms provided support to the development of skills that are specific to their industry or company.

Table 3.3. Entry-level and sector/company specific training in Swedish firms

Does your company provide entry-level training for general skills (e.g. problem-solving, analytics, teamwork, communication, leadership, creativity)?	75%
Does your company provide training for job-specific skills (i.e. skills that are specific to your industry or your company)?	87%
On average, how much training does an entry-level new hire receive in the first year? Please give your answer in number of hours in first year	134

Source: OECD calculations based on survey data from McKinsey and Co. (2013).

Investing in the acquisition and development of the right skills is crucial for both employees and employers. Around 45% of young Swedes surveyed by McKinsey and Co. (2013) indicated that they are willing to pay and invest in additional education if doing so would increase their chances of having a higher salary or of securing a more attractive job. Similarly, employers showed that they would be willing to pay higher salaries (on average, around 20% increase) to those candidates with relevant training at the moment of hire.

Swedish firms invest substantial resources in developing the skills of new hires in their first year; on average around 134 hours of training are provided annually. The quality and not only the quantity, of training plays, however, a fundamental role when it comes to tackle skills imbalances. While it is difficult to assess and compare the quality of the very different training schemes provided by Swedish firms, the provision of training to new recruits is generally more effective all the more employers are able to update the contents of their training programmes and adjust them to the skill needs of their firm.

Survey results (McKinsey and Co., 2013) show that around 55% of Swedish employers update or review the content of the training provided to new hires at least once per year (but some firms do so every three months or even more frequently).³³

Results from a survey carried out by the Swedish Confederation of Professional Employees (TCO) on the demand for lifelong learning and on the (self-assessed) preconditions to participate in it for working professionals point, however, to the existence of several bottlenecks. The findings of the study highlight that approximately one in every four Swedish employees (30-55 years old) indicates having received insufficient training at work. Around 44% of the surveyed professionals indicated that their current employer would not be willing to provide training in line with the skill requirements of their jobs.

Co-operation among employers and with education providers to get skills right

The development of on-the-job training courses benefit from SAA information as this provides valuable input, keeping content up-to-date. Building strong ties between the providers of SAA information, the employers and the education and training providers can go a long way in promoting high-quality training to new hires and older workers.

Strengthening the co-operation among employers (and within industries) builds synergies and partnerships that can reduce the fixed costs associated the provision of training and enhance the job-matching and recruitment initiatives.

Survey results suggest, however, that the co-operation among Swedish employers in skills development initiatives is weak. Less than one in two Swedish firms (Table 3.4) co-ordinates with other companies on skills-related activities such as standardising job descriptions, developing standards and qualifications for training programmes or in advising education providers on curriculum development. Furthermore, only 27% of employers declared that co-operation amongst industry associations, skills councils or with other public entities overseeing skills development has been effective in developing the skills needed by firms (McKinsey and Co., 2013).

Strengthening partnerships, trust leading to the identification of common goals among stakeholders is fundamental. OECD (2016a) suggests that the experience of countries that have been able to create formal/informal platforms or working groups with specific skills objectives and realistic timelines has proven successful, spurring dialogue and creating synergies to address skills imbalances more systematically.³⁴

Table 3.4. Co-operation across companies on skills development in Sweden

Does your company co-ordinate with other companies on the topic of skills and qualifications*, for example through an industry association, a sector/industry skills council, or another public entity that oversees skills development?	49%
How effective is your company at promoting coordinated industry efforts on skills?	27%
Share of respondents declaring co-operation to be effective or very effective	

Note: * Skills related activities are: standardise job descriptions; develop standards and qualifications for training programmes, advice education providers (education providers such as academic or vocational training pre-work providers) on curriculum development.

Source: OECD calculations based on survey data from McKinsey and Co. (2013).

Across the OECD, there are many examples of successful co-operation among employers, education providers and public stakeholders. Finland, Denmark and the Netherlands have developed a long-standing tradition of collaboration between VET schools and employers which continuously updates VET curricula in line with labour market needs. Close co-operation with employers is also crucial for the success of traineeship schemes in other countries. The Employment Initiation Contract (*Contrat d'initiation à l'emploi* – CIE) in Luxembourg is an example of a successful traineeship scheme targeting young unemployed people. This programme has been designed through the co-operation of employers' representatives and the Chambers of Commerce. Close collaboration between employers and the PES has also contributed to the implementation of the Latvian programme Work Practice for Young Unemployed (*Jauniešudarbaprakse*) and the Maltese Job Experience Scheme (European Commission, 2013).

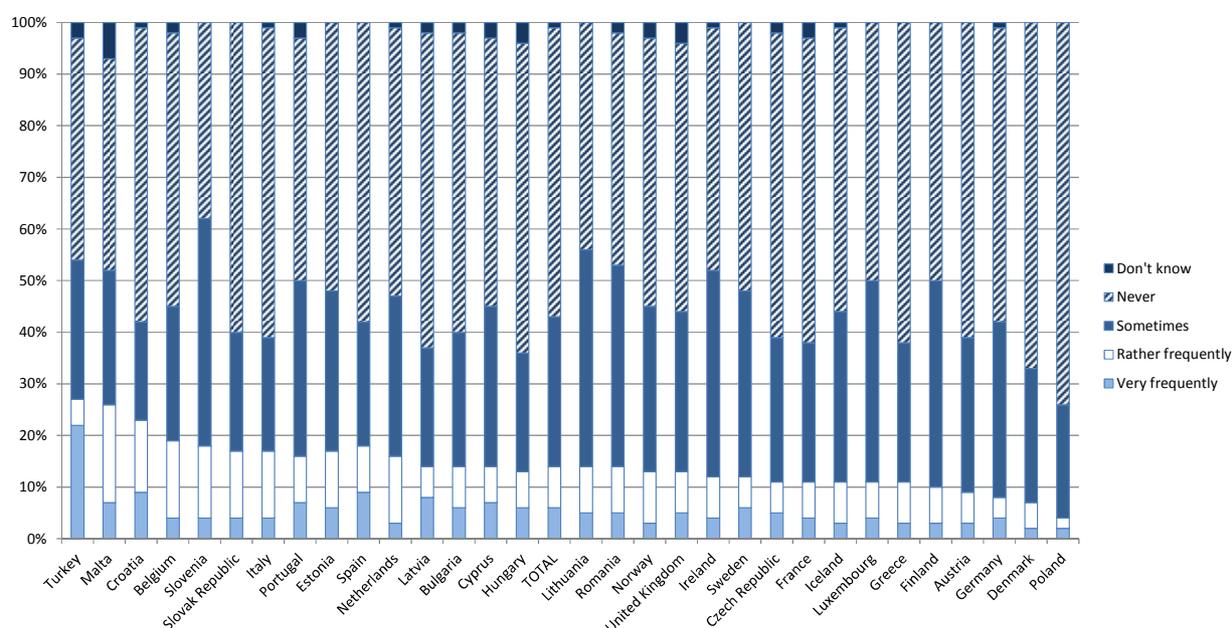
While Sweden does have a long tradition of dialogue among stakeholders, the contacts between employers and education providers have been, in some cases, only limited. Co-operation between employers and education providers works well in certain areas (e.g. Teknikcolleges) but it could be strengthened in others. Survey results (Table 3.5) show that fewer than 60% of Swedish employers have created partnerships with education providers (either academic or vocational) aimed at providing input (or other assistance) on developing curricula, make sure that education instructors have relevant industry experience or to help determine what subjects of disciplines education providers should supply.

Table 3.5. Co-operation activities between employers and education providers in Sweden

Provide input or otherwise help to develop education curriculum	58%
Help make sure education instructors have relevant industry experience	56%
Work with providers to determine what subjects/disciplines to offer	56%

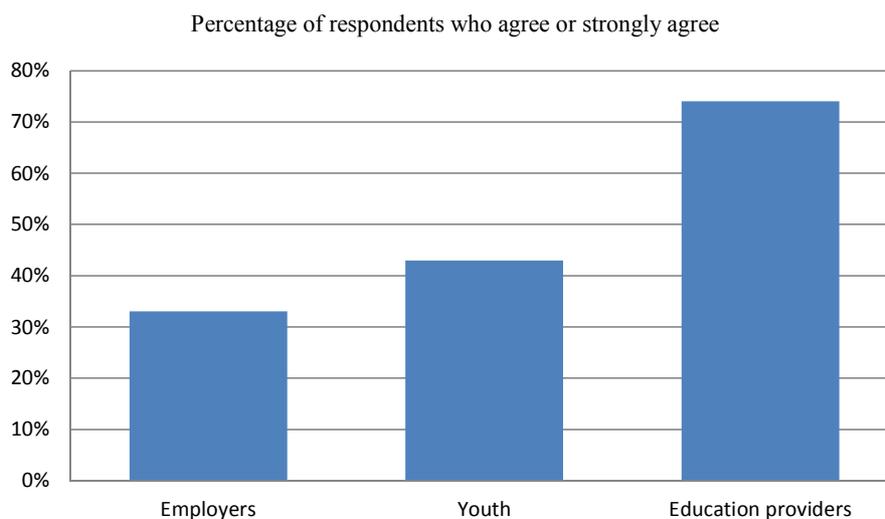
Source: OECD calculations based on survey data from McKinsey and Co. (2013).

When looking specifically at the co-operation between employers and higher education institutions, survey results show that up to 52% of the firms interviewed have never established co-operation with higher education institutions (Figure 3.9).

Figure 3.9. Frequency of co-operation with higher education institutions to discuss curriculum design and study programmes

Source: Adapted from the Gallup Organization (2010), *Employers' Perception of Graduate Employability*, Flash EB Series, # 304, European Commission, Brussels, http://ec.europa.eu/public_opinion/flash/fl_304_en.pdf.

