

SUPPORTING UK FINTECH: ACCESSING A GLOBAL TALENT POOL

A study of possible workforce
implications of a change in
immigration policy on UK FinTech

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About this report and acknowledgments

This report models the potential effects on the Financial Technology ('FinTech') sector of future changes in the UK's immigration policy post-Brexit. Given the relative paucity of data on the potential scale and nature of these effects, this report uses a combination of assumptions derived from a literature review, structured telephone interviews, a survey of FinTech companies, and analysis of administrative data to model the impact of a change in immigration policy on the FinTech sector.

The primary audience for the report is the Migration Advisory Committee (MAC) – an independent non-departmental body which advises the government on issues related to migration. However, the report's findings and conclusions will also be relevant to labour market economists, public policy researchers, those with an interest in the effects of Brexit and those that work within FinTech.

The authors are thankful to a large number of businesses who contributed to our understanding of the sector, their businesses and the potential impacts of Brexit, both through their responses to the industry survey and for sparing the time to discuss with us in detail.

Disclaimer and legal

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About Innovate Finance

Innovate Finance is an independent membership association that represents the UK's global FinTech community. Founded in 2014 and supported by the City of London and Broadgate, Innovate Finance is a not-for-profit that advances the country's leading position in the financial services sector by supporting the next generation of technology-led financial services innovators.

More than 250 global members have joined the Innovate Finance ecosystem to date. These companies range from seed stage startups to global financial institutions and professional services firms. All benefit from Innovate Finance's leading position as a single point of access to promote enabling policy and regulation, talent development, and business opportunity and investment capital. By bringing together the most forward-thinking participants in financial services, Innovate Finance is helping create a global financial services sector that is more sustainable, more inclusive and better for everyone.

About WPI Economics

WPI Economics is a specialist economics and public policy consultancy. We provide a range of public, private and charitable clients with research, modelling and advice 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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Key Messages

UK Fintech is highly dependent on global talent and innovators, including EEA workers, to fill highly skilled and often technical positions.

42%

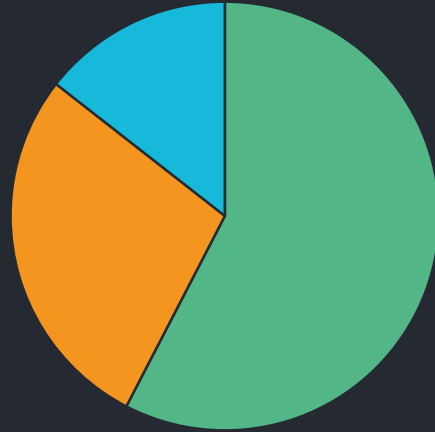
of the surveyed workforce were from overseas

14%

of the surveyed workforce were Non-EEA migrants

28%

of the surveyed workforce were EEA migrants



58%

of the surveyed workforce were UK Nationals

It is highly likely that a large proportion of these workers are complements to, rather than substitutes for, the UK national workforce.

62%

of companies said the most common role for EEA migrants was computer and software development



36%

said the same for UK nationals.

54%

of firms said EEA migrants were important to founding their business,

29%

thought their business would exist in its current state without the involvement of EEA migrants.



“ *The ability to recruit and retain talent is fundamental to the growth of UK FinTech* ”

The UK FinTech sector is fast growing and innovative. Our baseline modelling suggests that the sector will continue to grow between now and 2030. This means that it will need approximately 33,500 EEA migrants to enter the workforce, particularly those with high skills.

Our surveying and in-depth interviews with UK FinTech firms suggest that they are aware of this fact, and the potential move to a more restrictive immigration system is viewed as detracting from the attractiveness of the UK as a place to do business.

It is most likely that the system for EEA migrants will move closer to the existing system for non-EEA migrants to the UK.

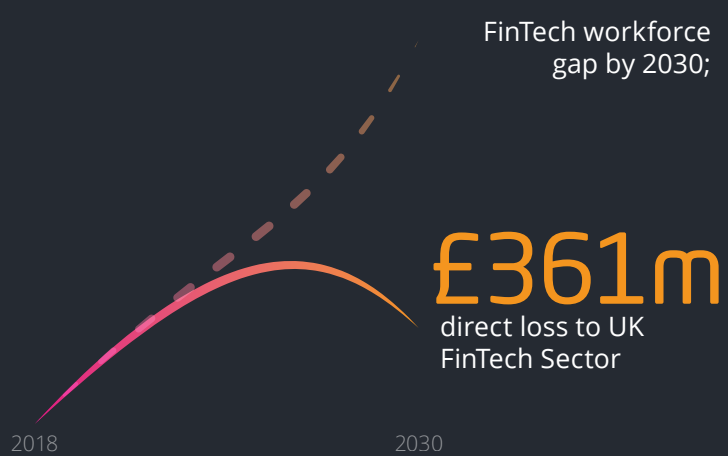
If this were the case, this could limit the ability of FinTech firms to attract and retain the global talent they need to thrive.

