Jobseeker Profiling in the UK: Developing a Better Approach

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ABOUT WPI ECONOMICS

WPI Economics is a specialist economics and public policy consultancy. Drawing on our experience of working at the front line of policy making and politics, we provide a range of public, private and charitable clients with research, advice and support to influence and deliver better outcomes through improved public policy design and delivery. We work with a range of organisations - from FTSE 100/250 companies to SMEs and charities and Central and Local Government.

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EXECUTIVE SUMMARY

This report looks at the process of segmentation and focusses on how it can be applied to develop a fairer, more effective welfare system.

Segmentation is, at its heart, the process of making sure that different groups of people get different things; be it the services they receive, the adverts that they view, or working out who is most at risk of problems like disease or vulnerability to fraud. In its most neutral sense, it means offering less of a 'one-size-fits-all' approach, and trying to be smarter, and more responsive, to an increasingly complex and diverse world.

The way this is achieved is by splitting the population into different subgroups, and offering them goods or services that better suit their needs. In the context of welfare policy, this would mean a system of rights and responsibilities that reflects the needs and capabilities of each benefit claimant and a system of employment support that is shaped and tailored to individual needs.

How segmentation might work in the welfare system

There are two key ways in which this might work:

1) Gatekeeper Assessments used to determine access to a particular programme, intervention or level of conditionality. Here the goal is to understand the level of need that a claimant has and thereby both ration services and ensure that the appropriate people are referred to the programme or conditionality regime.
2) Needs Assessments used to determine the precise form of intervention, support or conditionality that a claimant is provided. As such, this is not about the level of needs that a claimant has, rather it is about understanding the nature of these needs and the sorts of approaches that may help them in future. For example, segmentation in this way could be used by providers of a particular employment support programme, once a claimant has been referred to them.

The focus of this report is on Gatekeeper Assessments; how segmentation might be used to understand the extent to which each individual benefit claimant is at risk of long-term unemployment and, as such, in need of more support or more tailored conditionality. Doing so would underpin the development of a system of employment support that both effectively fast-tracks those at risk of long-term unemployment to more tailored and personalised services, and which adapts the conditionality regime around the capabilities of the claimant.

What form this assessment takes can vary based on policy preferences, resources, and the stage segmentation is being applied. There are four broad approaches used to carry out segmentation in welfare services:

- Caseworker-based profiling: Individual caseworkers determine the needs of the individuals in question;
- Rules-based profiling: Demographic characteristics or other factors are used to separate individuals into separate schemes. This could include several different approaches, including:
    - Time-based segmentation "based on threshold in length of unemployment spell";
    - Demographic segmentation "based on eligibility criteria."[i]

- **Statistical profiling:** Data is analysed using quantitative tools to create a risk factor that is then used to segment claimants;[ii] and
- **Behavioural profiling:** Evaluation is carried out using behavioural assessment tools.[iii]

These methods are not mutually exclusive, and many countries use systems that combine different elements of profiling and segmentation.

Segmentation in the UK now

The UK already has a system of segmentation. For example, there is a process for determining who receives support from schemes including the Work Programme and Work Choice, and for determining the conditions placed on the benefit receipt of relatively broad groups of claimants (e.g. lone parents, ESA claimants, JSA claimants).

However, given the scale of the UK's welfare system, the range of (local and national) programmes within it and variations in approaches that result from a significant piloting programme currently underway, it is impossible to accurately depict how segmentation works in practice for every programme and every jobcentre. However, broad principles can be observed and, in general, we can see that this segmentation (both gatekeeper and needs) is based on a combination of rules-based profiling (using a series of time-based rules and eligibility criteria) and case-worker profiling (where advisers have some discretion to apply).

This means that, while recent reforms have seen advisers in UK Jobcentres given more flexibility over the support that individual claimants receive, in practice, service levels are typically only differentiated by the type of benefit received, length of time on benefit and a series of easements and exemptions.

Views of the UK system can also be summarised in broad terms. Overall, many reports (for example, from the Department for Work and Pensions (DWP) Select Committee, Community Links, Policy Exchange, Reform)[iv] have found that the UK's approach based on benefit type, length of claim and broad claimant characteristics fails to adequately differentiate between the various degrees of barriers and challenges that different claimants might face. The result is a system that is less responsive, personalised and tailored than it could be. In turn, this means that employment support is not targeted effectively at those who would benefit most from it and conditionality can be applied in ways that are damaging to both a claimant's prospect of work and their broader health and wellbeing.

The opportunity

Tackling this, and improving the UK's system of segmentation provides a real opportunity to improve both the support given to the individuals within the welfare system, and the outcomes in terms of both employment and wellbeing that it delivers. It could also lead to significant cost savings for the Exchequer.

This opportunity is not just something that this project has uncovered. In the course of this work, we have spoken to experts on the ground and policy makers in national and local governments across the UK who are trying to innovate to improve this situation and develop a more personalised and tailored welfare system. A particular focus in many of these areas is in taking a more considered approach to predicting who has a high risk of being long-term unemployed, and using this to inform the services they receive at an earlier stage.

Wider challenges and pressures in the welfare system also point towards an increased need for DWP to re-evaluate how it rations, tailors and personalises the support available to benefit claimants and the conditions it places on them. For example:

- Smaller contracted employment support programmes will mean that access will need to be rationed more stringently. Improving segmentation would ensure that, what limited specialist employment support is still available, is used to its maximum potential.
- There are increasing concerns about the effectiveness of the sanctions system and extent to which it adequately reflects the challenging situation that many claimants are in. Ensuring that requirements are better tailored to individual circumstances, particularly for more vulnerable claimants, would go a long way towards addressing these concerns. The information provided by a better segmentation tool could be extremely useful for achieving this goal.
- The introduction of Universal Credit will also bring many more people in contact with Jobcentre Plus. This includes around 1 million "in-work claimants" who will be brought under conditionality as they are not working as much as is deemed possible. It is clear that Jobcentres will be unable to offer intensive support to all of these people and so services will need to be differentiated. Improved segmentation would be an effective way of informing these decisions.

Given the UK's existing use of case-worker and rules-based profiling, an area of development that is of particular interest is the potential use of statistical profiling. In the simplest terms, this works by using information on people to assess how likely they are to need a particular service or intervention. This information can be gleaned from what is already known about the person (e.g. from past use of a service), or can be collected directly from the individual when they sign up to a particular service or it can be gathered from other sources of information about the individual (e.g. administrative data or privately held data from organisations like credit rating agencies).

The advantage of using statistical profiling is to use a method that permits a more "…systematic, rigorous and accurate identification of those with high risk"[v] at a large scale. In the case of Gatekeeper Assessments in welfare, this could mean that the likelihood of long-term unemployment can be predicted more accurately and objectively than would otherwise be the case. This would then allow for a more tailored and effective approach to both providing access to specialist employment support and varying levels of conditionality.

Of course, such approaches come with some risks. The approach is based on using personal information about claimants, and so there are obvious concerns around privacy and data protection. The more information that is brought together and the more that datasets (particularly administrative data) are joined up, the larger the data security and privacy risks (and associated concerns) are. However, in practice, the following sections demonstrate that most statistical profiling in welfare is undertaken based on a relatively small amount of information, that is secured from the claimant in the process of benefit claims and / or when they discuss their circumstances with their advisor. In fact, most of these approaches do not require more information to be gathered or stored than would ordinarily be the case, they just require the data to be used more effectively to support the individual.

Overall, there are clear potential advantages to developing and implementing a better model of segmentation and there is clearly an appetite for innovation in many parts of the UK. This offers the perfect opportunity for the country to test different approaches, and learn how the UK can make its welfare system more responsive, more personalised, and more effective. The challenge is to pull

together a broad and diverse international evidence base to develop and test models that might be implemented in the UK, and to evaluate both the benefits and limitations of each approach.

Using international evidence to take the opportunity forward

To facilitate progress, this report highlights a number of different approaches taken to segmentation by countries such as Australia, where advanced statistical tools are already used, or the Netherlands where over 200 factors were originally collected and analysed to give a greater degree of insight into the challenges jobseekers face. It also highlights similar approaches that are evolving in the private and third sectors and allowing service providers to deliver more personalised and tailored services to their clients.

Key lessons from these countries are that:

- The UK lags behind other countries when it comes to the development of profiling tools;
- Unlike many other countries, the UK still relies on a primarily rules-based system combined with a degree of adviser discretion;
- Statistical profiling may provide better information about the barriers claimants face; and
- The UK should already have the requisite data, capabilities, and resources to investigate how profiling could be used to enhance the performance of its own active labour market programmes.

Similar techniques have also been pioneered across many different spheres across the globe. Identifying the likelihood of factors such as political support has become commonplace in modern political campaigns. Similarly, behavioural targeting and tracking of internet browsing habits is a powerful technology that allows companies to more effectively target their advertising, making it more nimble, and allowing them to reach an audience more effectively.

The areas that these techniques can be used in vary from basketball to banking, and they are already used frequently in public policy, with the Economist recently highlighting the use of machine-learning algorithms in healthcare, policing, and criminal sentencing. [vi]

This is not to say that there is any one technique that could be deployed – experiences and evidence on what works is varied across the globe and within different sectors and services. Nor is it to say that an approach based on "big data" or linking administrative datasets would be needed. Rather, it highlights that the tools the UK currently deploys are unnecessarily blunt, and that it might be possible to employ more sophisticated and accurate tools based simply on the information that is already ordinarily collected on individuals within the welfare system.

Developing a new tool in the UK

Based on the evidence collected in this project and summarised in this report, we recommend that the UK further explores, and pilots, the development of a statistical segmentation tool to help fast-track claimants to support, and investigates how segmentation could be used to tailor conditionality more effectively to an individual's circumstances.

To support this, we put forward a direction of travel for the UK. In particular, we outline the approach, questions and analysis that will be needed for the UK to achieve a much better level of insight into how people could be helped back into work.

The first thing to consider is how the tool will function in very broad terms. To help distinguish this, we have identified four high level design questions. These appear straightforward, but in answering them, the linkages and dependencies between each become clear and, without first answering these questions, development of a tool will lack focus and direction:

For who:

Who is the group that you want to segment? Is the segmentation tool targeted at a particular subsection (e.g. the unemployed), or a wider group of people who may benefit from employment support (e.g. Universal Credit claimants)?