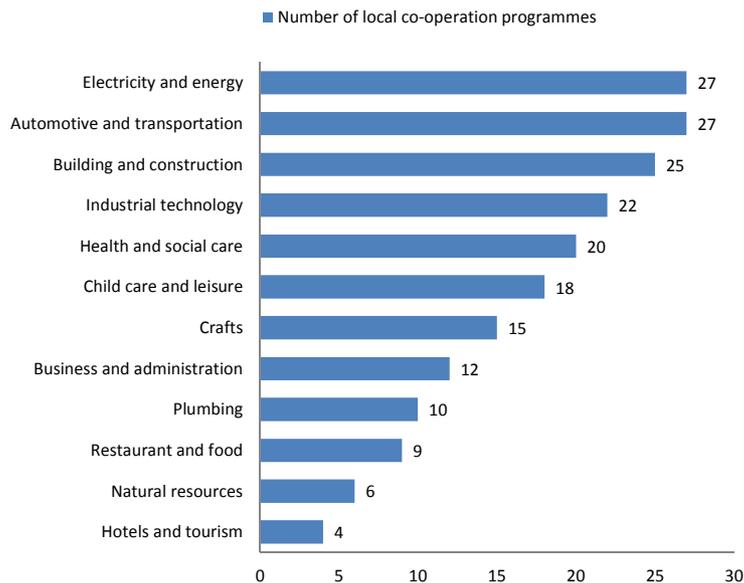
The relatively weak co-operation between employers and education providers can lead to disagreement in the identification of skills priorities and of challenges. Figure 3.10 reports the share of employers, youth and education providers who believe that Swedish youth is adequately prepared for an entry level position in the labour market. While more than 70% of education providers believe that the skills of Swedish youth are adequate for workplace entry, only 33% of employers and 43% young Swedes agree with that statement. The sharp divergence in the perception of the quality of young Swedes' skills among stakeholders suggests that more should be done to involve employers, students and education providers altogether in the joint discussion of labour market and skills challenges as well as in the joint identification of skills priorities.

Figure 3.10. Are young people prepared for an entry level position in the Swedish labour market?

Note: Employers; Overall, the entry-level employees we hired in the past year have been adequately prepared by their pre-hire education and/or training. Youth; Overall, I think I was adequately prepared for an entry-level position in my chosen career field. Providers; Overall, graduates from my institution are adequately prepared for entry-level positions in their chosen field of study.

Source: OECD calculations based on survey data from McKinsey and Co. (2013).

Along these lines, the Commission for Initial and Upper-secondary VET analysed the degree of co-operation between local employers and VET providers in a recently published report (CIUV, 2015).³⁵ Results, based on a survey administered to upper secondary schools³⁶ highlights that schools in different counties across Sweden are able to create contacts with employers with varying intensity. Local co-operation between employers and education providers tends to be concentrated in male dominated vocational programmes and in specific sectors (e.g. the energy sector, automotive and transport sector or the construction sector), as indicated in Figure 3.11. More should be done to provide incentives to smaller industries and sectors (e.g. tourism and hotels, natural resources, food and beverage services) to establish programmes of local co-operation with education providers as these are key to the development of a coherent policy response to skill challenges at the local level.

Figure 3.11. Local co-operation by sector

Source: Commission on Initial and Upper-secondary VET, CIUV (2015), “Välja yrke” [Choose an occupation], Report SOU 2015:97, Swedish Government Official Reports.

The integration of migrants’ skills into the labour market: An opportunity, a challenge (or both)?

Recent migration flows and the dramatic increase in the number of asylum seekers from countries at war have drawn the international attention to the challenges related to the design of adequate measures to integrate migrants’ skills into the society and labour markets.

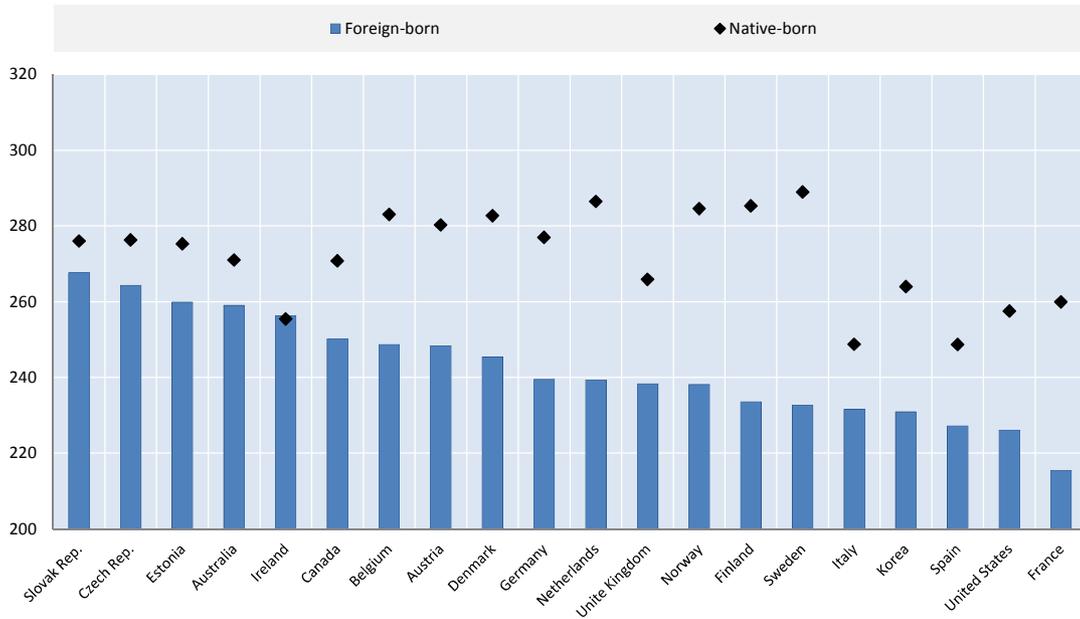
In Sweden in 2000, 11% of the population was born abroad: these figures are now rapidly changing (OECD, 2016b) as more people are fleeing to Sweden from Syria and other countries at war. In 2015, the immigrant population increased to approximately 17%: 163 000 migrants and asylum seekers (of which 35 000 were unaccompanied minors) arrived in Sweden to seek shelter, the highest per capita inflow ever registered in an OECD country (OECD, 2016b).

The integration of migrants’ skills into the Swedish labour market represents a challenge and SAA information can provide important input to develop a policy response to the skills imbalances produced by such large migration flows. The existing system of validation of foreign qualifications, credentials and informal competences, for instance, could be strengthened by the use of SAA information to facilitate the introduction of migrants’ useful skills into the labour market. Similarly, SAA information could be used to identify and prioritise areas where the further development of migrants’ competences could be especially useful and lead to their smoother integration into the Swedish labour market.

Migrants fare worse than natives mainly because of lower skills

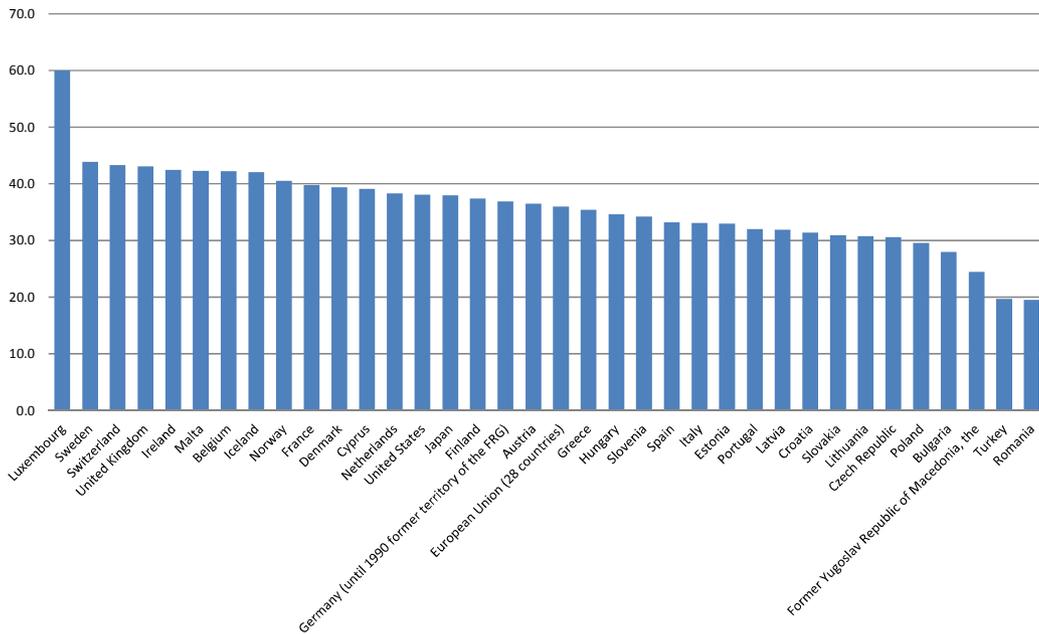
Migration and skills mismatch are deeply interrelated. The skills brought by migrants can differ substantially from those of native-born Swedes (Figure 3.12 and, importantly, from those required by a labour market like that of Sweden (Figure 3.13.) where more than 40% of total employment is in knowledge intensive activities.

Figure 3.12. Performance in numeracy by place of birth
Numeracy score points



Note: The sample includes persons aged 16-65. 50 points in the literacy proficiency score correspond to about a level of literacy.
Source: Bonfanti and Xenogiani (2014).

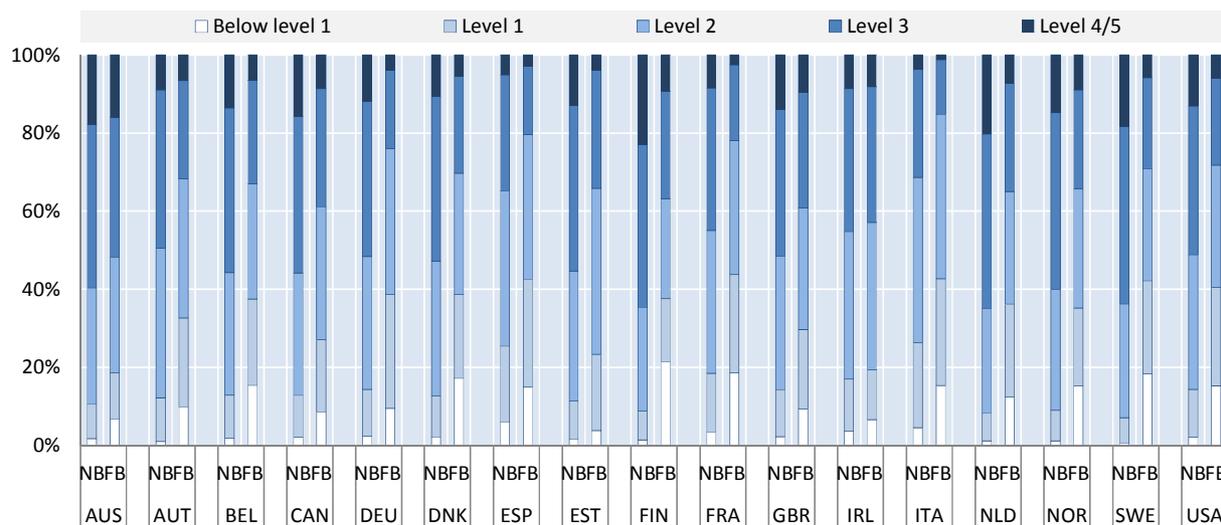
Figure 3.13. Employment in knowledge intensive activities
Percentage of total employment, 2014



Source: Eurostat.