Our central (but conservative) scenario projects a small, but significant, cumulative shortfall of highly-skilled EEA workers.

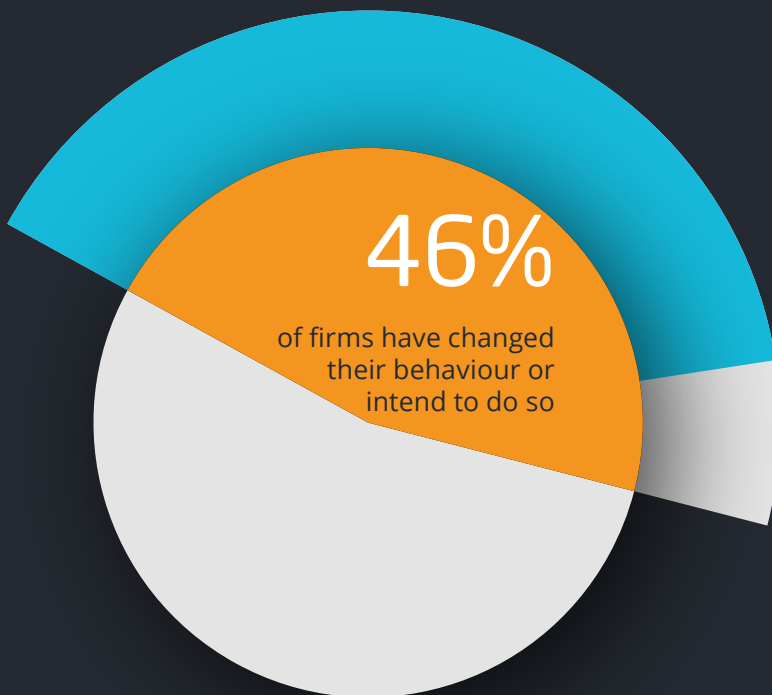
This would equate to a:

3%

FinTech workforce gap by 2030;



If the sector were to grow faster, or if the immigration system were to become more stringent, then we would see this shortfall accelerate rapidly.



86%
of those firms are considering re-locating outside of the UK



Foreword

by Charlotte Crosswell, CEO, Innovate Finance

There are some sectors in which the UK is already world leading, and Financial Technology - or FinTech - is one. The UK may be the financial capital of the world, but as the world changes, the innovation that FinTech brings is critical to keeping us there. From fundamentally changing the way we save, manage and borrow our money, to creating a more pluralistic financial services sector, FinTech represents not just a growth sector in its own right, but is key to the future prosperity of Financial Services in the UK.

The UK FinTech sector is relatively small but thriving, already representing a total workforce of 76,500 employees. Its growth has been fast, with UK FinTechs continuing to attract significant investment, with a high of \$1.8 billion of venture capital invested across 224 deals last year. The strength of the sector to date reflects an exceptionally strong ecosystem of institutions and startups, working within a competitive and innovative UK economy, and with a world-leading regulatory environment.

However, the success of UK FinTech is critically dependent upon talent - talent which is in short supply both domestically and globally. In an increasingly competitive global landscape, the attractiveness of the UK as a location for innovators, entrepreneurs and new firms alike will play a major role in the future of the sector, and the difference that FinTech can make to the UK.

This report, commissioned by Innovate Finance and produced by WPI Economics provides new data and analysis on the importance of attracting and retaining talent for UK FinTech, and insight into how changes to immigration policy post-Brexit may affect the sector.

The global shortage of talent in the FinTech sector means that there are no easy answers. Our conclusions are therefore inevitably challenging. However, we hope this report will advance the evidence base to support an approach to both domestic skills growth and immigration, illustrating the opportunities for UK FinTech, which ultimately will see the UK thrive.