Why:

What are we aiming to segment into, and what does this mean for the structure of Active Labour Market Programmes?

How would segmentation affect conditionality, and would it alter depending on the groups an individual is placed in? If so would this be done through the claimant commitment?

When and how:

When and how should the tool be used? When should it be run (e.g. on first benefit claim, after four weeks, sometime else)? What role should the information provided by tool have in the process, acting as something to advise caseworkers, or as the decision-maker itself?

With what impact on contracting:

To what extent should payment-by-results incentives be informed by results from the segmentation tool, and how would this interact with other design choices?

Aside from specific design choices, there are a number of more general questions that surround segmentation, regardless of the model used. A failure to take both these choices and the experiences of other jurisdictions into account before implementing segmentation would create a significant risk that the tool is a failure.

Key process questions:

What should the development process be?

A model designed without careful and staged development informed by the data is unlikely to succeed. Simply implementing a model from another jurisdiction would result in an inaccurate and potentially misleading model. Ultimately, development of a model will take time and a number of iterations before being accurate. Policymakers need to be aware of this before going into the design and implementation of a new approach.

This means the process for the original selection of variables and design of the algorithm must be designed carefully. It also means that equal attention must be given to the process for piloting the new approach, evaluating results and feeding back the results to contribute a process of constant evolution and improvement. Of course, there is then the question of how to approach wider roll out if the pilot is found to be successful.

Who should be involved?

Creating a segmentation model, testing it, applying its findings to welfare-to-work services and conditionality, and then scaling it will be a complex task, and one that does not lend itself to a sudden top-down implementation across the welfare space. Experience from other countries

and in the UK (in the field of welfare and more broadly) suggests that development must be undertaken in partnership, rather than being designed centrally from Whitehall.

The existence of both a mature market for specialist employment support, and the increased powers devolved both to Scotland and to city-regions under city deals mean that there is an opportunity for models to be tested, piloted, and ultimately implemented at a sub-UK level. This suggests that DWP should work closely in partnership with these areas to develop, pilot and test a new tool.

When thinking about the design of the tool itself, our work has demonstrated that much of the expertise lies outside of central and local Government. As such, seeking to design a data collection exercise and algorithm for the use of the data is unlikely to be something that can be achieved successfully without bringing on board expertise including data specialists, support providers, case-workers and claimants themselves.

Managing Change

Developing a model is only part of the challenge. Once this is achieved, the key question becomes how and whether the information provided by the tool is utilised. In this respect, tools are only useful insofar as they are effectively adopted by decision-makers. In several cases such as Canada's, limited use by caseworkers meant that an otherwise highly predictive model was not able to effectively improve public services and their delivery for jobseekers or government.[vii]

The lesson here is that trust must be built between decision-makers and the process the model uses, and implementation, change, and attitudes towards segmentation must be carefully managed. Bringing case workers into the process early can be an important tool for delivering this. Similar arguments can be made for claimants themselves.

Data Collection, Protection, and Sharing

In practical terms, one of the reasons that such assessments are not currently undertaken is that different information that might be relevant (for example, housing status, education levels, and health information) are held by different departments, or levels of government. Sharing this information across departmental boundaries is notoriously difficult.

Whilst this can be challenging, it is not an insurmountable barrier. For example, data sharing possibilities have (relatively recently) been opened between HMRC and DWP, and the Digital Economy Act 2017 opens the possibilities for wider data sharing where there is a clear benefit to doing so. Work is already underway to explore the possibilities that this presents for improved public sector delivery.

However, in practice (and based on discussions we have had), developing these arrangements is likely to be a fairly lengthy process. It is also, as yet, unproven that joining up these data could provide distinct benefits over and above those which might be secured by more effective use of the data that is already held, and combining it with demographic and motivational information collected from the claimant. Once data sharing arrangements, security and protections are in place, DWP and others can then explore whether additional accuracy and operational benefits might be achieved by using these data alongside that already collected.

The next steps for WPI Economics

It is clear that taking a more nuanced approach to assessing and understand claimants' needs is increasingly important in the modern welfare system. It is also clear that substantial testing and development will be needed to turn this from a concept into a reality. Given this, in the next year WPI Economics intends to take three steps to pursue the cause of segmentation:

1. Making the case for a segmentation tool in the UK
   This phase of work will focus on further developing the case for segmentation, and exploring in further depth how dynamics such as the creation of the new Work and Health Programme will affect the need to increase our understanding of claimants, their distance from the labour market, and how we might help them.
2. Bringing together practitioners to ensure lessons are learned
   This will involve creating a practitioner group where experience and best practice can be shared, connections made and lessons learned as work in this area is taken forward. This will also include supporting the development of a common framework for understanding and evaluating segmentation, so that themes can be explored and approaches scaled if the results are found to be successful.
3. Supporting areas seeking to develop segmentation tools
   We will continue to actively share the research and conclusions that have come from this project. As well as proactively seeking out local areas who may be interested in these results, we will seek to share best practice from the practitioner group as well as helping areas that we have not yet identified, but which are taking forward similar work.

We intend to carry out these steps, with the goal of further developing the capability that the UK welfare system has to be fairer, more effective, and more personalised. Working with partners in industry, the non-profit world and government, we hope to build a segmentation tool that helps improve outcomes across the UK.

CHAPTER 1: BACKGROUND

> *"Segmenting, at its most basic, is the separation of a group of customers with different needs into subgroups of customers with similar needs and preferences."*[viii]
>
> *– Gretchen Gavett, Harvard Business Review*

What is segmentation?

Different people have different needs, and no two people or their situations will be the same. This means that, in the context of both private and public sector provisions, for services to be successful, individual needs must (on the whole) be met by differentiated services.

This principle can be seen in figure 1 below, which subdivides different types of goods and services by the model used to provide them, and the type of need that they fulfil.* The first row demonstrates a relatively small set of goods and services where consumers have a universal need (at least for basic versions) and provides examples of where these needs are met universally, without the need for segmentation.

In contrast, the second row demonstrates a set of goods and services where needs are highly heterogenous. Here, segmentation is one of the key ways in which goods and services can be tailored to meet these heterogenous needs. The basic process recognises differing needs and subdivides the population into groups, thereby allowing responses to be tailored to different audiences.

Where the model of provision is based on the private sector, the process through which this segmentation occurs is relatively straightforward (at least in conceptual terms); the competitive market allows for consumers to express their preferences and, in response, firms tailor their responses to meet these needs and capture the market. Of course, the sophistication of firms' segmentation process and their subsequent tailoring of services has increased dramatically over time, but the process is well established.

However, in other cases, this situation is not so straightforward. This is particularly true in the bottom right (highlighted) quadrant of 'Government-provided individual needs', which represents a set of services where needs are heterogenous but, unlike with many private markets, consumers cannot simply switch to a competitor if their needs are not being met.

This means that, in order to deliver services to meet individualised needs, the government must determine both what these needs are (without them necessarily being expressed), how services can be tailored to meet them and how these services should be accessed (i.e. how the service is rationed).

* This sets out an archetype of different goods and services, though of course within most of them (e.g. health), there is a mix of public and private provision, as well as universal and individual needs.

Figure 1: Archetype of provision and segmentation of services

Type of needs	General model of provision: Private	General model of provision: Government
Universal / non-segmented	Goods and services where everyone requires a basic level of provision, but where principle, simplicity, scale, or individual preferences mean that provision is (generally) based at the individual level. **Examples:** Water, basic bank accounts.	Goods and services which everyone requires, and which are provided by the Government due to simplicity, scale, or policy choices. **Examples:** Roads and transport infrastructure, education and schools.
Individual / segmented	Goods where the need varies by individual, and they are expected to change their demand in a corresponding fashion, according to individual preferences. **Examples:** Clothing, food, leisure activities, holidays.	Goods and services where need varies by individual, but the Government provides services, either due to the nature of the need, or policy choices. **Examples:** Healthcare, welfare services, legal aid.

Delivering segmentation and effectively tailored services in these circumstances can be challenging, but it is incredibly important; if government acts in a way that does not account for individual circumstances and needs are not met, then individuals may go without services they need or may receive inappropriate levels or types of support. In either case, this could lead to both worse outcomes now and increased costs in the longer-term. Alternatively, it may put pressure elsewhere, for instance by pushing individuals to rely on emergency support from places like charities or local authorities.

An obvious example in the context of this report is where a failure to adequately tailor the conditionality system or employment support services to individual needs could lead to more time spent unemployed, putting people at risk of greater financial problems and future issues around homelessness or lack of basic resources like food. It is apparent that this failure would lead to worse outcomes now (for the individual and the state) as well as putting pressure on homelessness and debt charities and local authorities.

Segmentation in practice

Segmentation can help avoid situations like this by supporting delivery bodies to better understand what people need, helping the government plan more effectively, ensuring that those services are provided, and crucially that they are responsive to changing levels of need.

In practice, ensuring that services are targeted effectively begins with developing an understanding of who needs what, and why they need it. Using this information, delivery bodies can better understand how to best allocate funding, who would benefit from what programs, and how support services might be designed to meet these needs. In principle, some types of segmentation methods would enable this by "providing insight into the economic and social status of residents as well as their behaviours and

attitudes."[ix] Summarising these effects, the Local Government Association noted that there were a number of benefits that could come from effective segmentation, including but not limited to:

- Manage and anticipate customer need, through understanding how the need for one service may indicate the need for others, and by understanding how the needs of customers differ;
- Plan for the long-term, through understanding demographic trends and how demand will evolve over time;
- Allocate resources, through understanding where and when investment in services delivers the most benefit;
- Inform service design, through better understanding how customers prefer to access services and understand what mix of services meet customer needs
- Manage performance, through offering external feedback and benchmarks against which performance can be measured;
- Market services, through better understanding customer needs and communication preferences – and the messages that are likely to be effective;
- Manage demand and determine what services to deliver and the channels to use to increase levels of self-service;
- Change behaviours, through better understanding needs and behaviours and the interventions that are likely to prove effective.