The difference between natives and foreign-born in numeracy³⁷ test performances is among the highest in Sweden when compared to the rest of countries participating to the OECD Survey of Adults Skills (around 60 points difference). Much of this difference is driven by the relatively high share of migrants in Sweden whose skills are below level 1 (around 19%), one of the highest shares across the examined countries (Figure 3.14).

Figure 3.14. Distribution across levels of literacy, by place of birth



Note: FB: Foreign-born; NB: Native-born. The sample includes persons aged 16-65. 50 points in the literacy proficiency score correspond to about a level of literacy.

Source: Bonfanti and Xenogiani (2014).

Validation of foreign qualifications and competences to address skills imbalances

While the differences in the skill levels between natives and foreign-born is a challenge that can be solely addressed through migrants' re-training and further education, other barriers can undermine the smooth integration of their skills in the labour market and lead to mismatch and skills imbalances. One major challenge relates to the efficiency with which foreign qualifications are validated in the host country so that migrants' skills can be formally recognised in the labour market and by employers.

Migrants arriving in Sweden can seek validation of their formal qualifications and informal skills, or both. Table 3.6 summarises the various means of validating foreign competences, the types/levels of competences/qualifications and the different stakeholders involved in the validation process for both education and labour market purposes.

Migrants arriving in Sweden can validate their competences for different purposes: pursuing additional education in Swedish education institutions or using competences already validated directly in the labour market and having them fully recognised by Swedish employers. Distinguishing between the specific validation purposes is crucial as different agencies and stakeholders are involved.

The Swedish Council for Higher Education (*Universitets- och högskolerådet* – UHR) is the public agency responsible for validating all higher education qualifications and post-secondary vocational education qualifications obtained abroad in cases where these

credentials are used in the labour market, or for pursuing further education in the Swedish system. The validation of higher education titles in regulated professions for labour market purposes is managed by the competent authorities/institutions in each sector.

Table 3.6. Validation and assessment of foreign education and real competences

Validation of foreign education		Assessment and validation of real competences and prior learning	
<i>For the labour market (ahead of recruitment, self-employment and others)</i>	<i>Within the education system (for continued studies)</i>	<i>For the labour market (ahead of recruitment, self-employment and others)</i>	<i>Within the education system (for formal competence and credit transfer)</i>
The Swedish Council for Higher Education:		Employment Office(s)/The Swedish Public Employment Service:	Municipal adult education:
Responsible for the assessment of foreign education for access to higher education and for employment purposes		Negotiates with external actors performing the task; it is mainly a purchaser organisation (of this service).	Validation against course objectives on secondary level; inscribed in the Education Act 2012; to be implemented by municipalities.
Regulated professions: Competent authority is responsible for the assessment of regulated professions		Industry and professional organisations: Model owner/developer; Appoints providers/is a provider	The Swedish National Agency for Higher Vocational Education: responsible for coordinating and supporting a national framework for recognition of prior learning
Industry and professional organisations: Model owner/developer; Appoints providers/is a provider		Regulated professions: Competent authority is responsible for the assessment of regulated professions	Higher (academic) education: Validation for (achieving formal) competence and credit transfer (recognition). Providers: Universities/Higher (academic) education Institutions.
			Folk adult education: both educational associations and Folk High Schools (Nordic open college/adult education form), (often integrated in education forms/courses). Providers: Folk High Schools

Source: Kriterier och riktlinjer för validering av reell kompetens/National criteria and guidelines for validation of real competence, Myndigheten för Yrkeshögskola (2014, p. 7).

Migrants may also seek to validate their informal competences. In this case, the validation framework becomes more fragmented. Two validation paths are available depending on the purpose of such validation (e.g. obtaining further education or the use of the validated competences in the labour market). The validation of foreign informal learning and competences for labour market related purposes is usually carried out by the PES which procures this activity to external providers across Sweden. Professional organisations can also, however, assess vocational education competences whenever the purpose of validation to use these credentials directly in Swedish labour market.

In the case of validation and assessment of informal competences for further education or promoting credit transfers, an even larger group of different actors comes into play. Municipalities validate adult competences against their courses' objectives at the secondary level while the Swedish National Agency for Higher VET is also responsible for co-ordinating and supporting a national framework for recognition of prior learning. Universities and higher education institutions are also in charge of

validation when leading to tertiary education. Folk high schools can also assess and validate real skills of adults.

Bottlenecks in the validation system leading to skills mismatch

Overlaps, interpretation and co-operation issues

In summary, the Swedish validation system described above is fragmented, with different validation activities undertaken by several actors that should be homogenised and streamlined. This scattered system creates unnecessary confusion among migrants, eventually slowing-down the validation process overall.

The importance of this challenge is confirmed in an assessment made by *Statskontoret* (the Swedish Agency for Public Management) looking at the processes for validating the competences of foreign-born persons and newly arrived immigrants. The agency's in-depth analysis highlighted the risk that different actors, conducting simultaneous activities, may create ambiguity and unnecessary duplication of efforts. The multiplicity of actors can lead to different interpretations of the criteria used for validation (Box 3.9) and to mixed and inconsistent procedures. Among the solutions proposed by *Statskontoret* is clarifying the mandate of the Swedish National Agency for Higher Vocational Education for validation and re-thinking the boundaries between its activities and those of the other stakeholders involved in the validation system.

Box 3.9. The concept of validation: quantitative and qualitative approaches

In 1996, the Adult Education Initiative Committee (*Kunskapslyftskommittén*) used the term “validation” in its first report defining it as: “a process that involves a structured assessment, evaluation, documentation and recognition of the knowledge and skills that a person possesses, regardless of how they were acquired”. Assessment referred not only to competences based on formal education achievements, but also to experience-based professional competences and skills. Unlike previous forms of assessment, the validation of such broad range of skills referred not only to the skills of highly educated people, but to a much wider context beyond formal education, ultimately labour market needs and to the value of “personal, general or social competences”. The breadth of this concept led to the emergence of various criteria and methods to validate and assess competences and qualifications: quantitative and qualitative approaches are the two most notable examples. The quantitative method implies a comparison of the length of the studies in the different systems under comparison. The qualitative method implies the comparison of the content and quality of the education systems (e.g. the Swedish relative to that of the country of origin of the migrant). Comparing curricula and assessing the relevance of courses included in foreign programmes is a complex task which may lead to different interpretations of the basic concept of validation. The most sensitive issue relates to whether some foreign courses may be too “country specific” or ideological (for example courses in Socialism in former Eastern Europe or Islamic law when not a part of a humanistic study programme) and whether their features should be taken into consideration when judging on both the quality and length of the qualification to be validated. In order to deal with these problems, many of the stakeholders in charge of validation (and especially the Swedish National Agency for Education) complement their analysis with the use of background material informing on the education content of programmes from all over the world. This material is updated periodically but issues regarding the objective interpretation remain nonetheless.

Source: Statskontoret (2013b).

In addition, results from the *Statskontoret* analysis show that a low number of newly arrived migrants have their competences validated in accordance with the profession-oriented industry models procured by the PES. Until recently, the PES procured

validation activities mostly within occupational branches where labour shortages were extremely evident but that the overall volume of migrants whose competences are finally validated appears to be generally low, with validation being granted heterogeneously across the whole spectrum of occupations and sectors³⁸ in Sweden.

Gaps in the validation of foreign qualifications extend to highly skilled migrants. In a report from the Confederation of Swedish Enterprises, Almerud (2014) examined the paths leading to the establishment of migrant academics into the Swedish labour market and the role played by the education system in this process. The study concluded that too many highly skilled professionals are forced to spend valuable time dealing with a confusing and inefficient validation system rather than putting their skills at use in the labour market. Another report by the Swedish Confederation of Professional Associations (Edström, 2015) reinforces this point by concluding that the cost of validating foreign skills and qualifications is merely 12.5% of the investment to train a graduate in Sweden and that not taking advantage of the expertise of educated migrants represents a huge waste of potential resources for both Swedish firms and the whole society.

Results from *Statskontoret's* review highlight that the preconditions to assess quality of the Swedish validation system are lacking and that these would be, instead, fundamental to providing evidence-based solutions for many of Sweden's skills challenges. Collecting information on the validation activities of the various stakeholders involved in the validation system will help to streamline activities and identify areas where overlaps exist and where these should be avoided. At the moment, however, little (if any) statistical information on validation activities (e.g. number of validated qualifications, competences, etc.) is available. Many municipalities do not keep track of their validation activities as they have no obligation to report such information.

Reforms such as the introduction of the Swedish Council for Higher Education (in 2013) as a single unit in charge of assessing and recognising foreign upper-secondary, post-secondary and tertiary education for labour market purposes³⁹ have led to positive results, such as an increase in the number of applications for recognition of formal qualifications. However the long processing time to validate foreign qualifications – especially in regulated professions – remains an important barrier to the integration of migrants' skills into the labour market (see OECD, 2016b).

The long lags in validation are more pronounced in many of those regulated occupations which are in high demand in the Swedish labour market such as those in the health care sector. Action should be taken to streamline and simplify the validation process especially for those occupations where skills are in clear shortage. A possible solution is to shift responsibility for the assessment of qualifications for health care occupations from the National board of Health to the Swedish Council for Higher Education.

In light of the importance of these challenges, the Swedish Government has made new efforts to strengthen the validation system by establishing a national delegation in charge of the co-ordination and development of the recognition of prior learning (RPL) with a view to strengthen co-ordination across stakeholders and streamline the overall system for RPL and skills assessments. The delegation is composed of representatives from all relevant authorities including PES, UHR and the social partners (see OECD, 2016b).

The role of employers in the process of validation

Swedish employers play an important role for the integration of migrants' skills in the labour market.⁴⁰ It is generally acknowledged (i.e. the Confederation of Swedish Enterprises) that Sweden is not in a position to meet all its recruitment needs nationally thus migrants' skills can play an important role in reducing skills shortages across a variety of occupations.