To this end, we have also followed this report with our own set of guiding policy principles which we believe sets the groundwork for further consultation with our members, as well as key partners in finance and technology. These principles will also shape a series of policy recommendations in support of a more balanced approach to accessing global talent and developing local skills, and these will be published later this year.

I know that I speak not just for Innovate Finance, but also for the hundreds of FinTech members we represent, to say that we are committed to working with stakeholders and policy makers alike to ensure we continue to support the vibrancy of the UK's FinTech sector post-Brexit.

Executive Summary

Context

This report considers the potential impact of future changes to the UK's immigration system on the workforce of the UK's Financial Technology (FinTech) sector. The context is the Government's request that the Migration Advisory Committee (MAC) advise on the, "economic and social impacts of the UK's exit from the European Union and also how the UK's immigration system should be aligned with a modern industrial strategy."¹ Following this request, the MAC released a consultation to inform their work. This report responds to specific requests for information in that consultation and, more broadly, provides original insights into the scale and nature of the UK FinTech sector's workforce, how it might change in the future and how a more restrictive immigration system could impact on these changes.

As with all sectors across the UK economy, changes in immigration policy post-Brexit could have a wide range of impacts on the FinTech sector. Some of these will be positive, whereas others will present challenges to the sector. For example, if changes in immigration policy were used to drive an increase in high-skilled immigration into the UK, businesses and UK productivity and growth would benefit. However, given the Government's ongoing commitment to reduce overall net migration, it seems more likely that (compared to the current situation) changing immigration policy will lead to more stringent rules and visa application processes, particularly for potential EEA migrants. If this were the case, the effects could negatively impact on UK businesses, productivity and growth.

Understanding the impact of these changes is complicated by the fact that the nature of the future immigration system is currently uncertain and that there is a lack of data on the FinTech workforce and its potential future trajectory.

Uncertainty in the future immigration system

While a number of routes are still possible, it is likely that the UK's immigration system with regards to EEA workers will become more aligned to that currently used for non-EEA workers. However, the lack of detail makes it impossible to model with any kind of certainty the exact nature and impact of changes to future immigration policy.

Instead, we have chosen to model a broad scenario of the system of immigration for EEA workers becoming more restrictive as the UK ends freedom of movement for this group, and moves towards a system with a greater degree of control. This is most obviously characterised by the treatment of EEA nationals becoming more like that of non-EEA nationals (e.g. subject to requirements such as a minimum salary, greater conditions placed on employers, and successful application for a particular visa type).

While it is feasible that, within such a system, skills needs of businesses within the FinTech sector could be effectively targeted, so that overall supply is not reduced, the balance of probabilities is that it will become harder for FinTech firms to secure the workforce that they need. This conclusion is supported by the surveying of FinTech firms that formed part of this research; of those respondents who had employed both EEA and non-EEA migrants, 82% agreed that, compared to EEA migrants they faced "additional difficulties when attempting to recruit and employ non-EEA migrants". Attitudes were well summarised by the following quotes:

“ “Visa rules are too complicated and onerous to be worth the investment for a firm our size, we simply won't consider candidates without current right to work.”

“The visa sponsorship process is complex, time consuming and expensive.”

“Having to sponsor non-EEA migrants means additional obstacles and delays in the hiring process, significantly restricting our talent pool.”

Lack of available data

Comprehensive data on the UK FinTech sector is scarce. This is due to the rapid growth of the sector in recent years, as well as the lack of government datasets and definitions to catch up with changing sectors. In particular, Standard Industrial Classification (SIC) and Standard Occupational Classification (SOC) codes do not account well for companies which span multiple industries, presenting a particular challenge for measuring impacts across the intersection of Financial Services and Technology.

To overcome these challenges, we have used a set of research steps to provide an innovative approach and a picture of how the sector is likely to respond to significant changes in how its workforce is recruited. This includes:

1. **A wide-ranging review of existing evidence:** We surveyed existing literature and existing policy to understand the current evidence about the scale of migration to the UK and the extent to which FinTech companies are reliant on migrant workers. This acted as a base that our methods built on;
2. **Surveying FinTech companies:** To fill data gaps and explore how the sector plans to respond, we distributed a survey across a wide range of different FinTech businesses, asking specific questions that informed our assumptions. The survey was issued to a total of 1,100 FinTech firms. We received just short of 100 responses to a variety of questions including their workforce composition and expected responses to different immigration scenarios. A full copy of the survey can be found in Annex 1;
3. **Interviewing FinTech companies:** To get a greater degree of insight into the factors motivating FinTech companies to respond as they did, we interviewed a subset in order to understand the context around their decisions, and the critical points that would motivate them to change their business practice; and
4. **Original analysis of official data:** In addition, we undertook an analysis of returns to Companies House from a random sample of 100 FinTech firms.ⁱⁱ Since these returns regularly have an indication of “average staff levels” throughout the reporting year, we were able to use these to gain a sense of the scale of the growth of this sample of FinTech firms. This served to verify the other sources of data we were using, and to get a sense of the overall level of accuracy of our primary research.