How segmentation could work in the welfare system

One of the key areas that segmentation might be applied to government services is helping people get back to work. Within the welfare system there are clearly large and meaningful differences which exist within the claimant population. These affect, for example, how fair it might be to apply sanctions to different individuals, or how useful participating in a training scheme might be. A well-designed segmentation process could ensure that the most vulnerable people receive the right types of support at the right time, by allowing the government to:

- Triage: Better understanding claimant barriers to work up-front, allowing improved identification of issues and signposting to support them to tackle these issues;
- Ration resources: Directing interventions to where they are most likely to be effective, and away from where they are less likely to be useful;
- Tailor interactions: Make sure that the responsibilities placed on claimants match their capabilities, and that each intervention helps move them closer to a sustained improvement in their well-being and self-sufficiency; and
- Increase efficiency: Providing information that can be used to benchmark performance and provide greater insight into how effective different programs are.

Each of these has very practical applications in the welfare system. Other reports have highlighted that "…long-term unemployed adults often have significant, and different, barriers to successful engagement within the labour market."[x] For example, an individual who has just been made redundant will have very different needs to someone with multiple cross-cutting issues who has consistently cycled in and out of low wage jobs for several years.

This naturally leads to the conclusion that "…unemployed people are not just one single homogeneous mass. They have different needs, generally requiring more intensive assistance as they move further from work."[xi] Summarising the approach this is needed, a BCG study noted that:

> *"The key is to match each of these groups with services that are likely to maximize their chance of finding work while keeping costs in check. Among the service levers that can be tailored for each segment: the types of support offered (such as a resumé-writing workshop, interview training, or IT skills training); the frequency of contact with an advisor (daily, weekly, or monthly); and the means of communication (such as face to face, telephone, or webcam) and associated financial arrangements."*[xii]

Beyond targeting employment support programs, segmentation could also be used to vary the requirements placed on claimants. For example, when claiming unemployment benefits, individuals are subject to a series of job search or preparation requirements known as 'conditionality'. A failure to meet these conditions results in the removal of benefits, a system that is designed to ensure that claimants are making good faith efforts to prepare for, and find, work. It is clear both that some claimants will be more able to meet any given level of requirements and that, if applied inappropriately on the wrong people, conditionality may lead to unintended consequences.

Given this, in an ideal system the types of requirements placed on the individuals would vary and this could be guided by segmentation. For example, the newly unemployed individual might be subject to a normal level of conditionality, while a person with substantial alcohol and drug issues might face a lower level of requirements, instead focusing first on rehabilitation and then moving the individual into work.

This approach is already seen in the 'easement' powers available to JCP advisers when they deal with a range of more vulnerable groups including homeless people, those in domestic emergencies and lone parents. However, there are many groups that aren't captured by these exemptions, and there is not a clear and systematic way in which evidence is collected or evaluated in a manner that could account for how multiple issues a family may be experiencing might overlap.[xiii]

This specific example highlights a broader point; namely that it is positive that the UK currently operates a segmentation approach using a series of specific tools such as using benefit type, length of claim and some flexible easement criteria to vary how it treats claimants. However, in practice, welfare-to-work schemes, and the wider benefits system in the UK fail to take account of the diversity of the claimant population. The result is a system which is less personalised, and which falls into the trap of treating people with vastly different needs in a similar manner, without the necessary level of nuance to properly create a system catered to levels of individual or family need. An exploration of how segmentation might resolve some of these issues in an area such as conditionality is explored in box 1 below.

Box 1: Segmentation and Conditionality

A specific example of where segmentation might be used is the conditionality regime. Currently claimants are required to fulfil a series of conditions in order to receive benefit payments, and that if they fail to do so they will be 'sanctioned' with a removal of those benefits. This removal of benefit payments is the enforcement mechanism, and has been used in various forms since 1913. In practice, these requirements take the form of compulsory job-searching or preparation for work activities, such as looking for or preparing for employment for up to 35 hours per week.[1]

In many cases these are perfectly reasonable requirements, but in some circumstances, they may prove to be unfair or counterproductive. For example, an individual facing eviction or dealing with a drug issue is unlikely to be able to productively search for work without first dealing with that issue. If the conditions placed on an individual are disproportionate or unrealistic then the result would be to punish them for not meeting a series of counterproductive or impossible goals.

In the extreme, this can lead to "…a range of unintended effects, including distancing people from support, causing hardship and even destitution, displacing rather than resolving issues such as street homelessness and anti-social behaviours; and negative impacts on 'third parties'."[1] While there has previously been little hard evidence on these issues, new research suggests that for groups such as ESA claimants, sanctions can lead to a reduced likelihood of finding work and increased time claiming benefits.[1]

Segmentation, used properly, could be a way to make this system much more responsive and personalised by providing answers to the following questions:

- **Triage:** "Who should be subject to conditionality?"
- **Rationing resources:** "Will the programs the individual is placed on help them?"
- **Tailor interactions:** "Are the conditions being placed on the individual reasonable and things they can practically achieve?"
- **Increase efficiency:** "Are these interventions effective for people with this specific set of circumstances?"

Segmentation and welfare in practice

In practical terms, the purpose that segmentation is supposed to achieve can be broadly split into two categories:

- **Gatekeeper Assessments** used to determine access to a given programme, intervention or level of conditionality. Here the goal is to understand the level of need that a claimant has and thereby both ration services and ensure that the appropriate people are referred to the programme or conditionality regime. For example, segmentation could be used in this way to provide early access to a programme aimed at claimants who, without extra support, would be expected to spend a long time unemployed.

  Here the basis of the gatekeeper assessment / segmentation might be "How likely is an individual to experience long-term unemployment?" It would not, however, seek to design the specific intervention to assist them.

- **Needs Assessments** used to determine the precise form of intervention, support or conditionality that a claimant is provided. As such, this is not about the level of needs that a claimant has, rather it is about understanding the nature of these needs and the sorts of approaches that may help them in future. For example, segmentation in this way could be used

by providers of a particular employment support programme, once a claimant has been referred to them.

The overall question that the assessment might ask could be "What specific interventions would be successful in helping this individual to avoid long-term unemployment?" This would then be used to create a tailored support package.

What form this assessment takes can vary based on policy preferences, resources, and the stage segmentation is being applied. There are four broad approaches used to carry out segmentation in welfare services:

- **Caseworker-based profiling:** Individual caseworkers determine the needs of the individuals in question;
- **Rules-based profiling:** Demographic characteristics or other factors are used to separate individuals into separate schemes. This could include several different approaches, including:
    - Time-based segmentation "based on threshold in length of unemployment spell";
    - Demographic segmentation "based on eligibility criteria."[xiv]
- **Statistical profiling:** Data is analysed using quantitative tools to create a risk factor that is then used to segment claimants;[xv]and
- **Behavioural profiling:** Evaluation is carried out using behavioural assessment tools.[xvi]

These methods are not mutually exclusive, and many countries use systems that combine different elements of profiling and segmentation. For example, statistical models might be used to generate profiles that are then assessed using caseworker discretion, as has been the case in Bulgaria, Ireland, Poland, and Sweden.[xvii] Comparatively, segmentation in the UK is primarily a rules-based system that draws heavily on benefit eligibility to assign support to claimants,[xviii] and Australia and other systems ask a series of questions, some of which are intended to incorporate behavioural effects (e.g. attitudes towards work) into statistical profiling tools.

CHAPTER 2: UNDERSTANDING THE UK'S EXISTING APPROACH TO SEGMENTATION

The UK's existing approach

Given, the likely advantages that some form of segmentation can bring, the question is not whether the UK should have some form of segmentation within its welfare system, but what sort of system it should have.

It is also apparent that the UK already uses segmentation. This is true in terms of gatekeeper assessments, for example there is a process for determining who receives support from schemes including the Work Programme and Work Choice. It is also true in terms of needs assessments, where the conditionality regime already applies different rules to different people (for example, lone parents with children aged under two are not required to actively seek work) and advisers determine both who receives support from the Flexible Support Fund delivered through Jobcentre Plus and the support they receive.

Given the scale of the UK's welfare system, the range of (local and national) programmes within it and variations in approaches that result from a significant piloting programme currently underway, it is impossible to accurately depict how segmentation works in practice for every programme and every jobcentre. However, broad principles can be observed and, in general, we can see that this segmentation (both gatekeeper and needs) is based on a combination of rules-based profiling (using a series of time-based rules and eligibility criteria) and case-worker profiling (where advisers have some discretion to apply). Figure 2 demonstrates which forms of profiling are typically used by Jobcentre Plus for gatekeeper and needs assessments. It also shows that there are differences between how providers of schemes such as the Work Programme approach needs assessment, where research as part of this project has demonstrated that there is a greater use of statistical and behavioural profiling.

Figure 2: Example of UK's approach to segmentation

	Example	*Case-worker profiling*	*Rules-based profiling*	*Statistical profiling*	*Behavioural profiling*
Gatekeeper assessments	Delivered through Jobcentre Plus to ration access to Work Programme, Work Choice and range of mandatory work schemes	Yes	Yes	No	(although some limited piloting)
	Jobcentre Plus – access to Flexible Support Fund	Yes	Some	No	No
Needs assessments	Providers of programmes – type of support given one on e.g. Work Programme	Yes	Yes	Yes – although not universally	Yes – although not universally

Criticisms of the UK's existing approach

There have been a range of well-documented concerns and criticisms of the existing approach.

Prime amongst these is that the large reliance on benefit type to determine eligibility for employment support misallocates this support. The key argument behind this view is that benefit type gives "…no indication of the level of need that a customer has, and therefore no indication of the intensity of support that they will require."[xix] As a consequence, there is the significant risk that certain groups will not receive specialist support, even if they need and would benefit from it. An example provided by many commentators and providers is that an early-entrant ESA claimant referred to the Work Programme might have recently left work and have relatively good qualifications. In practice, this might mean that they need relatively low levels of support to get back in to work. In contrast, a JSA claimant referred much later may be suffering with a long-term un-disclosed mental health condition, have no formal qualifications and little work experience; meaning that they could be far harder to help back in to work and would have benefited more from early referral than the ESA claimant.