In this aim, employers' attitude towards migrants, their qualifications and competences could be improved. Eriksson et al. (2012) investigated this issue showing that employers discriminate against applicants who are old, non-European, Muslim or Jewish. Recent OECD work (OECD, 2014a) stresses how employers' discrimination towards migrants' qualifications represents a significant hurdle especially in those cases where migrants have little work experience in Sweden and limited ability to demonstrate their real competences.

Much of this problem originates from the fact that employers are not always able to understand the quality of the skills brought by migrants before they hiring them. The correspondence between qualification levels and actual skills, in fact, can be very different from one country to the other. The quality of the education systems may also differ substantially between the origin and destination countries. Employers and foreign-born job seekers usually face "information asymmetries" as the value of a foreign qualification is known by the migrant but may be unclear to a Swedish employer.

Matching the skills of migrants to available vacancies will be assisted by building a truly credible validation system that can help those migrants entering the Swedish labour market to overcome discrimination towards their qualifications due to information asymmetries and soften the prejudices towards foreign qualifications and migrants' informal competences. In Sweden this can be achieved by spurring a more pro-active involvement of employers in the identification of criteria for validation of foreign competences with the aim of building trust eventually ensuring that the results of validation are fully accepted by employers (OECD, 2014a).

Recent developments in the measures to integrate asylum seekers and migrants' skills in the Swedish labour market

Early screening of migrants' professional competences or supporting their introduction into civil society (e.g. dwelling, children's day-care or school arrangements, language instruction and various forms of support to find employment) are means by which the integration of migrants' skills into the Swedish labour market can be facilitated. Effective delivery of these activities requires the establishment of strong co-ordination between a variety of authorities across different policy domains and administration levels. Sweden has made efforts to spur the development of mechanisms aimed at easing integration, which has proved to be useful in tackling challenges associated with increased migration inflows.

In December 2010, the Swedish Government adopted the Establishment Reform (*Etableringsreformen*) to facilitate the integration of newcomers through a combined set of measures encompassing language instruction, orientation into society and support from the PES. Following the recent sharp increase in the number of migrants and asylum seekers, many regulations and existing programmes are now being simplified. Discussion is ongoing on whether a formal obligation to undertake further education for those arriving to Sweden with a qualification lower than compulsory schooling should be

introduced. Similarly, discussion at high political levels is now focussing on the design of measures for migrants to combine work experience, education and training by *inter alia* expanding the current model of vocational education to provide newly arrived migrants with similar conditions to those applied to natives (or already established migrants) when pursuing this education track. Noteworthy, much of this discussion has been based on SAA information and on the analysis of occupational and education current and future trends.

The Swedish Government is also actively engaged in finding effective ways to monitor migrants' skills at an early stage of their arrival: in March 2015 the government launched a round of tripartite talks with the social partners and the PES to identify forms and measures to promote the best use of the valuable skills possessed by new arrivals (especially of those with education or experience in occupations in shortage) so that they can be quickly matched to the needs of relevant industries and businesses. As part of this effort, the government intends to instruct the PES to conduct a "Pilot Scheme in Accommodation Centres" to test measures to identify new arrivals' vocational skills during their time spent in the accommodation provided by the Migration Board while pending placement in a municipality.

The initiative "A united action for the best schools" will devote resources to improve the reception of migrants by employing those with a foreign background (and the adequate skills) as teachers for future incoming migrants. New opportunities will also be made for those desiring to acquire training to work in schools as mother-tongue tutors or language instructors. Similarly, the provision of language training course (e.g. Swedish for Immigrants, SFI) will be strengthened and linked to the provision of new vocational training or work-based learning opportunities.

SAA information also feeds into the design of other initiatives: the government has recently allocated resources to the development of bridging programmes and complementary education that target migrants with skills that are lacking in the Swedish labour market (e.g. higher education degrees in law, medicine, nursing dentistry and teaching). Compensation paid to higher education institutions (HEIs) for each student participating in a bridging programme leading to develop skills in shortage will be higher than that allocated for students in regular programmes.

The government is also committing additional resources to activities involving the civil society and local government sectors with the aim to create better conditions for new arrivals to establish themselves in society through the so-called "Civil society initiative". As reported by the government, "*the initiative encompasses activities that aim to make it easier to become established in society, create networks, support language learning or provide social support to unaccompanied minors. Examples include social activities, study circles, activities to support language learning, mentorship and activities of sports associations.*" This is an especially laudable initiative given that migrants arriving to Sweden tend to have fewer networks that are relevant to the labour market than native-born Swedes (OECD, 2014) and that their contacts are usually concentrated in lower-skilled jobs.

Notes

1. That being said, the competition for students in the contexts of HEIs differs somehow from the way in which municipal schools compete for pupils/school students. The main aspect of competition in the former context can be found in between disciplines/fields of study rather than among individual institutions. Nonetheless, the latter becomes an extension of the former.
2. A major step in 1990 was the devolution to municipalities of responsibility for primary, secondary and adult education. This reform gave municipalities the “full financial responsibility for the schools offering such education” (Björkland et al., 2004). Municipalities also received powers for all decisions regarding schooling, including curriculum choice (as long as they met national requirements), school location, and hiring, including for principals.
3. The greater financial responsibility for municipalities, who had complete control over allocation of their resources between schooling and other municipal duties such as social services, waste collection, public health, also meant less direct oversight and control of spending from the central government (Blanchenay et al., 2014).
4. Given that local resources are tightly linked to the size of the local tax-base, decentralisation spurred competition across municipalities to maintain (or even increase) their population and, as such, the number of students enrolled in primary, secondary or upper-secondary education within their territory. During the OECD visit to Sweden, similar concerns were raised by the Swedish Association of Local Authorities and Regions (SALAR), pointing out that competition across municipalities may be driven by the fear of losing population, reducing the tax-base and, therefore, the overall resources available to municipalities.
5. “Attracting students” is either “important” or “extremely important” for around 77% of surveyed education providers nationwide
6. The analysis by Statskontoret (2013) highlighted also that that the change in cost per pupil, as well as the pupil-teacher ratio in primary and lower-secondary school was associated with changes in tax capacity in the period that followed the decentralisation of education provision indicating that the government grants that were provided before the decentralisation reforms may have been more effective in reducing the influence of heterogeneous local tax capacity on the provision of education than the subsequent general grants.
7. Cost equalisation aimed to take into account structural differences across municipalities such as those existing in rural municipalities where teaching may require smaller classes and the pupils often need school transport (MoER, 2008).
8. Every year, the National Agency for Education (NAE) distributes approximately SEK 7 billion in government ring-fenced grants. These grants are usually used to promote career posts for teachers, strengthening pupil health care or to develop education programmes such as the Teacher Boost II or the mathematics boost.

9. During the initial period of the reform (1993–95), grants from the national government constituted approximately 20% of total municipal revenues (Ahlin and Mork, 2007)
10. Also, the size of the government grants is, in some cases, determined by the number of pupils enrolled in each institution/municipality (MoER, 2015) such that additional incentives exist for municipalities and education providers to attract students and to compete with one another instead of creating synergies.
11. This can be the region, but co-operation can also take place across municipalities of different regions but in the same geographical area where skill needs may be similar.
12. The National Agency for Education, however, decides (after a consultation process) on the definitive scope, structure and content of upper secondary education. Schools can, in co-operation with the local and regional labour market stakeholders, combine different courses into programmes' specialisations enabling students to focus their studies on a specific vocational outcome.
13. Teknikcollege offers upper secondary school students academically oriented programmes in combination with technology-oriented vocational programmes
14. Interestingly, the national government never provided the Gothenburg region and its municipalities with any specific mandate to build up this network which is, instead, purely based on voluntary agreements among municipalities.
15. This information is easily available on the web or through password-secured platforms for policy makers. Unfortunately, however, the co-operation with other actors such as the Regional Competence Platforms is very limited. While part of the information collected by the Gothenburg ICT platform could also feed into the activities of its Regional Competence Platform, it is yet unclear what institution should be responsible for maintaining this service.
16. The fact that employability outcomes were unclear was also one of the reasons behind the upper secondary school reforms in 2011 which led to an increase in the number of vocational courses, closer collaboration with the social partners and the abolishment of specially designed programmes.
17. Guidance is also included in the PES's basic mission and it is regulated in several ordinances. The PES offices are hence tasked to provide guidance to young people, newly arrived in Sweden and those who are far from the labour market
18. Higher Education Ordinance, Chapter 6, Section 3.
19. OECD calculations based on McKinsey and Co. (2013) survey data.
20. Nolia is one of the largest Norrland's organiser of trade and public fairs and major conferences.
21. OECD calculations based on McKinsey and Co. (2013) survey results.
22. Interestingly, students enrolling to higher VET in Sweden are relatively old (on average 30 years old), a likely consequence of the uncertainty in continuity of VET courses, suggesting that higher VET is used as a form of re-training for older workers rather than as the natural continuation of upper secondary VET for younger students.
23. Despite these constraints there are more institutions applying for higher VET grants than grants available (OECD, 2013).

24. <http://www.regeringen.se/pressmeddelanden/2016/06/regeringen-tillsatter-en-oversyn-av-arbetsmarknadspolitikens-roll-och-granser-samt-arbetsformedlingens-uppdrag/?epslanguage=sv>
25. Interestingly, however, caseworkers with limited work experience use the tool more than senior caseworkers do, while these latter prefer to rely on their judgement more often.
26. There is yet little evidence analysing the potential gains from skills profiling, but feedback from country studies suggest that skills profiling result in an increased exit rate from unemployment, a reduction in the number of long-term unemployed, a reduction in the average duration of unemployment, and increased satisfaction on the part of job seekers and employers (Blázquez, 2014). Arbeitsmarktservice Österreich (Austria's PES) is planning to incorporate such skills-based matching in its job-matching programmes. Source: OECD (2016a).
27. The Swedish PES has co-operated with the Belgian VDAB over the past years to exchange knowledge and expertise on skills matching activities. As reported by the PES, there are now plans to deepen such information exchange with a special focus on the development of ICT tools to capture and describe job seeker's competences and skills.
28. A warning will be issued when the match is imperfect so as to inform employers on where the potential candidates are lacking skills relative to the job-requirements. This improvement, however, can help reduce skill shortages as the profile of candidates who are only partially matching the vacancy criteria will reach employers looking for workers.
29. Results from Wennberg et al. (2013) highlight, for instance, that companies in the construction sector are satisfied with the candidates provided by the PES and that this latter has been given undeserved bad reputation.
30. This is reflected in the Ordinance (2007:1030) with instructions for Arbetsförmedlingen and in the mandate for which "*Arbetsförmedlingen shall give priority to those who are furthest removed from the labour market*" (Arbetsförmedlingen, 2015).
31. The Confederation of Swedish Enterprises (Svenskt Näringsliv) has argued for, instance, the need to open up the delivery of job-matching activities to private providers following the experience of other countries.
32. Despite the job seekers' freedom of choice being a crucial element of the Australian competitive model, at the onset of the reform, few job seekers actually chose their provider. This has been so until providers' ratings were made available to job seekers, spurring more effective competition which led to a more effective delivery of matching services.
33. OECD calculations based on survey data from McKinsey and Co. (2013)
34. In Sweden, the Gothenburg region (see above) is an example of best practice where policy makers at the local level have been able to create strong ties with employers and education providers to develop a more effective policy response to skill challenges.
35. In the majority of the local programmes surveyed in "Välja yrke" (CIUV, 2015) industry representatives, entrepreneurs as well as union representatives and students are actively involved in co-operation activities. Representatives from VET providers

and school principals are also usually participating to the local co-operation networks as well as representatives from the Employment Office and those from universities or colleges. Career counsellors and politicians are, instead, usually engaged but in a lower number of cases (48 and 41% respectively).