We used these data sources to make a series of different assumptions about how the FinTech sector would grow in the future, and used these to create a set of scenarios to predict how the sector would evolve over the coming decades. These scenarios vary depending on factors such as the assumed rate of growth in the sector, and how strict the immigration system becomes after the UK leaves the EU. Our goal in developing these scenarios was to capture the full range of possibilities and, given the levels of uncertainty, to understand how the sector would be affected in a variety of different circumstances.

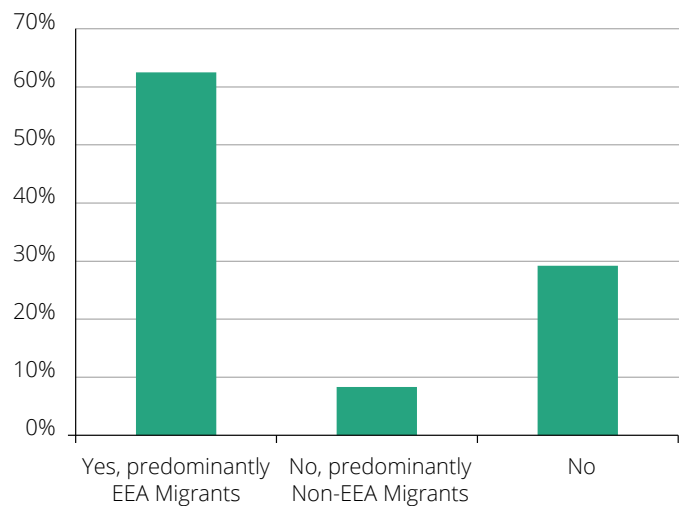
FinTech growth and the immigrant workforce

FinTech is a sector in which the UK has a strong competitive advantage. Globally, the UK ranks second in the world by VC deal volume, and by total investment, indicating the strength of the UK’s performance in this area. Figures for 2017 show that, VC investment into FinTech start-ups totalled \$1.8 billion, a 153% increase year-on-year compared to the previous period in 2016.

Reflecting this strength, FinTech is a sector that is important to the Government’s Industrial Strategy and to delivering the Government’s objectives of reducing concentration in the UK’s banking sector, and driving competition within the financial sector.

As well as demonstrating significant growth and contributing to other UK sectors, UK FinTech also generates a large volume of high-skilled employment. New estimates suggest that 76,500 people are employed in UK FinTech, with that number expected to grow rapidly in coming years.ⁱⁱⁱ Here the importance of immigration, and future challenges that changing policies post-Brexit could bring, are clear; where some 28.1% of the UK’s FinTech workforce are estimated to be EEA migrants, and another 14.4% to be non-EEA migrants. FinTech firms responding to our survey demonstrated that the immigrant workforce is essential in allowing them to meet a skills need (Figure 1).

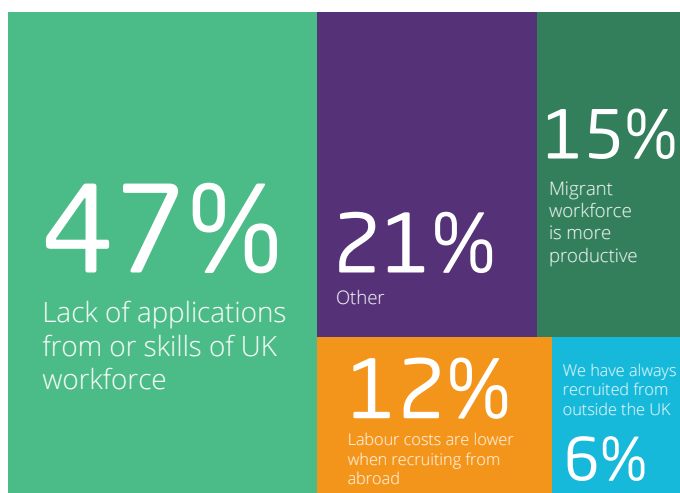
Figure 1: Firms’ response to whether they rely on recruiting migrants to meet a skills need



Source: WPI Economics’ survey of FinTech firms

When asked about the reasons for relying on migrants, respondents suggested that it was due to a lack of skills of the UK workforce or a lack of applications from UK nationals (figure 2). This suggests that the immigrant workforce was providing a complement to UK nationals, rather than being a substitute.