There is a similar argument against rigid use of length of claim as an indicator. For example, there is a well-documented issue with individuals who move in and out of low-paid work.[xx] The result of this is that they cannot sustain consistent and high-quality employment, and therefore find it extremely difficult to build resilience against future shocks, and to materially improve their circumstances. The result is a constant cycle between spells of unemployment and spells of lowly-paid and precarious work. However, the fact they are periodically employed means that they are consistently missing the 9 or 12-month threshold required for eligibility.

These problems are acknowledged by the DWP who noted in a response to the DWP Select Committee that there were "rigid boundaries" between benefit types, and acknowledging that changes to assessment and referral processes may be necessary.[xxi] This itself is part of the approach embodied by the transition to Work Coaches, which the Department intends to deliver as a "…personalised approach to claimants based on their individual needs, rather than a service based on particular claimant groups or individual benefit type."[xxii]

The Work and Health Programme (the successor to the Work Programme) will also have some degree of greater flexibility than its predecessor. Early indications from DWP were that there would be less of a focus on benefit type and more flexibility for referrals based on need. However, in practice, given the scale of the programme[xxiii] and discussions we have had during the course of this work, it seems unlikely that DWP will roll out a systematic segmentation tool to support decisions on eligibility for this iteration of the programme.

Overall this means that, while specialist support is available in the UK, the referral system used to ration access to it relies heavily on administrative categories rather than a comprehensive assessment of individual needs. As such, it is less likely to be responsive, personalised, and tailored than it could be, to an individual situation.

This is why, organisations such as CESI, Policy Exchange, Community Links, the DWP Select Committee and a range of others have argued that access to levels of support should be determined by a "…common, robust assessment process," and that this should be based on "needs rather than benefit type."[xxiv] Box 2 summarises a series of suggestions that have been incorporated across a range of different governmental and non-governmental policy papers.

A very similar argument can be made for the sanctions system. Here, other research has suggested that the system generally functions effectively for the majority of claimants but, because of a lack of tailored responses for more vulnerable claimants, can lead to significant detriment.[xxv]

Box 2: Examples of previous work that has recommended the UK adopt a more robust form of segmentation for its welfare system

"Some groups in the JSA regime need more personalised support: increased flexibility to provide support to some groups on JSA would target those in need of more intensive help to move back into work more quickly, breaking down benefit dependency at its root."

Professor Paul Gregg, 2008

"The first step in delivering better support for those with the greatest needs is to accept that better segmentation and targeting of support is needed."

Policy Exchange, 2011

"We further recommend that DWP continue to work to develop a 'segmentation' tool, to be conducted by Jobcentre Advisers face-to-face with claimants, to allocate claimants to separate work streams according to their distance from the labour market and relative need for intensive employment support."

Department for Work and Pensions Select Committee, 2014

"Jobseeker assessments should take more account of jobseekers own perspectives … a more participatory assessment would also encourage employment support to include a consideration of jobseekers' strengths and abilities, instead of just addressing their barriers and needs."

Community Links, 2014

"Whilst jobseekers requiring light-touch, temporary help can be adequately served by JCP, claimants with more significant barriers to work require more intensive, personalised services involving specialist expertise."

Reform, 2016

CHAPTER 3: AUGMENTING THE UK'S APPROACH TO SEGMENTATION

Chapter 2 demonstrated that the UK already uses segmentation and that there have been significant criticisms of the approach currently taken. This chapter assesses whether this process of segmentation can, in principle, be improved. Since the UK's existing system already relies heavily on rules-based profiling and (to a lesser extent) case worker-based profiling, the focus is on whether replacing or supplementing this approach with a move towards statistical profiling (and / or behavioural profiling) could deliver better outcomes.

The next section provides an explanation of how statistical profiling typically works. A review of the relative successes, failures and challenges of other countries' experience of segmentation (with a focus on statistical profiling) is then given.

For ease of exposition, the primary focus is on Gatekeeper Assessments – how eligibility for existing and future programs could be refined to ensure that those who need help receive it sooner. This reflects that the structure of UK welfare services is heavily focused on rationing through rules-based profiling, and in particular the amount of time spent unemployed. However, the results below could easily be transposed to consider the case of needs assessments.

Characteristics of statistical profiling: A possible approach

In the most basic sense, statistical profiling works by using information on people to assess how likely they are to need a particular service or intervention. This information can be gleaned from what is already known about the person (e.g. from past use of a service), it can be collected directly from the individual when they sign up to a particular service or it can be gathered from other sources of information about the individual (e.g. administrative data or privately held data from organisations like credit rating agencies).

In the case of gatekeeper assessments in welfare policy, statistical profiling can be used to determine or support decisions about the referral to specialist employment support. It can do this by using information about benefit claimants to analyse the likelihood of them becoming long-term unemployed.[xxvixxvii] In practice, this can be achieved by using evidence from how similar individuals have historically fared to estimate how a given claimant will fare, given their characteristics.[xxviii] This evidence might be collected from what is already known about the claimant (from the information they give to DWP as part of the claims process); or it might be collected by advisers (as part of a profiling interview) or from wider data sources (like other administrative data). Examples of the types of information used in other countries is provided in figure 3.

Figure 3: Examples of information used in a statistical profiling tool

The 24 factors listed here are just a few that have been used for segmentation across the world.

When the Netherlands was developing its segmentation model in 2006 it started with over 500 variables, eventually narrowing it down to 20.

The advantage of using statistical profiling is to use a method that permits a more "…systematic, rigorous and accurate identification of those with high risk"[xxix] at a large scale. This means that the likelihood of long-term unemployment can be predicted in a more objective manner.

These results can then be used in one of two ways. The first is to use risk predictions or estimated durations to sort individuals into particular risk groups, as is the case in Australia[xxx] or Finland.[xxxi] Alternatively, the scores can be used to predict the individual's likely duration of unemployment. Additionally, there is also the ability to compare how a jobseeker is doing against the performance of reference groups, as is the case with the 'Work Profiler' in the Netherlands.[xxxii]

Despite its appeal, there are potential drawbacks. Predictions are only as good as the data they are based on, which may cause or exacerbate issues with misidentification. Furthermore, significant changes in the economy may render the data less relevant, thereby reducing a given model's predictive power.[xxxiii] This means that to be effective, the source data must be accurate, continuously updated, and continuously evaluated.

Perhaps more fundamentally, given that the approach is based on using personal information about claimants, there are obvious concerns around privacy and data protection. The more information that is brought together and the more that datasets (particularly administrative data) are joined up, the larger the data security and privacy risks (and associated concerns) are. However, in practice, the following sections demonstrate that most statistical profiling in welfare is undertaken based on a relatively small amount of information, that is secured from the claimant in the process of benefit claims and / or when they discuss their circumstances with their advisor. In fact, most of these approaches do not require more information to be gathered or stored than would ordinarily be the case, they just require the data to be used more effectively to support the individual.

How do other countries approach segmentation?

Globally, the approach that is taken to segmenting jobseekers is highly varied. This section highlights particularly illustrative case studies from Australia, Finland, Ireland, and the Netherlands. It explores areas where statistical profiling has had some success, as well as jurisdictions where other methods have been adopted, including moves away from statistical profiling and towards caseworker discretion.

Success using statistical profiling

Sweden uses a statistical profiling tool known as the 'Assessment Support Tool' (AST) which uses administrative data and information from a questionnaire to determine which jobseekers would benefit from early intervention.[xxxiv] A binary logistic regression is used to estimate the probability that an individual will be employed for more than six months, using variables that include age, country of birth, education, months unemployed, the spell of their last unemployment duration, any impairment, skills, and the local employment rate.[xxxv] If the tool establishes an individual to be at high risk of long-term unemployment, then the normal wait time for the activation of ALMPs can be overridden.[xxxvi]

Similarly, Poland and Hungary have both had some success with the implementation of limited statistical profiling systems into their welfare systems, and Poland in particular has used a combination of statistical profiling and caseworker judgement to determine which assistance individuals should receive, with re-profiling if a jobseeker's situation changes.[xxxvii] Similarly, Hungary has used a form of statistical profiling for the past 12 years,[xxxviii] although the exact process is not well documented in English-accessible resources.

The United States has had a degree of statistical profiling embedded in active labour market policies for over two decades. From 1993 as part of a wider welfare reform package, States were mandated to design Worker Profiling and Reemployment Services (WPRS) that identified or ranked clients on the basis of their likelihood of exhausting their benefit entitlement.[xxxix] Under these requirements, programs must be designed and operate in accordance with requirements proscribed by the US Department of Labour,[xl] but otherwise vary depending on State Welfare Agencies, who mostly use statistical models, though several use characteristic screening methods instead.[xli] Covariates used to analyse the probability of benefit exhaustion vary, though age, gender, race, and other demographic factors cannot be used for civil rights reasons.[xlii] The findings of the WPRS systems are then used to identify at-risk claimants and refer them to mandatory reemployment services, with limited caseworker discretion only for referral to some nonmandatory services.[xliii]

Evaluation of the US approach suggests there may be some benefits from using this approach to statistical profiling. For example, a 2003 study of Kentucky's data suggested that measurable government savings arose. However, they were attributed primarily to an increased exit rate at the beginning of treatment, rather than more effective ALMP referral.[xliv] Similar findings in Washington DC and Florida resulted in marginal to slightly positive findings, but not impacts that were particularly scalable, or that could be clearly attributed to one particular effect.[xlv] The unique position of the US programs being unable to incorporate certain covariates, combined with federal imposition of such schemes means that there is less information on continuous development of the statistical profiling systems and the extent to which they could be effectively applied to other jurisdictions.