36. Six counties were analysed across Sweden: Västra Götalands, Jönköpings, Västmanlands, Värmlands, Gävleborgs and Västernorrlands län.
37. Similar results apply to literacy test scores. That being said, more than 50% of the difference in skills proficiency between natives and foreign-born disappears when test scores take into account language and foreign qualifications while the remaining differences between native and foreign born test scores in Sweden remain among the highest across the OECD.
38. One way for the PES to provide validation services (*yrkeskompetensbedömning*) is to let the unemployed work for a limited time with certified employers who will make a judgement (validation) of the skills possessed by the individual.
39. In non-regulated and teaching occupations
40. http://www.svensktnaringsliv.se/kommentaren/framtidens-rekryteringsbehov-kraver-investeringar-i-invandrad-kom_609698.html

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Chapter 4

Challenges of co-ordination among actors in the Swedish skills assessment and anticipation system

This chapter presents an overview of the activities of the main stakeholders involved in assessing and anticipating skill needs in Sweden at the national, regional and local level. It maps their co-operation ties within and across each administrative level, highlighting the strengths and weaknesses in the use of SAA information to develop of a policy response to skills imbalances. Examples of best practices that allowed to overcome some of the existing vertical barriers to finding a solution to shortages and mismatches are also provided.

A well-functioning SAA system requires the involvement of different actors both in the production and in the use of Skill Assessment and Anticipation (SAA) information (OECD, 2016a).

In Sweden, a large number of national ministerial agencies, authorities and *ad-hoc* commissions are engaged in the discussion and use of SAA information for policy making. In line with the experience of other OECD countries (OECD, 2016a), the Swedish ministries use SAA information for education, employment policy and for the integration of migrants and they have well-developed analytical infrastructures that are used to address skills shortages and mismatches. Regions and municipalities, employers' organisations and trade unions are also fundamental actors of the Swedish SAA system, providing input to both the design and implementation of a response to skills imbalances based on SAA exercises.

The involvement of many different stakeholders can create co-ordination problems and potential overlaps leading to the development of an uncoordinated policy response. Strengthening the coherence of all stakeholders whose activities take place at different administrative levels is crucial for ensuring the achievement of common goals and ultimately reducing skills imbalances. Coherence is achieved when the objectives and targets identified by stakeholders in one part of the system are consistent with the policies implemented by stakeholders in other parts of the same system.

In Sweden, three administrative levels (e.g. national, regional and local) play a distinct role in the assessment and anticipation of current and future skill needs as well as in the design and implementation of a policy response to skill challenges. Much of the statistical information on skill needs is collected by national agencies and the identification of policy priorities generally takes place at the national level. However, the implementation of many of the policies to reduce skills imbalances is conducted by local governments and municipalities, as these enjoy ample freedom to decide on the allocation of resources to a broad set of skills-related activities spanning from education to the integration of migrants' skills.

For the system to work well and produce a coherent response to skills challenges, the priorities identified at the national need to be aligned to regional interests and municipalities' needs. Moreover, the development of a coherent system requires the existing SAA information to flow across all administrative levels with all stakeholders being able to access, understand and benefit from it systematically.

Despite a long tradition of dialogue in Sweden, the co-ordination across actors at different administrative levels could be strengthened further as national skills objectives are not always aligned to their local implementation and *vice versa*.

The existence of relatively rigid national procurement rules for the delivery of job-matching activities by the PES is a barrier to finding a flexible response to the fast-changing skill needs at the local level. Similarly, the insufficient analytical capabilities of some local and regional actors undermine their ability to fully capture the benefits coming from SAA information for skills planning leading to develop uncoordinated and occasionally short-sighted policy responses. Strengthening the role of regional actors can help to create a bridge between national and local interests by aggregating municipalities' objectives into those of actors that have a larger critical mass. This can help rationalise the use of available resources and reduce overlaps and competition among local governments

Main findings

- Skills challenges are usually transversal and solutions should be found across different policy domains. Co-operation across stakeholders at the national level works well and several ministries are currently developing a joint policy response to skills imbalances using the available SAA information. Migration, education and employment policy tools are designed in a coherent way to tackle shortages and mismatches identified by SAA information.
- Municipalities have ample freedom over the implementation, at the local level, of policy responses designed at the national level. Their interests and objectives, however, may not be aligned to broad national goals leading to uncoordinated policy responses.
- Funds available to the PES for its job-matching activities are often earmarked and resources may remain unspent at the local level as funds cannot be flexibly redirected towards other purposes or to initiatives aimed at tackling fast-changing local skills imbalances.
- While SAA information is available to all stakeholders, it is of benefit to some more than others. Smaller regions and municipalities in Sweden have fewer financial resources and weaker analytical capabilities to interpret and use SAA information. In turn, this leads to highly heterogeneous geographical coverage in terms of capabilities and tools to find solutions to skills imbalances.
- The existence of weak linkages between national and local interests is a well-known issue in Sweden and it is the focus of an ongoing political debate. Solutions to the “regional missing link” are not always easy to find, however. Co-ordination at all levels should be strengthened by a more organised system of multi-level governance collaboration. A renewed role for regional actors to plan skills development could be inspired by the functioning of state-region contracts that exist in other OECD countries. These bilateral agreements between national and sub-national governments clearly define stakeholders’ mutual obligations, the assignment of powers of decision, the financial commitments (possibly in a multi-year budgeting perspective) and the enforcement and accountability mechanisms. The tasks of municipalities’ regional co-ordinators and county administrative boards should be clarified either by providing them with a stronger mandate from the municipalities or through new powers given by the national government.
- The mandate of regional actors to plan skills development could also be inspired by the functioning of state-region contracts that exist in other OECD countries. Bilateral agreements between national and sub-national governments can help to clearly define stakeholders’ mutual obligations, the assignment of decisional powers, the financial commitments (possibly in a multi-year budgeting perspective) and the enforcement and accountability mechanisms that lie behind local policy planning.

The national level: Activities and co-operation to address skills challenges

Skills challenges are usually transversal and solutions can be found across different policy domains. In Sweden, there is interaction between various national policy activities

as skills planning covers education, employment policies and integration of migrants' skills. Table 4.1 summarises the main responsibilities, activities and co-operation ties linking ministries and national agencies involved in the Swedish SAA system.

The Swedish Ministry of Employment is responsible for a wide range of policies related to skills and their use in the labour market. In line with a long-standing tradition of dialogue and co-operation in Sweden, the Ministry of Employment has built strong ties with the Ministry of Education and Research, leading to the design of employment and education policies aimed at addressing skills imbalances. The recent "*Trainee Jobs for young People*"¹ is an example of inter-ministerial co-operation where vocational education and training (VET) and labour market policies (e.g. wage subsidies) have been combined within the same initiative to spur a better skill match and a faster transition to jobs for Swedish youth.

The availability of SAA information has played an important role in identifying the policy objectives for this initiative which targets persistent skill shortages such as those in the health care sector or in teaching occupations (see Chapter 1).

The Swedish Ministry of Education and Research does not have explicit competences over policies aimed at addressing skill imbalances in the labour market but it plays a crucial role in shaping the supply of skills. SAA information is used in Sweden to identify broad education policy goals at the national level. Since 2011, for instance, the contents of upper-secondary schools' programmes are discussed by 12 National Councils where the SAA collected by the PES (usually sitting in the councils along with social partners in an advisory role) provides valuable input to identify current skill needs and to promote stronger links between the labour market and education policy.² The national agencies under the Ministry of Education and Research work in close co-operation with the Swedish PES by developing initiatives to build web platforms to disseminate labour market information to students. They are also in contact with social partners and employers to identify current skill needs to inform the content of higher VET programmes.

Table 4.1. Ministries and national agencies' involvement and co-ordination in the Swedish SAA system