Figure 2: Reasons for relying on immigrants to fill a skills need (of firms who say that they do so)



“Other” includes responses such as:

- “The right talent mix – skills, grit, and personality mix.”
- “We will always look for the best wherever they come from, and we see diversity of culture as an important contributor to our success.”
- “London and the UK have been a desirable ‘HQ location’ for many businesses that operate across different European jurisdictions. To operate in this way requires a mix of native speakers to work here in the UK. Our business, although small at this stage, has followed the same concept of taking on native speakers to eventually cope with expansion into other markets.”
- “As a global service, diversity is important.”
- “Being in London and running a global business requires a diverse workforce which cannot be sourced from UK nationals only.”

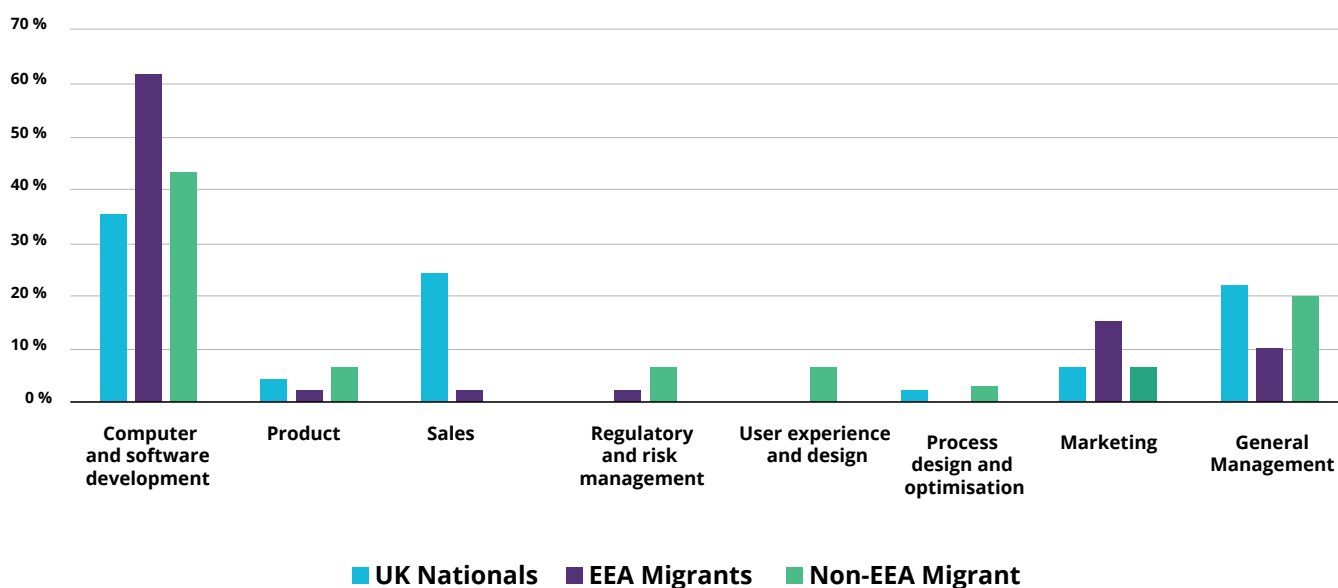
Source: WPI Economics’ survey of FinTech firms

This conclusion is supported by the fact that the immigrant workforce is over-represented in high-skilled job roles such as computer and software development (figure 3) and research suggests that the UK is suffering from a “homegrown” digital skills shortage^{iv} (this is further discussed on page 20).