Pilot programmes and model-building

Full implementation and adoption only tells part of the story. Success in this area has encouraged some countries to adopt pilot programmes with the potential for further adoption of statistical profiling. This has been the experience of Armenia, who in 2013 with the support of a World Bank Team launched a pilot using data from 270,304 current and previously registered jobseekers to build a model estimating the likelihood of exit from unemployment at 6, 12, and 18 months from registration. This model reached a similar level of accuracy to Ireland's (see below), as when using an 80% cut-off rate, 97% of those who were predicted to suffer from long term unemployment were actually found to be long term unemployed, and 67% of those predicted to leave the unemployed register did so before 12 months had passed.[xlvi]

The Czech Republic has similarly not yet implemented statistical profiling, but there have been studies with moderate to high levels of predictive success. Within these studies, there are recommendations that their findings should be followed up with attempts to develop models with a greater degree of local focus due to the belief that "statistical profiling would seem to represent the optimal compromise between accuracy, objectivity and costs."[xlvii] This was done in 2011 in a study from the Research Institute for Labour and Social Affairs, which found that "it is possible to predict fairly accurately the probability of finding a new job using data from the official register."[xlviii]

New Zealand has considered introducing formal profiling in some form, as far back as 2005. This work was based on a study by Obben (2005), who studied 2,476,898 unemployment spells to uncover the effect of various variables (such as gender and race) on unemployment. This study concluded by suggesting "the adoption of the parameters … as the first step in the construction of a formal profiling model for New Zealand."[xlix]

In addition, other countries are taking tentative steps, including Croatia who began moving towards developing a statistical profiling model in 2015.[l] An immediately obvious conclusion is that the adoption of statistical profiling is often preceded by the development of statistical models to test predictive methods, either from governmental or non-governmental actors.

These studies are integral to building a case to show that statistical profiling has the potential to outperform alternative methods of segmentation. However, there is an illustrative lesson that having semi-accurate statistical models is only one part of the challenge that comes with statistical profiling. How those predictions are used to inform the design and operation of ALMPs is a much larger question, and one of the key reasons why good predictive models may not translate to statistical profiling being implemented as part of a country's wider labour market policies.

This limitation has certainly been a consideration acknowledged by the authors of the Czech Republic's studies, who commented that questions over how information about the length of unemployment spells can be used, who gains from ALMPs, and whether interventions help the most at-risk claimants "…must be answered before such a theory can be introduced into the everyday practical public employment service context."[li]

Case study: Australia

Australia can generally be regarded as a leader when it comes to jobseeker profiling. The development of its approach began in 1994 with the introduction of the Job Seeker Screening Instrument (JSI). This was developed into the Job Seeker Classification Instrument (JSCI) in 2008, which was used for early identification of jobseeker requirements, and for rationing services.

Prior to this, jobseekers had been classified in a rules-based system based upon membership of particular groups. However, echoing the experience of the UK, this proved problematic as it "…did not adequately discriminate between members of a target group according to their labour market disadvantage … because members of any target group are not homogenous in terms of the risk of becoming long term unemployed."[lii] The JSCI was used to instead draw differences between members of groups, by generating scores for their chance of being long term unemployed using eighteen different factors.

A 2004 study of accuracy found that the JSCI was 90.3% successful at identifying the correct group (and funding) level for a given individual, which represented an improvement on the 2002 figure of 82.%. This reflected broad satisfaction from other stakeholders, and the fact that there have been periodic revisions of the model, weighting, and the interface between the JSCI and referral systems.

The commitment to using statistical profiling can be seen in the use of JSCI data for wider welfare policy changes, including to assess provider performance through the star ratings system[liii] as well as further amendments to the model to try and capture jobseeker motivation more effectively, including accounting for psychological and behavioural characteristics.[liv] Overall, the JSCI provides an effective example of how statistical profiling can be used to create a more effective and adaptive system of referring jobseekers to the appropriate support mechanisms.

Case study: Finland

Statistical profiling was introduced in Finland in 2007, and integrated into the ICT system used by counsellors. It would produce an output on a high-low risk thermometer, providing an estimate to be discussed with clients as one factor that effected which groups they were segmented into. The tool based these recommendations on data including unemployment history, age, place of residence, previous occupation(s), citizenship status, education, work history (e.g. reason for termination), and disability information. The overall risk of long term unemployment was calculated on the basis of these factors and estimated coefficients.[lv]

A 2005 test using a 60,000 person sample correctly predicted 89% of cases.[lvi] In particular an evaluation also noted that a specific value of the model was its ability to provide medium risk estimates, something advisers were often unwilling to do as they would tend to classify individuals as either high or low risk.[lvii] Despite this relative success, the model was later withdrawn from active use, primarily because advisers did not make strong use of it despite its predictive power.[lviii]As such, a salient conclusion from the Finnish experience is that advisers need to trust the tools and use them properly, and that accurate predictions are only part of the challenge.

Case study: Ireland

Profiling is used in Ireland with the objective of "deliver[ing] intensive services early rather than after long-term unemployment has already occurred."[lix] To this extent a model was developed which has attempted to estimate whether individuals will stay or leave unemployment after six months. A success rate of 71% for predicting male 'leavers' on the unemployment register was achieved.[lx]

Alternative models have also been developed to assess measures of labour market disadvantage, rather than the probability of future exit, using purely administrative data. This study also found that applying partitioning using this method would outperform a random draw, suggesting that there are alternative methods of calculation that would also yield findings useful for policy application.[lxi]

Case study: The Netherlands

The roots of profiling in the Netherlands can be found in the 199 'chance-meter' tool used to determine the jobseeker's distance from the market. However, its performance was found to be relatively poor, with the timing of exit from unemployment only being accurately estimated in 60% of cases.[lxii]

In 2006 a system based on a client-accessible e-profile was created. This documented 11 factors including demographic factors, health status, language abilities, and other work-related abilities. To build on this, a large-scale longitudinal study was carried out which tracked over 500 factors that might be relevant. These were reduced to 155, and then 20 factors, depending on those that were found to be significant. From this a model could be constructed that was able to correctly predict that a jobseeker would return to work within one year in 7 out of 10 cases.[lxiii]

This model is used for two purposes; estimating the chance of work resumption within a year, and also identifying how a client compares to other members of their cohort, which can be used to assess where

interventions should be targeted. This approach was sufficiently successful enough that there is a commitment to further developing the model into 2017, and refining it with a follow-up study. [lxiv]

Unsuccessful examples

Despite the fact that many countries have either successfully introduced statistical profiling, or are moving towards increasing the use of data and analytics in their jobseeker allocation systems, there are some examples of countries that have previously had sophisticated systems, but since moved back to systems characterised by a greater degree of adviser discretion and/or rules-based profiling. In some cases, this is due to implementation challenges, which can offer lessons for the UK as it considers adapting its own methods. In other cases, it represents legitimate policy choices, or concerns about accuracy in that particular jurisdiction.

Canada is a prime example of a country that was a leader in development of statistical tools in welfare allocation, but later chose not to fully implement its tool. The Service and Outcome Measurement System (SOMS) was built in prototype form as early as 1994, and featured a relational database, tools to analyse the success of previous services, and a model to predict which services would be most likely to benefit a given jobseeker. This was augmented in 1997 by an algorithm designed to predict which services would be the most effective at increasing employment prospects for specific groups.[lxv] Whilst this system was being developed a prototype called the Client Monitoring System was introduced.

Despite initial success, the combination of increased devolution to provinces for employment programs[lxvi] and a lack of buy-in from frontline staff[lxvii] hindered adoption of SOMS. As early as 2002, the conclusion was being reached that a slowed development pace and the requirement for multiple approvals meant that "…since patterns of program participants change over time, model estimates of what works best for whom have a finite useful lifetime," and consequently that results from the old SOMS system becoming less useful over time.[lxviii] Contemporary literature appears to confirm that the combination of lack of adviser support, insufficient ongoing model development, and governance issues have put a stop to Canada's innovation in the field of statistical profiling.

Similarly, Germany offers an example of a country that initially experimented with statistical profiling in the early and mid-2000s. However, it now uses what can be described as "more qualitative assessment tools ("soft profiling") for the identification of client needs."[lxix] These are used to classify jobseekers into four groups depending on their distance from the labour market and the expected duration of their unemployment spell,[lxx] and provide an instructive example of how profiling can occur through alternative methods.

France had a similar experience, and made use of negotiated statistical profiling up until 2009. This took the form of statistical indicators that were reported and then confirmed by caseworker interview where decisions were ultimately made. However, this system was abandoned due to caseworkers rarely using the results generated by the profiling system.[lxxi]

The experience of Denmark offers a different reason for statistical profiling being abandoned. Despite prediction models that performed "relatively well" in terms of predicting unemployment that would last six months or more mark, and an interest in further refining the model,[lxxii] after the introduction and operationalisation of the 'Job Barometer' around 2007/2008,[lxxiii] it was later abandoned due to issues with its predictive power. Since then a new matching system had been introduced by 2011, which features multiple levels of segmentation based on casework assessment combined with the use of the claimant's public assistance record and history.[lxxiv]

Similar to the Danish experience, profiling and segmentation within Switzerland has its roots in the *Statistically Assisted Programmed Selection (SAPS)* programme. In 2005 around 150 caseworkers were randomly selected and provided a series of predictors on potential labour market outcomes, which had been generated from previous jobseeker information and social security records. This was used to produce a prediction about the number of months of stable employment that a given program would deliver.[lxxv] A second methodology for analysing this data was developed in 2006, but since then the use of SAPS has been discontinued.[lxxvi]

Miscellaneous findings

There is a deficit of information amongst a number of profiling examples across the world, not least because in many cases systems are only partially defined and have evolved over time. One example of this is Portugal, where there is a forecast guide to the difficulty of placing an individual in the labour market using a form of attitudinal screening, but a comprehensive review of profiling commissioned by the European Commission could uncover no further details on how it operated.[lxxvii]

Additionally, there are reports that Spain is currently developing a profiling system, but has significant image barriers that need to be rectified before it can be more active in allocating employment support.[lxxviii] Other findings include that Italy uses a form of soft profiling to classify jobseekers into three categories, before interventions are delivered at the discretion of local governments, and that Austria uses caseworker discretion to account for jobseekers' needs.[lxxix] Perhaps the most concrete conclusion that can be reached from this extremely variable set of findings is that adoption of, and enthusiasm for, statistical profiling is extremely variable, even across European countries.