Stakeholder	Broad activities	SAA involvement and recent policy use	Type of SAA information used	Co-operation with other stakeholders
Ministry of Employment	Responsible for a wide range of policies related to skills and their use in the labour market: Active labour market programmes to promote skills matching Measures to reduce youth unemployment Policies easing the transition from education to work.	SAA information on specific and persistent skill shortages has played an important role in identifying the policy objectives	Skill Shortage information Current skills assessment	Ministry of Education and Research VET providers
	Responsible for coordinating the introduction of newly arrived immigrants.	Trainee jobs programme: combination of Employment and VET policies offering trainees a wage subsidy for skills that are in shortage in the Swedish labour market, but also in the welfare sector.		
Public Employment Service	Responsible for the public employment placement and its labour market policy implementation. Among the most important tasks is easing the match between job-seekers and employers	Occupation Barometer: Twice per year - employers' survey. Aimed at assessing both current and future skill needs Fast track for introduction of new arrivals: measures to assess and use the skills possessed by new arrivals	Skills shortage information Current skills assessment Skills forecast	National government Social partners Statistics Sweden Swedish Migration Authority NAE
Ministry of Education and Research	Responsible for Sweden's education, research and youth policy. Competences include: School performance and conditions for teachers Education regulation and financing	SAA information feeds into education policy goals at different levels		
		Inform upper-secondary education programmes	Current skills assessment Skills forecast	Social Partners PES
		Inform decision on the establishment of Higher VET programmes	Skills shortage information Current skill assessment	Social partners
National Agency for Education (NAE)	It sets the frameworks and guidelines on how education is to be provided and assessed in Sweden by providing general syllabuses and subject plans, knowledge requirements and tests, as well as general guidelines	The Agency is tasked to evaluate and analyse areas where policy intervention may be needed through in-depth studies . Strengthened co-operation activities with the Swedish PES to develop a tool to disseminate labour market information to students	Labour market intelligence Analyses of education system	PES Social partners
Swedish Higher Education Authority	Responsible for monitoring the effective use of resources by the higher education institutions. It is in charge to follow up and analyse the operations of the higher education institutions to provide the Swedish Riksdag and Government with information to design higher education policy.	Regular reports on the anticipated future balance of supply and demand in the labour market. Regular assessments of how different groups with first and second-cycle qualifications have been able to establish themselves in the labour market on completion of their studies is also carried out	Skill forecast Current skill assessment	Swedish Riksdag and Government
Swedish National Agency for Higher Vocational Education	It is in charge to analyse the demand for qualified workforce in the labour market and decide on the allocation of funds to higher VET programmes.	It carries out independent assessment of the demand for different professions and qualifications through occupational analyses	Current skill assessment	Spcoa partners
Swedish Migration Agency	It is tasked with considering applications from people who want to take up residence and work permit in Sweden	It provides relevant labour market information to new arrivals in Sweden as well as the necessary information to those applying for a permit to work and live in Sweden. The SMA manages labour market information on occupations that are in shortage in Sweden. This finds a rather limited use.	Skills shortage information	PES
Agency for Growth Policy Analysis	It contributes to the analysis of regional challenges and barriers to entrepreneurship in Sweden. It carries out evaluations of both Sweden and selected countries' innovation policies	It is the provider of regional economic forecasts (rAps)	Skills forecast	Local actors REGLAB Statistics Sweden
Statistics Sweden	It is the major provider of independent SAA information in Sweden, supplying a variety of customers with statistics for decision making, debate and research	Statistics Sweden promotes extensive co-operation with other key stakeholders of the Swedish SAA system. The co-operation is organised around the activities of two different councils.	Current skills assessment Skills forecast	Social partners PES Academia

Co-operation extends to other policy domains with social partners, the PES and the Swedish Migration Agency³ engaged in the discussion to find suitable ways to integrate migrants' skills (see Chapter 3). Two main initiatives, the “*fast track for new arrivals*” and the “*pilot scheme in accommodation centres*” have been proposed,⁴ pooling expertise from both the Ministry of Employment and the Swedish Migration Authority.

The government has launched a round of tripartite talks involving social partners and the PES within the “*fast track for introduction of new arrivals*” initiative. This initiative aims to find suitable measures to assess (and put at use) the skills of new arrivals. The *Pilot scheme in accommodation centres initiative* has a parallel objective: instructing the PES to test new measures to identify migrants' vocational skills during the time spent in accommodation centres pending placement in a municipality. This programme has been developed under the idea that early policy action can have a lasting impact on migrants' entry into the labour market promoting a better match of their skills to available jobs.

Social partners' role in the Swedish SAA system

Across OECD countries, employers' organisations and trade unions play an active role in the assessment and anticipation of skill needs (OECD, 2016a).⁵ In Sweden, social partners co-operate with ministries, agencies, the PES and local and regional authorities by attending ad-hoc forums for discussion in an advisory capacity. Their role is to provide input and feedback on the activities of the Ministry of Education and Research, the PES and Statistics Sweden.

Swedish social partners have been amongst the most active promoters of VET in Sweden by highlighting the need to find new ways to make VET more relevant to young students. In a recent report, the Swedish Trade Union confederation (LO) demanded, for instance, the creation of a “special commission” at the national level which should be tasked with mapping the opportunities to increase the VET content of Swedish active labour market policies.

Along these lines, Swedish social partners play also a prominent role in the discussion and design of upper-secondary and higher VET programmes by working closely with the Swedish National Agency for Higher Vocational Education⁶ and sitting in 12 national programme councils (*nationella programråd*)⁷ to promote the quality, content and development of upper-secondary VET. Social partners in Sweden have also strengthened the system of validating formal qualifications and further developed the tools to identify and validate “informal skills” acquired in the workplace.

The regional level: Platforms and activities to tackle skills imbalances

In Sweden, broad policy directions are set by the national Parliament and the government while their implementation is a direct responsibility of sub-national governments.⁸ When measured in terms of the percentage of taxes raised by sub-national governments and/or expenditures decided at the local level, Sweden is one of the most “federalist” countries in the EU (OECD, 2015a).⁹ This is reflected in the discretion and flexibility granted to municipalities in many areas of policy intervention.

Such a high degree of flexibility at the local level is desirable as it improves citizens' opportunities to influence the provision of basic local services, allowing regional and local policy makers to find flexible solutions to problems that are specific to their region or municipality. However a high degree of flexibility puts pressure on regions and municipalities' finances to raise funds for the provision of local services. The availability

of resources greatly varies across rich and poor municipalities leading to a heterogeneous delivery of services.

As for the administrative organisation at the regional level, in the late 1990's, Sweden launched a singular regional reform process, as the national government had not imposed a single regional model on all counties. As a result, Sweden has now developed different regionalisation options in terms of its regional political representation¹⁰ leading to, at least, three different options for the organisation of the work of regional actors in charge of regional planning:

- Directly elected County Councils with responsibility for health care and shared responsibility for public transportation within the region with municipalities
- Regional co-ordinating bodies (indirectly elected associations of all municipalities in a county)
- National government's regional county administrative board.¹¹

Directly elected regional councils were originally established in two “pilot regions”, Skåne and Västra Götaland. While their experience has been a “political pilot”, the experiment has been successful and Sweden is now moving towards more regions of this type with an increasingly important role played by directly elected regional councils. However, so far, the directly elected county councils have had no responsibility for the provision of education or for skill matching policies.

Against this backdrop and following the growing recognition that skills challenges need to be addressed both at the national and subnational level, the government instructed the regions to form Regional Competence Platforms (RCPs) in 2010 to “facilitate and ensure cooperation on the provision of skills and educational planning on the short and long term¹²”. The need for such platforms was also triggered, at least in part, by a gap that emerged after the implementation of the reforms abolishing regional PES offices in 2008 (Box 4.1).

Box 4.1. Reform of PES

In 1940 the Swedish National Labour Commission was established as an executive agency for labour market policies. Its task was to secure the national supply of skills and workers during the war.

At that time, Public Employment Services were nationalised but regional labour boards were established under the Swedish Labour Market Agency (*Arbetsmarknadsverket* – AMV). In 2008 the government decided to replace the Labour Market Agency with a new structure and nationalised the regional Public Employment Service offices in an effort to provide a more homogeneous supply of employment services at the national level.

RCPs were tasked with contributing to a better skills matching within their region by *inter alia*:

- Co-ordinating the analysis on skills provision and education across regional stakeholders;
- Increasing the collaboration on regional skills and education planning;
- Increasing the knowledge of regional supply and demand from different education tracks.

The RCPs mandate was similar to that of other regional development initiatives and did not specify how the platforms should have been organised or the expected output. At

the moment of their establishment it was not specified whether the work of RCPs should have led to a joint policy action/response to regional skill needs or if their experience was going to be an experiment of knowledge-building, not binding *vis a vis* the decisions of the regional government or that of the municipalities.¹³

The mandate provided to RCPs was characterised by the decision of not allocating any earmarked national funds to their activities. RCPs are, in fact, financed by resources for regional growth measures, for which the allocation of resources to skills related issues is decided independently by each region.¹⁴ As a consequence, the quality and scope of RCPs activities varies greatly across regions. Richer regions are usually able to provide more solid infrastructures, manpower and staff to organise the discussion around their skill needs while poor regions lack statistical and analytical infrastructures to plan a response to their skills challenges.

In the effort to co-ordinate RCPs heterogeneous activities, the regional actors, together with the national SALAR, created REGLAB within the existing broader network for regional development and analysis. REGLAB currently consists of 24 members: 21 RCPs, the Swedish Agency for Economic and Regional Growth (Box 4.2), the Swedish Governmental Agency for Innovation Systems and the Swedish Association of Local Authorities and Regions (SALAR).¹⁵

Box 4.2. The Swedish Agency for Economic and Regional Growth and Growth Policy Analysis

The Swedish Agency for Economic and Regional Growth is tasked by the national government with promoting entrepreneurship and regional economic growth. More specifically, its mission is to strengthen the competitiveness of Swedish small and medium enterprises (SMEs) and to identify major bottlenecks hindering their potential for growth. Skills play a fundamental role in developing growth strategies for SMEs and since 2002, every three years the agency has conducted a regular large-scale employer survey “*Företagens villkor och verklighet*” (Everyday reality and conditions for enterprises) to assess current skill shortages in the Swedish labour market. The Swedish Agency for Growth Policy Analysis has a similar mandate (the two agencies were part of a larger agency in the past and have been recently divided) as it also contributes to the analysis of regional challenges and barriers to entrepreneurship in Sweden. The Swedish Agency for Growth Policy Analysis has also been tasked with taking an international perspective and it now conducts analyses and evaluations of both Sweden and selected countries’ innovation policies. This Agency is also a provider of regional economic forecasts (rAps) where skills are broadly analysed with information available to Swedish regions for policy planning.

REGLAB’s activities have grown over time and have become especially important for smaller regions with weaker analytical capacity. REGLAB allows smaller regions to learn from other (larger) regions’ expertise by providing examples and information on how to develop policy responses to, among others, specific local skill imbalances and challenges. To foster dialogue and the exchange of information on skills, REGLAB organises a bi-annual (spring and autumn) two-day conference. Regions and representatives from the ministries of Employment, Education and Research and the ministry of Enterprise are invited to attend and contribute to the discussion on the current skills challenges with ideas on how address these issues both nationally and locally. The agenda is developed collaboratively with inputs from all participating stakeholders as contact points exist in all relevant national agencies. Despite its potentially important role, REGLAB has no policy leverage on the decisions of local or regional governments.

The local level: Municipalities’ response to skills challenges

Sweden has 290 municipalities responsible for the provision of the majority of public services within their geographical boundaries. Compared to most other EU countries, Swedish local governments have extensive powers to decide on the financial resources to be allocated to specific activities (e.g. schools, social services, waste collection or support to asylum seekers and new arrivals). However such freedom implies a considerable financial burden on municipalities, as almost 60% of municipal resources are raised through local taxation.