Segmentation in other spheres

Similar techniques have been pioneered across many different spheres across the globe. Identifying the likelihood of factors such as political support have become commonplace in modern political campaigns, allowing decisions about the likelihood of a supportive vote, and subsequently which areas to invest in, to be made with a much greater level of detail.[lxxx] Similarly, behavioural targeting and tracking of internet browsing habits is a powerful technology that allows companies to more effectively target their advertising, making it more nimble, and allowing them to reach a more receptive audience more effectively.[lxxxi]

The areas that these techniques can be used in vary from Basketball to banking,[lxxxii] and they are already used frequently in public policy, with the Economist recently highlighting the use of machine-learning algorithms in healthcare, policing, and criminal sentencing.[lxxxiii] In more contemporary examples, the 24% of British households that subscribe to Netflix[lxxxiv] will experience statistical segmentation every time they look at their unique recommendations.

The point here is that, almost universally and particularly in the UK, welfare systems are lagging behind what is now viewed and accepted as best practice in other public and private sector markets. Alongside emerging evidence of the potential success of segmentation in other jurisdictions, this suggests that there is a significant opportunity to improve service and outcomes by using more effective segmentation in welfare services.

Summary of approaches

As can be seen, there is clearly a wide array of different approaches taken by countries. In particular, there is a subset of countries for whom statistical approaches to segmentation form a core part of their approach, either being the deciding factor, or heavily influencing how and why individuals get signposted to different forms of support. In a much wider array of countries it forms some part of the

system, either in an advisory form, or in an exploratory form. In this sense, the use of statistical profiling in welfare is already substantially behind other fields that have been quicker to adopt these techniques.

CHAPTER 4: LEARNING FROM INTERNATIONAL EXPERIENCE

Compared to the experiences of other jurisdictions, four key lessons can be distinguished when it comes to UK policy on segmentation and statistical profiling. They are that:

1. **The UK lags behind other countries when it comes to the development of profiling tools.**

   Only one serious study on implementing a form of statistical profiling in the United Kingdom has been undertaken (see box 3). Whilst the Work and Pensions Select Committee recommended the development of a tool in 2014, the Department only partially agreed with this recommendation, and further work taking forward the recommendation appears to have been limited.

Box 3: Development and testing of segmentation in the UK

The experience of the United Kingdom has been, so far, limited. Following brief interest in 2005,[1] the most notable advance has been the 2013 development of a model to "…explore the feasibility of developing a tool to predict, at the moment of first claim, the likelihood of a new claimant reaching long-term unemployment."[1] There was also an earlier attempt to understand how attitude could be used to segment claimants.[1]

The 2013 study achieved this through the combination of a telephone survey that asked new claimants a variety of questions including socioeconomic characteristics, education and skills levels, and health barriers. These individuals were then tracked for 12 months to capture their journeys, and the administrative data was combined with the survey data to create a series of models that estimated the likelihood of long-term unemployment (beyond 12+ months).

In the DWP's view, the model generated mixed results, explaining 59% of variation within the model. The author concluded that the model had potential, but there would be limitations including that when it came to operationalising the findings, the error rate when assigning groups (e.g. the top 20% of those 'at risk') would still result in some misallocation.

This finding has value, but only speaks to how effectively the specific model piloted would operate if it were used to take the top JSCI scores and allocate high-cost interventions on that basis. However, accuracy could be improved by further model development, and there is also the possibility that the score used could be operationalised in different ways, for example to specify a cohort within which staff had discretion to refer jobseekers to more intensive support. The experience of providers developing prototype segmentation models, such as the 'Catalyst' model developed by Working Links suggests that there is still an operational benefit that segmentation tools can offer, and that by neglecting to explore these possibilities further, the UK government could be missing a substantial opportunity to improve services.

Further development to refine the DWP model, incorporating a cost-benefit analysis for fast-tracking interventions, and considering implementation challenges was recommended.[1] However, no significant action has been undertaken since these findings, and referral is still carried out primarily using a rules-based system.

Regardless of the approach they have eventually taken, other countries appear to have explored their options to a much greater extent, and the UK would benefit from further work in this area. The DWP did highlight its intention to investigate "…which claimants would respond to a specific intervention,"[lxxxv] and the adoption of in-work progression pilots trialling different interventions[lxxxvi] is a welcome step. However, it does not speak to a wider rethink about how gatekeeper assessment is undertaken, and how the likelihood of long-term unemployment can be predicted and early access to more intensive support provided.

2. The UK still relies on a primarily rules-based system combined with a degree of adviser discretion.

   A large number of countries make some use of statistical profiling, either to determine where jobseekers are sent for support, or mixed with caseworker discretion to provide a useful background for their decisions. In contrast, the UK appears to rely on a rules-based system, with welfare service providers often carrying out their own separate assessments at a later date.

   It is not clear that the UK should definitely adopt a purely statistical system; some countries have implemented these before moving away from them. However, the vast majority of countries appear to have both a more sophisticated approach than the UK, and to have done more intentional design work on their referral system than the UK has.

   Given this, it is likely that there would be clear utility to developing models in the UK that could assist caseworkers by providing them a more complete picture of the individual's predicted distance from the labour market.

3. Statistical profiling may provide better information about the barriers claimants face.

   In Australia and some other countries, the information gathered by assessment tools can be used to assess provider performance and the payments that should be attached to claimants. This means that incentives and resources can be targeted in a much more intelligent way, and that some of the established issues in payment-by-results systems such as 'creaming' and 'parking' can be resolved.[1]

   Without a comprehensive understanding of claimant barriers, continuing to benefit type (e.g. duration already unemployed) may limit the ability of the UK's welfare services to innovate or adopt more advanced commissioning structures. To remedy this, lessons can be learnt from the approach of Australia and the Netherlands regarding how statistical profiling can enhance active labour market programmes in these jurisdictions.

4. The UK should have the requisite data, capabilities, and resources to investigate how profiling could be used to enhance the performance of its own active labour market programmes.

   Countries with similar demographics and levels of public service sophistication (e.g. Australia, the Netherlands, and Ireland) have had success both designing these systems, and also continuously adapting and improving them.

[1] These refer to (respectively) when claimants within a group who are deemed 'easy' to move into work are prioritised for receiving services or 'creamed', and those who are the hardest to move into work are given the minimum support are deprioritised or 'parked'.

CHAPTER 5: WHY THE TIME IS RIGHT FOR CHANGE

Even in the absence of other pressures, these international lessons all point towards the idea that there could be large benefits from the UK developing, testing and potentially rolling out a new approach to segmentation in its welfare system – both with regards to access to specific employment support programmes and for how the conditionality system is tailored to individual capabilities. This new approach could either replace or supplement its current approach.

Wider challenges and pressures in the welfare system also point towards an increased need for DWP to re-evaluate how it rations, tailors and personalises the support available to benefit claimants and the conditions it places on them. These are summarised below.

Trends in employment support

While employment rates in the UK economy are historically high, there are still significant structural issues that need addressing. For example, the Government has made a commitment to increasing disability employment by a million over the next decade. Given the extent of barriers faced by many out of work disabled people (for example, the majority have low or no qualifications, have been out of work for over five years and are not currently seeking work)[lxxxvii] it is likely that to do this, some form of specialist employment support will still be needed, regardless of the strength of the overall labour market. Similar arguments can be made for specialist support for a wide range of other groups, including prison leavers, homeless people and those with caring responsibilities.

The challenge is that the scale of need for this specialist report is likely to far exceed the level provided through contracted support. In part this reflects the existing situation and general finding that demand for public services typically outstrips supply. However, it is also a result of the fact that funding for specialist contracted employment support has been reduced from an estimated £750 million on the Work Programme and Work Choice in 2013/14 to only £130 million on the Work and Health Programme by the end of this Parliament.[lxxxviii]

Ultimately, this means that DWP and Jobcentres will need to ration access to these programmes more rigorously and that, if outcomes and efficiency of the programme is to be maximised, it is even more crucial that it access is correctly allocated to those who would benefit most from it.

This is a point already acknowledged by the DWP. For example, the recent DWP Green Paper acknowledged this fact and the need for a greater degree of discretion across the range of issues an individual faces, noting that "increasingly, our work coaches across Jobcentre Plus will assess an individual's needs and ensure they have access to the right help."[lxxxix] Whilst this was in reference to those with a disability or health issue, it aligns with the 2015 Spending Review, where work coaches became responsible for actions such as more frequent interviews at the early stages of a benefit claim.[xc]

Equally, this point was highlighted in a 2014 enquiry by the DWP Select Committee into the role of Jobcentre Plus in the reformed welfare system which recommended that a segmentation tool be developed,[xci] backing up similar findings from a 2013 report. This mirrors calls from a number of organisations who have noted that a greater diversity of support will in turn require better understanding of how claimants can be best supported into work. Developing such a tool now would ensure that, what limited specialist employment support is still available, is used to its maximum potential.

Making conditionality work for everyone

Despite conditionality being a widely accepted feature of the welfare system, there are certain areas where it has clearly reached the limit of its effectiveness. For example, concerns that there was insufficient information available to claimants about how and why sanctions were applied resulted in the 2014 Oakley review,[xcii] with the Government subsequently accepting all recommendations the review made. Similarly, the Government committed to a pilot a 'yellow card' warning in Scotland in response to concerns that claimants were not sufficiently aware that they were being sanctioned, or what this would mean for them.[xciii]

More recent work from the NAO has also high cast doubt on the effectiveness of the conditionality and sanctions system and, in particular, its impact on vulnerable claimants. This concern was reflected in a DWP Select Committee review into the future of benefit sanctions noted that whilst the Department had issued guidance for identifying vulnerable issues, there was a lack of guidance as to the "level of support vulnerable groups would need in order to fulfil their benefit conditionality,"[xciv] and that individuals with multiple issues might be being "set up to fail."[xcv] The ultimate result is a system which the National Audit Office concluded has not been applied consistently and has in some cases led to worse outcomes.[xcvi]

Overall, there is a growing degree of concern over the impacts of the conditionality system, and making the conditionality system more adaptive to individual needs would be an effective step towards addressing these concerns. The information provided by a segmentation tool could be extremely useful for achieving this goal. This is especially true in a system that the NAO found is currently "linked as much to management priorities and local staff discretion as it is to claimants' behaviour,"[xcvii] an effect that would be limited with a more objective system.

Increasing JCP footfall

The need for JCP to determine the appropriate level of support and conditionality applied to a given individual has been noted above. However, with the advent of Universal Credit it has become particularly important for JCP, and Work Coaches more specifically, to be able to distinguish between the different types of support that will be required, and to deal with a significantly larger flow of claimants.

Specifically, the fact that Universal Credit will bring more recipients into conditionality has been acknowledged. The net result is that there will be a cohort who are in work but subject to conditionality, who will be required to attempt to increase their earnings and 'progress', either through increased hours, or gaining better pay, until they reach the earnings threshold (35 hours at the national living wage. This full in-work conditionality is expected to apply to approximately one million claimants.[xcviii]

These claimants are likely to need substantially different support and interactions from those who are unemployed, both due to the requirements that come from their existing employment, and also the fact that they are likely to have substantially different needs (for example, not lacking work experience). As a consequence, a different level of conditionality is likely to be necessary for them as full requirements would likely be unpalatable. This means that in the same way claimants who are further from the labour market may need more intensive support, those already in it will need alternative interventions and a more light-touch approach to the actions required of them.

Furthermore, the introduction of roughly a million more claimants at a time where JCP is already facing substantial budgetary pressure means that JCP will have to be able to come up with different ways to deal with claimants in a more 'light touch' manner so that Work Coaches still have the time and

resources to direct to the most needy. The net effect on services was acknowledged in a Work and Pensions Committee oral evidence session, where Ross James, a civil servant in charge of UC Labour Market policy noted that:

> *"Clearly to work with 1 million claimants, we need to think very carefully about how we differentiate the service. Do we need to see everybody face-to-face? Can we see somebody through the online service and things like that."*[xcix]

Instead of simply adopting a set of responses depending on if someone is in-work or not, and constantly shifting their services if they cycle in and out of work, a more effective system might be adopting strategies based upon an individual's barriers to sustained work. This may mean that certain interventions were suitable for both those in and out of work. Segmentation would be an effective way of helping Work Coaches make these decisions, and determining which individuals might be suitable for more light touch services ahead of time.

Conclusion

On their own, none of these policies necessarily means that a new approach to segmentation must be adopted. However, in all cases, a greater degree of insight, and a more effective 'up front' assessment of jobseeker needs would help ease the transition, providing an effective and evidence-based pathway into employment support, helping make the conditionality system fairer at the margins, and helping JCP cope with the vastly increased footfall. Segmentation is not necessarily a silver bullet, but the need for it within the UK's welfare system is now stronger than ever.

CHAPTER 6: DESIGNING AND IMPLEMENTING A NEW SEGMENTATION SYSTEM IN THE UK

Based on the evidence collected in this project and summarised in the preceding chapters, we recommend that the UK further explores, and pilots, the development of a statistical segmentation tool to help fast-track claimants to support, and investigates how segmentation could be used to tailor conditionality more effectively to an individual's circumstances.

The question is then how to design that tool and how it can be tested and implemented. These issues are covered in the rest of this report.

Key Design questions

The value of a segmentation tool comes not from some innate use, but rather its ability to rapidly place jobseekers into the correct forms of support, helping reduce the amount of time they spend unemployed, the cost to the government and the chance that unfair or onerous conditions will be placed on them. However, this ability to make services personalised rests upon the assumption that there will be suitably differentiated services that individuals can then be referred to, and that there is sufficient flexibility built into the system. There is little point in asking people to participate in data collection and profiling if we don't have a clear vision of what we want to achieve.

For who?

The first part of this is attempting to triage and understand exactly what the goal of the segmentation tool should be. This could range from assessing which individuals are self-sufficient and creating a lighter-touch conditionality regime, to assessing who should be receiving specialist support. These design questions necessarily start with the question: Who is this tool for?

> Key Design question 1: Is the segmentation tool targeted at a particular subsection (e.g. the unemployed), or a wider group of people who may benefit from employment support (e.g. Universal Credit claimants).

Why?

If we're asking questions then we have to do something with the answers, or there is no point asking them in the first place. This means that a key question if the Government is serious about segmentation is "into what"?

In the context of significant reductions in contracted employment support, this suggests that either the scope of segmentation will be relatively narrow, or that the Government will have to consider the provision of specialist services for identified needs.

This is not to say that a radical rethinking will be required, but an idea of exactly what interventions follow allocation into different profiles, and what that means for welfare-to-work schemes is required to make segmentation meaningful.

> Key Design question 2: What are we aiming to segment into, and what does this mean for the structure of Active Labour Market Programmes?

Of course, this is not just about Active Labour Market Programmes. As noted previously, another area where segmentation could have implications is in the conditionality regime. Indeed, more accurate segmentation would offer a potential way to identify and recognise that certain individuals might be more vulnerable than others, and that the conditionality regime may need to adapt accordingly.

Ultimately, alongside varying the level of support, the other question that introducing segmentation presents is how and why the level of conditionality will vary.

> Key Design question 3: How would segmentation affect conditionality, and would it alter depending on the groups an individual is placed in? If so would this be done through the claimant commitment?

When?

It is clear also that segmentation tools can be given a varying degree of importance, ranging from tools that advisers simply have the option of using, to authoritative tools that set specific rules that determine the support individuals receive and are not overridden. Taking the experience of other countries, and accounting for the current configuration of the UK's welfare to work services, a plausible place for the segmentation tool to work would be to provide recommendations to advisers at the start of the claim, and to be consistently refined with inputs from subsequent meetings.

The concept of a 'decision support tool' is well established and well used across government and the public service. It would be a way of supporting caseworkers in making decisions, whilst still allowing an element of local knowledge, awareness, flexibility, and discretion. Using the tool, if designed properly, can help to avoid situations where caseworkers default to more extreme options (on both sides of the scale), or would not be able to fully collect, interpret, and understand a variety of risk factors. Even if, for example, the UK decided to stick to a form of rules-based profiling, statistical profiling could still be used to inform some of the rules applied in a way that is significantly more sophisticated than current time-based rules.

Striking a balance where the segmentation tool removes some of the burden placed on JCP's capacity and simultaneously permits a sufficient level of discretion will be challenging. Private sector approaches, where some forms of segmentation are currently being piloted, often have advisers with a significantly higher level of capacity and specialisation.

Ensuring that whatever model is developed can work at scale will be crucial. Thus, there are also questions about whether or not different elements of design or a scaled segmentation tool could be used, for example with a simpler model as a gateway segmentation tool, followed by a more advanced one for assessment if an individual is deemed as needing more specialist support.

Nonetheless, expert advice, and evidence from across the world, suggests that decision support tools are more likely to be more effective than tools that simply prescribe actions they have no control over. This brings implementation challenges, but boosting understanding of the tool will ultimately mean that it can be used as part of the existing system to provide better referrals, in turn improving lives and outcomes.

> Key Design question 4: What role should the tool have in the process, acting as something to advise caseworkers, or as the decision maker itself?

How does this affect Payment by Results?

Paying for success is a fairly intuitive concept, and has formed a large amount of the Government's commissioning framework, particularly since the creation of the Work Programme. However, one of the key issues has been the lack of information to pinpoint the exact distance that an individual is from the labour market. As highlighted earlier, this has significant impacts on the performance of the programme and is a key driver of creaming and parking.

Better designation at the start of a claim could help provide a much better estimation of an individual's future risk of long term unemployment, in turn providing perspective on the distance that individual is from the labour market, and how much support they should be receiving. This could potentially provide a better indicator of the amount of resources needed to return someone to work, and the overall performance of a provider. The data created by segmentation tools is used for similar purposes in Australia where the 'star rating' system that is used relies heavily on data from the JSCI.

There are additional factors that may need to be drawn in when considering how results are tracked or how payments are distributed. For example, local labour markets will have to be accounted for when assessing outcomes, as well as future events in an individual's life that means their status changes. This would be particularly true if providers expected a particular group to have a high level of reassessments that would result in their outcomes payments decreasing. In either case, there is a high likelihood that payment by results would be enhanced by a greater level of information, but the extra complexity that such a process might add will have to be considered carefully.

> Key Design question 5: To what extent should payment by results incentives be informed by results from the segmentation tool, and how would this interact with other design choices?

Conclusion: Choices for design

As we can see, many countries take different approaches to segmentation. The one thing that unites them is that they are generally more sophisticated, considered, and intentional than the UK's current system. After that point, there is a large degree of variation within the different models, but as the UK moves to consider how its own system could be improved, it will be vital to take early decisions on what the intention of the model would be, and make several design decisions ahead of time in order to develop clarity over what the desired 'end state' of the tool would be.

Key Process questions

Aside from specific design choices, there are a number of more general questions that surround segmentation, regardless of the model used. A failure to take both these choices and the experiences other jurisdictions into account before implementing segmentation would create a significant risk that the tool is a failure.

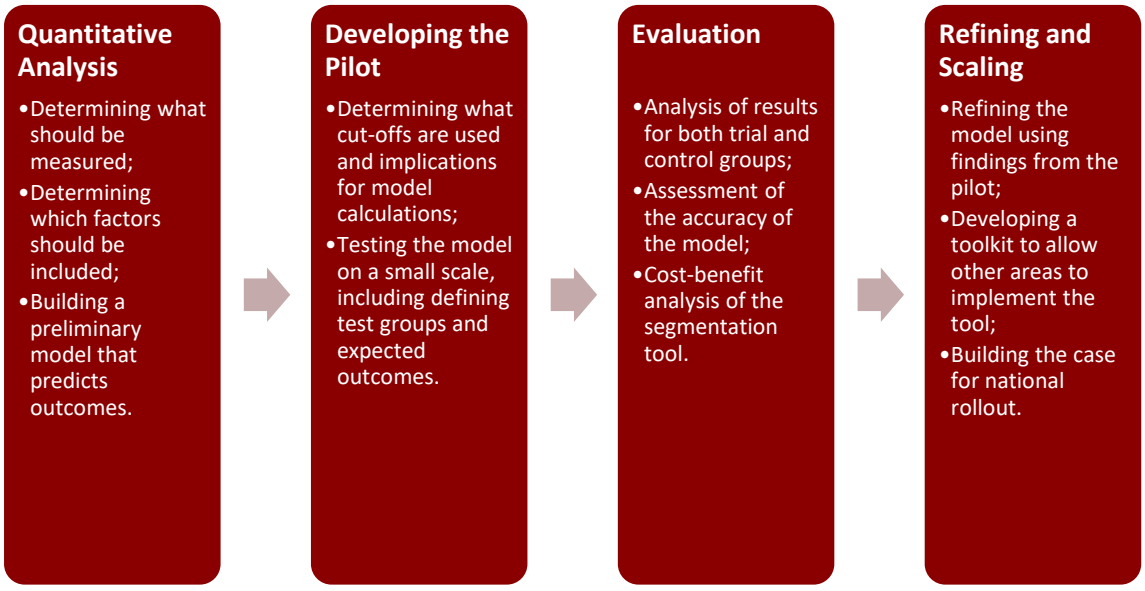
What should the development process be?