Municipalities are among the most important actors of the Swedish SAA system as that they have extensive powers (and responsibilities) when it comes to implement education policy or provide support to the integration of migrants’ skills into the labour market.

Swedish municipalities are in charge of the allocation of funds for the provision of education from preschools up to upper-secondary schools. Their responsibility extends to the decisions related to the provision of VET courses and adult education, therefore playing a crucial role in shaping the supply of skills at the local level (see Chapter 3) and spurring better skills matching.

While integration programmes for newly arrived immigrants have been a prerogative of municipalities for a long time, their co-ordination was taken over by the PES in 2010 (OECD, 2015b).¹⁶ Municipalities are still in charge of many relevant aspects such as housing, schooling and the education of new arrivals through the promotion of the Swedish for Immigrants (SFI) courses delivered under the umbrella of municipal education. Swedish municipalities are also responsible for providing a minimum of 60 hours of civic orientation in the mother tongue for new arrivals granted residence permit. The far-reaching responsibilities and powers attributed to municipalities make them fundamental actors in the implementation of a policy response to skills imbalances.

The misalignment between local and national responses to skills imbalances

The need for flexible delivery of active labour market policies at the local level

The extent of skills imbalances (mismatch, shortages or both) can vary significantly across different geographical areas within the same country. In many cases skills imbalances are local phenomena which are prompted by specific shocks to the local productive structure.

Shocks leading to companies discontinuing their production in specific geographical areas lead to the displacement of workers and to their skills being underutilised/mismatched with the available jobs in the region, thus leading to skill imbalances¹⁷ (see Box 4.3).

Box 4.3. Rapid changes in local labour market skill needs: the example of the mining sector

The economic crisis that affected the mining sector in the north of Sweden is an example of a relatively rapid change in local labour market needs. In 2014, the dramatic drop in the price of iron hit many mining companies operating in Norrbotten and in the Barents Region leading to the bankruptcy of Northland Resources in Pajala in the north of Sweden. As reported by the LKAB¹ Year-end Report, profits were cut by 93% triggering a profound company restructuring and a string of measures among which cost cuts of SEK 700 million (EUR 73 million) and a staff reduction of around 400 workers. This not only affected the company's employees, but also related economic activities in the region creating an important skill challenge at the local level.

1. Luossavaara-Kiirunavaara Aktiebolag (LKAB) is a Swedish mining company operating in the north of Sweden. It was first established in 1890 and has been 100% state-owned since the 1950s.

The delivery of Active Labour Market Policies (ALMP) is one of the most important policy tools available to address the negative effects of short-run skills imbalances, especially if tailored to meet local skill needs. However the Swedish employment policy has recently put increasing emphasis on workers' geographical mobility over their retraining as a solution to local skills imbalances.

Following the process of reorganisation of the PES from having regional competences to being a national agency much flexibility in the delivery of services by the PES has been lost.¹⁸ This situation has led to a misalignment between national objectives and local needs.

While the whole suite of around 12 programmes¹⁹ has to be implemented locally, flexibility is hindered by an elaborate list of nationally defined performance targets, leaving little space for innovative and flexible approaches by local PES offices. No incentives to go beyond the national targets are usually provided to PES local offices as the PES work processes are streamlined to ensure that clients are treated in a uniform fashion across the country (OECD, 2015a).

Despite the fact that most stakeholders perceive the funds available to the PES to be sufficient to tackle labour market imbalances, their redistribution is, therefore, felt to be too rigid. Funds available for local and regional PES activities are usually centrally earmarked by the agency and resources often remain unspent as these cannot be flexibly redirected towards other purposes or for tackling emergent short-term local skills imbalances.

A large share of vocational education and training programmes²⁰ (a potentially powerful tool to adjust workers skills to the needs of the local labour market) is provided by the PES through their contractors.²¹ However, the procurement of these services takes too long (up to one year) eventually undermining the chances of the PES to meet the fast-changing needs of local labour markets. Similarly, while local stakeholders can request special training programmes to meet their local needs, the process to approve this special request can be burdensome and the contracting of providers delayed for a long time due to frequent legal action/obstruction.²² This discourages employers and job seekers from requesting tailored support to the PES to meet their local skill needs.

Against this backdrop, the Swedish Government has recently tried to tie the support of the PES to the different conditions and skill needs of the different parts of the country with the aim of promoting programmes to foster local co-operation (Box 4.4).

Box 4.4. Best practice in the development of local co-operation for unemployed youth

Strong focus has been put on enhancing local co-operation between the PES and municipalities to reduce the share of unemployed youth. In 2014, the government established the Youth Employment delegation whose remit is to ensure that labour market policy initiatives for tackling youth unemployment have a greater impact at the local level. This objective is pursued by fostering central and local government co-operation and by developing new forms of partnerships by encouraging local agreements between municipalities and the Public Employment Service on initiatives to reduce youth unemployment. At present, 287 of the 290 municipalities in the country have drafted agreements with the local Public Employment Service offices. The agreements contain measurable goals, action plans for attaining goals and for identifying and mapping NEETs in the municipality.

Source: Swedish Ministry of Employment.

Recent analysis has showed, however, that local needs have often been insufficiently addressed (OECD, 2015a) and that the delivery of ALMPs has been homogeneously provided at the national level rather than targeted to specific local needs. A recent PES peer-review study funded by the European Commission (European Commission, 2016) highlights, for instance, that *“a more local budgetary scope for procurement of local active measures would be beneficial. For example, while the PES has centrally organised agreements with service providers of training and educational programmes (ALMP) for job seekers, they lack flexibility when employers need staff with specialised knowledge. A more flexible system would enable “tailor-made” programmes to meet emerging employer needs”*.

Linking national and local goals for the integration of migrants’ skills

Recent government proposals for a “Pilot scheme in accommodation centres” or the “fast track for migrants” have been developed through the joint efforts of the Ministry of Employment, PES and the Swedish Migration Agency. While the objectives of these programmes have been designed taking a national perspective, their implementation relies ultimately on the co-ordinated efforts of local actors (e.g. municipalities) responsible for the provision of a variety of essential services to support migrants’ integration.

The local support provided by municipalities is essential for the achievement of any national goal. Among the municipalities’ obligations²³ for the integration of new migrants are the *Swedish for Immigrants* (SFI) courses; general civic orientation; access to schools and access to housing. Municipalities also provide childcare to newly-arrived immigrants with children (enabling job search and starting work) and social assistance for migrants (who need it) at the end of a two-year introduction period (OECD, 2014a).

Ideally, synergies between the activities of national and local stakeholders should emerge, however these are not automatically ensured as municipalities are granted freedom in the allocation of financial resources to meet their local priorities which may differ from national goals. As an example, in cases where the integration of migrants represents a national goal, some municipalities may place more emphasis on other local priorities and allocate only limited resources to achieve national goals. Previous OECD analysis (OECD, 2014a) already highlighted the varying quality and extent of funding allocated to the provision of Swedish for Immigrants (SFI) language courses across different municipalities.

Many Swedish municipalities have also established their own “employment services for migrants” that often run in parallel to the activities of the national PES offices as a

consequence of the misalignment between objectives at the national and local level (OECD, 2014a). While municipalities' initiatives have generally focussed on the activation of migrants who are not covered by the PES, the division of responsibilities has not always been clearly distinct and overlaps emerged in the past.²⁴

The flow of SAA information across administrative levels: do all actors benefit from it?

Sweden produces reliable and robust SAA information and the main skills challenges faced by the country are generally understood by most stakeholders.²⁵ However SAA information benefits some stakeholders more than others and the use of this information decreases considerably between national, regional and local levels.

Stakeholders across the different administrative levels have very different analytical capabilities and infrastructures, resulting in varying use of SAA information. Swedish national ministries and agencies are endowed with statistical and analytical infrastructures that enable them fully benefit from SAA information, regional actors and municipalities are less well equipped.

Ultimately, the quality of analytical capabilities at the sub-national level is linked to the available financial resources of each region and municipality. Some large regions or big municipalities are able to buy services and support from Statistics Sweden (e.g. buy ad-hoc studies on their regional labour market) so are better equipped to assess current skill needs and to anticipate future ones. Other (smaller) regions or municipalities lack this capacity (see Box 4.5).²⁶

Box 4.5. The ongoing discussion on getting the right size of regions

The availability of financial resources at the regional level is generally related to the overall size of the region as financial resources are raised through local taxation. Recent efforts made by the Swedish Government focus on re-defining the optimal size of its counties in order to rationalise available resources. The Swedish Government has recently appointed a commission to make a proposal for merging current counties to create larger and fewer regions. Conclusions are expected by September 2017 with a preliminary map of the new regions presented in April 2016. The current proposal is to merge the 21 counties into 6 larger regions, which would focus on 2 main competencies: health care and regional growth. The overall objective is to create regions that can better serve the functional area/labour market districts and improve efficiency and competitiveness of the whole economic system in Sweden. Some stakeholders in Northern counties oppose the reform as the size of the Northern region suggested by the preliminary proposal makes up half of the country. The proposal has raised concerns regarding access to local public services in such large region. The expansion of administrative units presents, in fact, challenges, especially in remote areas where municipalities are geographically separated and where the provision of public goods and services can become more complicated. Opponents to the regional merger argue that by enlarging the geography of current regions, there will be a risk of insufficient resource transfers and lack of regional capacity to conduct appropriate strategic planning in remote areas. Moreover, local labour markets are sometimes smaller than individual municipalities and many co-ordination challenges could be alternatively addressed by inter-municipal co-ordination arrangements.

Smaller local actors can benefit from SAA information by strengthening their analytical infrastructures. This can be achieved with a more rational use of resources, giving incentives to neighbouring municipalities with similar skill needs to co-operate in the use of SAA information. Reaching a “critical mass” by aggregating the activities of smaller municipalities can lead to rationalise the use of available (in some cases, scarce) resources.

Spurring regional co-operation is, therefore, crucial as this would make it possible for smaller municipalities to share the fixed costs associated to building robust statistical infrastructures as well as analytical and administrative capabilities. The framework of voluntary co-operation among municipalities in the Gothenburg region (see Chapter 3) is an example of best practice that led to the aggregation of local interests for rationalising resources, leading to more efficient education planning. Other best practices are discussed at the end of this chapter.