A model designed without a careful and staged development informed by the data is unlikely to succeed. Simply implementing a model from another jurisdiction would result in an inaccurate and potentially misleading model as the labour markets will be different, as well experiences with issues such as systemic unemployment, mental health, or cultural attitudes to work. As an example, simply lifting the Australian JSCI model and applying it to the UK would include many variables or characteristics that would be irrelevant in the UK (for example, the tool records whether someone is from Aboriginal background). Even if these were removed, the weighting would likely be incorrectly calibrated to the United Kingdom's labour market. The same would likely be true with mixed or adviser-based models.

Instead, it is worth noting that the majority of investigations have started with a full audit of the available data and testing the effects of different variables and inputs. These are then built into pilots, followed by wider implementation and testing. Whilst this is not the universal experience, the sheer amount of countries that have stopped after the first or second phase suggest that a more iterative approach is the most sensible one.

In practical terms, this would look something like the sample development process outlined below. Illustratively, it would be entirely possible for the pilot phase to occur over the next 2-3 years, followed by evaluation and refinement. If this broad schedule were followed, it would be possible for a more accurate system to be fully in place by 2025.

Box 4: Sample Development Process:



The UK already has made a preliminary attempt to expand its understanding of the factors that determine long-term unemployment. A good immediate step would be to build on this work, identifying which factors are statistically significant, and others that could be used for consideration. Pilot studies could be used to implement a preliminary model both with a view to testing segmentation, but also to informing variable selection in a manner similar to when the Dutch model gradually reduced the variables under consideration.

As part of that process, experts will need to be consulted on a number of particular issues. For example, including variables such as the amount of benefit received would be distorted by Housing benefit levels, meaning this may not be the most appropriate variables to include. Similarly, as noted above, geography will have to be included in a way that does not distort other elements such as making each commissioning area attractive for providers. In all of these cases, careful variable selection will be key, and is best facilitated by a gradual testing of relationships within data, prior to rolling out segmentation.

Once these relationships and linkages are understood it is then vital to carefully filter the number of factors that might affect an individual's unemployment duration down to only those that are highly impactful. Without doing so, the model will become too unwieldy to be of proper operational use. Collecting information in excess of strict need would also risk increasing concerns surrounding data privacy and security. It would also break principles outlined by the Information Commissioner's Office.

This suggests that consideration of the best factors to include will likely be an iterative process, with questions and information moving in and out of the tool as it develops (i.e. if one variable is added, the principles should not be that this adds to the overall number of factors considered).

Recent examples have shown the importance of this as it has become clear that a number of 'softer' variables may be extremely powerful indicators. In particular, recent evidence has suggested that motivation, claimant perspectives on their own barriers, and other attitudinal variables may be much more useful than demographic factors. The Australian model has recently investigated including such variables on jobseeker attitudes.[c] An effective development process would include these factors where appropriate, and reassess whether the existing range of information remains relevant or whether collection could be ceased.

Who should be involved?

Creating a segmentation model, testing it, applying its findings to welfare-to-work services and conditionality, and then scaling it will be a complex task, and one that does not lend itself to a sudden top-down implementation across the welfare space. The most effective way that it could be developed and implemented in a practical way is through substantial development, testing, and piloting at a smaller scale, before a gradual rollout.

This type of iterative process would permit the accuracy of the model to be tested, and issues such as data-sharing to be overcome before roll-out. It is the type of approach that has been adopted during the implementation of Universal Credit, precisely due to the large-scale implementation challenges that alterations to the welfare system face.

Piloting a new approach to segmentation means that both a clear location, and a high level of expertise will be necessary. On the former, the existence of both a mature market for specialist employment support, and the increased powers devolved both to Scotland and to city-regions under city deals mean that there is the opportunity for models to be tested, piloted, and ultimately implemented at a sub-UK level. If successful, they could then be rolled out to other areas as the evidence base is built, and lessons specific to the UK are learnt.

To be scalable, a pilot will have to be designed not just with the immediate needs of the local area in mind, but also with a wider view of scalability, and a design that permits a robust evaluation and cost-benefit analysis. Thus, alongside local partners, sector experts in design, evaluation, and implementation will need to be part of the process, helping facilitate, and scale, a pilot, and later wider implementation.

Managing change

Notably developing a model is only part of the challenge. The key question becomes how the information should be utilised and whether it makes financial sense to adopt segmentation. In this sense the experiences of other countries are less informative. On the one hand interventions will have different costs in different jurisdictions, meaning results are less transferable to the UK. Furthermore, given the innovative nature of the policy, studies have generally focused on overall statistical accuracy of models, rather than overall cost benefit analysis.

This situation is best summed up the European Commission who commented that "…another gap concerns cost-benefit calculations with regard to early intervention. Do the advantages of an early assessment followed by targeted assistance in order to reduce the detrimental effects of (long-term) unemployment outweigh potential deadweight effects of early intervention."[ci]

Additionally, tools are only useful insofar as they are effectively adopted by decision-makers. In several cases such as Canada's, limited use by caseworkers meant that an otherwise highly predictable model was not able to effectively improve public services and their delivery for jobseekers or government.[cii]

There is an important implementation lesson here; insofar as a classification instrument or model delivers results that do not align with caseworker expectations, the reasoning and rationale must be carefully explained. Trust must be built between decision-makers and the process the model uses, and implementation, change, and attitudes towards segmentation must be carefully managed. Whilst a system that uses pure statistical profiling can be less cautious about this particular element, there are additional challenges that would then have to be considered regarding how the model, its findings, and its recommendations are communicated to jobseekers themselves.

Data collection, protection, and sharing

The effectiveness of segmentation models is also dependent on the quality and nature of data used. In each of the cases highlighted there have been a range of different data sources, from separate collection of specific variables to the use of admin data and secondary datasets. A first step will be taking a clear inventory of the available datasets, asking which could usefully be combined, understanding where more data might need to be collected to fill gaps and, importantly, assessing the risks of bringing information together in this way.

A key question to answer here is whether segmentation will actually require the aggregation of data from a multitude of different sources. While other countries have taken this approach, in the UK context, this presents a practical and ethical concern. In practical terms, one of the reasons that such assessments are not currently undertaken is that different information that might be relevant (for example, housing status, education levels, and health information) are held by different departments, or levels of government. Sharing this information across departmental boundaries is notoriously difficult and doing so, understandably, requires a high burden of proof in terms of the benefit to individuals involved and public and the protections and safeguards that are in place.

Whilst this can be challenging, it is not an insurmountable barrier. For example, data sharing possibilities have (relatively recently) been opened between HMRC and DWP and the Digital Economy Act 2017

opens up the possibilities for wider data sharing where there is a clear benefit to doing so. Work is already underway to explore the possibilities that this presents for improved public sector delivery. For example, the Administrative Data Research Network is bringing together government, academics and delivery agencies to understand whether and how data could be used to improved delivery in a range of areas.[ciii]

However, in practice (and based on discussions we have had), developing these arrangements is likely to be a fairly lengthy process. It is also, as yet, unproven that joining up these data could provide distinct benefits over and above those which might be secured by using the data that is already help more effectively, and combining it with demographic and motivational information collected from the claimant. Once data sharing arrangements, security and protections are in place, DWP and others can then explore whether additional accuracy and operational benefits might be achieved by using these data alongside that already collected.

Conclusion: Choices for process

Regardless of specific design decisions, there are a number of fundamentals that have to be considered, and where there is at least some guiding influence as to what 'best practice' is from other countries. In particular, as the UK considers designing segmentation into its welfare system in a more explicit manner, it will have to consider:

- The process for selecting variables and designing the algorithm;
- The process for piloting the new approach, evaluating results and feeding back the results to contribute a process of constant evolution and improvement;
- How caseworkers, claimants, and others will have to managed onto the new system;
- How data should be collected and managed;
- How to better use already available data within DWP and information that can easily be requested from and shared by the claimant; and
- Whether and how data can be shared across different departments and levels of government, in order to develop a more accurate picture of needs in future.

CHAPTER 7: THE NEXT STEPS FOR WPI ECONOMICS

It is clear that taking a more nuanced approach to assessing and understand claimants' needs is increasingly important in the modern welfare system. It is also clear that substantial testing and development will be needed to turn this from a concept into a reality. Given this, in the next year WPI Economics intends to take three steps to pursue the cause of segmentation:

1. Making the case for a segmentation tool in the UK.

   This phase of work will focus on further developing the case for segmentation, and exploring in further depth how dynamics such as the creation of the new Work and Health Programme will affect the need to increase our understanding of claimants, their distance from the labour market, and how we might help them.

2. Bringing together practitioners to ensure lessons are learned.

   This will involve creating a practitioner group where experience and best practice can be shared, connections made and lessons learned as work in this area is taken forward. This will also include supporting the development of a common framework for understanding and evaluating segmentation, so that themes can be explored and approaches scaled if the results are found to be successful.

3. Supporting areas seeking to develop a segmentation tools.

   We will continue to actively share the research and conclusions that have come from this project. We will continue to actively share the research and conclusions that have come from this project. As well as proactively seeking out local areas who may be interested in these results, we will seek to share best practice from the practitioner group as well as helping areas that we have not yet identified, but which are taking forward similar work.

We intend to carry out these steps, with the goal of further developing the capability that the UK welfare system has to be fairer, more effective, and more personalised. Working with partners in industry, the non-profit world and government, we hope to build a segmentation tool that helps improve outcomes across the UK.

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