The need for strengthening the role of regional actors in the SAA system

As argued by Statskontoret (2007), one crucial question in Sweden is how to transform “the contracting relationship between the centre and the parts into something which makes the parts more interested in each other, without the centre losing all of its control”.²⁷

Unlike municipalities or national bodies, Swedish regional actors²⁸ do not have extensive powers to plan or implement skills policies. In addition, Swedish regions have no mandate to tell schools and universities how to organise the delivery of education and have almost no say in the design and implementation of policies to spur the development of skills to match labour market needs. Schools and universities have little incentive to respond to the demands of the regional labour market (see Chapter 3) but instead compete at the local and national level to attract students. At the regional level, the mandate of Regional Competence Platforms is vague and resources and analytical capabilities of RCPs are scarce in the majority of the cases.²⁹ Mutual understanding and agreement between the national and local level is hence difficult to reach, leading to a sub-optimal equilibrium where the responses to skills imbalances are uncoordinated, led by conflicting interests at the local level and varied resources.

In this context, strengthening the role played by regional stakeholders is key to rationalising SAA information usage by aligning national and local interests into those of larger local actors.

The enhancement of the role of regional actors to plan skill development policies could be inspired by state-region contracts implemented in other OECD countries, where bilateral agreements between national and sub-national governments clearly define stakeholders’ mutual obligations, the assignment of powers of decision, the financial commitments (possibly in a multi-year budgeting perspective) and the enforcement mechanisms for these actors to pool local interests together in the joint planning of regional skills development policies. Alternatively, the tasks of municipalities’ regional co-ordinators and that of county administrative boards could be clarified either by providing them with a stronger mandate from the municipalities or through new powers given from the national government.

The importance of the alignment of national and local interests through the reinforcement of the activities of regional actors is well-known in Sweden and the Swedish Government has recently identified various policy areas that all regions should strengthen in order to enhance work on regional skills challenges.³⁰ The Commission on Initial and Upper Secondary VET³¹ has proposed, for instance, that national grants to municipalities for adult vocational education and secondary level education should be conditional on agreements between municipalities to collaborate in education provision. Swedish regions have also begun to work on the identification of the “the lowest common denominator” for skills activities and to develop co-operation with relevant actors both at

the local and national level. The work of the Swedish Agency for Economic and Regional Growth will support the creation of equivalent structures in all regions with the purpose of managing skills related activities. An important remaining will be the long term financing of such regional skills initiatives. The role of RCPs as tools to address local and regional skills imbalances is now under scrutiny to devise ways of fully exploiting activities of these already existing bodies.

Despite the fragmentation described above, cases of best practice can already be found in Sweden. The experience of Skåne's RCP which has led to the creation of powerful synergies by pooling together municipalities' interests is described below.

The Skåne region: Example of best practice to aggregate local interests

At the time when regional governments set up RCPs, they also faced the dilemma of how to organise such platforms to ensure stakeholders co-operate in a coherent way. Some regions had more success than others in articulating their activities and in building ties with both the local and national level.

Since the onset of the Skåne's RCP it had been clear that the collection of robust SAA information and the enhancement of its analytical capabilities would have played a crucial role in providing useful incentives to other stakeholders to join the initiative, as the platform gained credibility and status. This in turn allowed the participating actors to build robust ties with both national and local actors.

To achieve these goals, the Skåne region put forward a plan to regionalise Statistics Sweden's "Trends and Forecasts" results³² in collaboration with the County Administrative Board in Stockholm and Västra Götaland. The regionalisation of the statistical analysis began in autumn 2010 and culminated in the presentation of results in Malmö in 2012.

Partly as a reaction to the creation of a much more robust SAA infrastructure at the regional level, a wide variety of partnerships were established with public and private stakeholders to tackle the existing local and regional skill gaps (Lindell, 2013):

- *Collaboration with the Technical Colleges to address the lack of industrial workers:* the Skåne region developed an in-depth analysis of labour market needs among welders and machine operators, deepening contacts between the Skåne region and Engineering Industries.
- *Strengthened co-operation with the health care sector in addressing the long-run shortages of professionals:* the new regional forecasts provided a good foundation for discussion among stakeholders in specific sectors. Co-operation was enhanced and led to the development of refined predictive models that could be broken down into specific training groups incorporating qualitative and foresight elements. These, in turn, helped to anticipate the effects of technological and organisational developments on the long-run shortages of professionals in the health care sector, eventually leading to the development of a more accurate response.
- *Collaboration with universities:* the Skåne region became a useful partner for the universities in the region (e.g. Lund University and universities in Kristianstad and Malmö) by providing forecasts used to assess the number of places offered and rationalise the allocation of funds to grants by the universities.

- *Collaboration with the PES:* the regional forecasts had a major impact on the PES activities, which repeatedly used them to inform work of counsellors in the Skåne region.
- *Co-operation with the Skåne Association of Municipalities:* collaboration among municipalities in the region was strengthened to address future training and education needs of professional counsellors, based on regionalised education and labour market analyses and prognosis for future needs of teachers in the region.

The partnerships established in the Skåne region helped to align local and national interests by creating a “common understanding of skills challenges” at the regional level and reducing competition pressure among municipalities. Skåne’s RCP helped rationalise the use of local resources by sharing the fixed costs of creating a sound statistical infrastructure and a platform for dialogue with universities, firms, the PES and the national government to plan a co-ordinated and effective response to skills imbalances.

Notes

1. Proposed in the spring amending budget for 2015.
2. The national programme councils are permanent platform for dialogue between the National Agency for Education (*Skolverket*) and other stakeholders concerning the quality, content and organisation of VET. Six to ten 6-10 representatives from industry, social partners, and some national or regional authorities sit in these councils.
3. The SMA is the national authority tasked with considering applications from people who want to take up permanent residence in Sweden.
4. In the spring amending budget for 2015.
5. In Canada, for instance, more than 30 Sector Councils (linking stakeholders from the business, labour and education communities) examine current and projected skill needs. These councils play an important role in the design and implementation of policies to assist firms and workers in adjusting to current and future skill needs (Commission of the European Communities, 2009).
6. Within its tasks, the Agency is also responsible for co-ordinating the national framework for prior learning and validation, as well as serving as a national co-ordination point for the European Qualifications Framework (EQF) which has the aim of facilitating comparability of qualifications within the EU.
7. The national programme councils have 6-10 representatives from industry, social partners, and some national or regional authorities.
8. Sweden is divided into 21 counties. The political decisions at this administrative level are taken by the “county councils”, on the one hand and by the “county administrative boards” (government bodies in the counties) on the other.
9. This said, Sweden's constitutional status is that of a unitary state.
10. The competences of regional actors have also evolved differently across regions and through different regionalisation “waves”
11. The 21 county administrative boards are state agencies under the national government. The boards have responsibility for the co-ordination and implementation of national policies in all counties
12. “Utbildnings- och arbetsmarknadsprognos för Skåne – med sikte på 2020”, foreword, 2012.
13. This way of formulating the tasks of the RCP in line with other tasks assigned to the regions was meant to leave freedom to address different regional scenarios and priorities with flexibility, following the experience of previous “regional growth programmes” which many regions felt were too centralised and resulted in excessively cumbersome partnerships.
14. *Commission to Support and Develop Regional Skills Work* (N2012/6275/RT). The overall budget for regional development in county councils (and regional co-operation

- bodies) has usually been limited and regional development programmes remained, in many cases, broad strategies lacking enforcement capacity (OECD, 2010).
15. The Swedish Association of Local Authorities and Regions (SALAR) is both an employers' organisation and an organisation that represents local governments in Sweden. All Swedish municipalities, county councils and regions are members of SALAR, whose mission is to provide them with better conditions for local and regional self-government.
 16. Today, the integration of migrants' skills is shared (with varying intensity) by the Ministry of Employment, the PES, the Ministry of Justice (e.g. the Swedish Migration Agency) and municipalities.
 17. Migration inflows can add to skill imbalances of this nature: inflows can be larger in some municipalities than in others leading to specific skill pressure on local labour markets.
 18. Compared to other OECD countries, the flexibility in the delivery of employment and ALMP is low in Sweden (OECD, 2015d).
 19. Employment programmes are designed nationally by the government with the involvement of the Parliament and with the aim of aligning procurement rules with EU directives.
 20. Vocational education and training for adults is also a substantial part of the municipal provision of adult education, where more than half of the 178 000 students in upper secondary municipal adult education attended VET courses in 2014. The municipal adult education is an important tool to respond to skills imbalances in the labour market and a crucial instrument for the establishment of migrants.
 21. "Complementary stakeholders" is a collective term for those organisations that collaborate with the PES and offer job seekers complementary employment services. All in all, 796 different stakeholders provided complementary placement services to job seekers with the PES in 2012. Providers can enter the market if they fulfil the requirements for the service. When a service has been procured in accordance with the Freedom of Choice Act (LOV), additional providers can be added as long as the service is available.
 22. It is very common that the choice of contractor is challenged in administrative courts.
 23. Municipalities are also responsible for offering civic orientation, and providing access to schools and making accommodation available to PES as well as childcare for newly-arrived immigrants with children (a critical pre-requisite to enable job search and work), and for providing social assistance for migrants who require it following the end of the two-year introduction period. See OECD (2014a).
 24. As pointed out by an EU report (European Union, 2016), the bulk of the relationships, networking and collaboration should be intensified at all levels between social partners and local stakeholders (e.g. municipalities). The establishment of advisory boards at each administrative level to comprehensively involve social partners and local/municipal governments in the planning, production, and extension of PES services will better align national and local goals.
 25. Cases of disagreement in the identification of skills challenges across employers and education providers do exist (see Chapter 3).
 26. The observed disparities in the amount of available financial resources at the local level have emerged despite the efforts of the national government to create equal

financial conditions for all municipalities through the establishment of national grants. One major barrier to the effective implementation of such national financial equalisation system has been, however, the fact that smaller municipalities (those for which financial equalisation was, indeed, more important) have not been able to regularly participate to these national grant programmes due exactly to their insufficient administrative capacity to apply to these (see Chapter 3).

27. “Behind this is a very political question of when and how governments should intervene. There are different conceptions of what are legitimate reasons for intervention. Are efficiency gains more important than respect for individual choice?” (Statskontoret, 2007).
28. The county councils but also county administrative boards as well as network-bodies such as the RCPs
29. The largest differences can be found between biggest regions with many financial resources and smaller regions which do not always count on similar resources.
30. See the National strategy for sustainable regional growth 2015-2020.
31. CIUV (2015).
32. As pointed out by Lindell (2013) this resulted in a joint project between metropolitan regions. The project cost was relatively high (SEK 4.5 million) where the Skåne region put resources for approximately 1 million.

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Getting Skills Right

Sweden

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