As well as providing a vital part of the FinTech workforce, migrants play a key role in company formation. Over half of respondents to WPI Economics Survey of FinTech firms suggested that EEA migrants were important because of their involvement in the firms founding process. This is supported by previous evidence from the Centre for Entrepreneurs, which estimates that migrant founded companies employ 1.16m people across the UK, and note that digital start-ups comprise a “significant subset” of this group.^v Research from Innovate Finance also estimated that 30% of the founders of their start-up member base were born overseas.^{vi}

As such, it is clear from the surveying of FinTech firms and in-depth interviews that formed part of this research, that continued growth in the sector will rely on growing this skills base and ensuring that the UK remains an attractive place for global talent and innovators. This suggests that due to the nature of the workforce, the FinTech sector is highly exposed to a change in the immigration settlement post-Brexit, and that a restriction on the movement of workers, and in particular EU workers, could limit its growth and prosperity.

Figure 3: Proportion of firms responding that this was the “most common” role for each migrant group



Source: WPI Economics’ survey of FinTech firms

Modelling the impact of changes to immigration policy on the FinTech sector

There are a number of ways in which a more restrictive system could impact on the sector. These include:

1. Direct effects leading from a shortfall in talent.

Here, a more restrictive immigration system leads to a reduction in the number of immigrants coming to the UK to work in the sector. Given the complementarity of immigrant labour, this suggests that this will lead to an overall shortage of talent for the sector.

The modelling focuses on this primary effect and attempts to estimate the potential size of this mismatch in labour supply and demand.

2. Knock-on effects of reducing the attractiveness of the UK as a place to work and build businesses.

A more restrictive immigration system could also have much broader effects, for instance by making the UK a less attractive place for global talent to work and / or found businesses.

These effects are much harder to quantify, but are equally (if not more) important as the direct effects. Predicting these effects is not the primary goal of the modelling in this report, but a discussion and scenario analysis is presented.

Overall, the model is structured to:

- **Create a baseline:** To quantify how the business composition and employment composition of the FinTech sector will change until the year 2030;
- **Estimate immigrant labour demand:** Using the baseline above to estimate what it would mean for the FinTech sector's demand for immigrant labour;
- **Apply scenarios of changing immigration rules:** To estimate what would happen to the supply of immigrant labour if the immigration system became more restrictive; and
- **Estimate the impacts:** by combining the estimates of demand and supply to understand the potential gap created by changes in immigration rules and assessing the potential impacts on businesses.

To do this requires a set of data sources and a number of assumptions, both of which are set out in the main body of the report. The scenarios for sector growth and restrictions to immigration are outlined below.

Growth rate scenarios

The model uses three growth rate scenarios to reflect both past experience and potential changes to this experience in the future.

The scenarios are:

- **Central scenario:** Growth in the number of FinTech firms in the UK starts at the 11% average seen since 2009 and that, over the forecast period, this rapid growth gradually reduces to a rate that is consistent with similar sectors.^{vii} Overall, this equates to an average growth of the UK FinTech population of 5.7% up until 2030, suggesting that by 2030 there will be around 3,300 FinTech firms operating in the UK.
- **Low scenario:** The number of FinTech firms in the UK grows consistently at a rate that is similar to that of other sectors at around 4% a year from 2017, rather than converging to it.
- **High scenario:** The number of FinTech firms in the UK grows at a rapid rate of around 11%; this is the average growth rate of FinTech firms being founded in the UK since 2009.

Scenarios for immigration restriction

Three scenarios of immigration restrictions are based on the system for EEA immigration becoming more like the current system for non-EEA workers. For each scenario, the modelling only applies the impacts of assumed restrictions to the expected number of highly-skilled EEA migrants (and some medium-skilled EEA migrants) that the FinTech sector will need. It is assumed that the sector will be able to substitute away from all low-skilled and some medium-skilled EEA migrants by hiring UK workers.

The scenarios are:

- **The central scenario:** applying the performance of the existing visa system for non-EEA migration to EEA migrants in future. The model's central scenario is that 13% of visa applications from EEA migrants wanting to work in FinTech get refused under a post-Brexit immigration system. This is the average rate of refusal for non-EEA immigrants between 2010-2017.
- **The low scenario:** that no visas applications from EEA migrants wanting to work in FinTech get refused under a post-Brexit immigration system, reflecting the fact that the system may simply become more bureaucratic.
- **The high scenario:** that 19% of visa applications from EEA migrants wanting to work in FinTech get refused under a post-Brexit immigration system, reflecting the largest annual average proportion of visa refusals to occur since 2005 (when the new non-EEA visa system was introduced).

In each scenario, we assume that restrictions are put in place following the implementation period post-Brexit. As such, impacts begin to be seen from 2021. In practice, anticipation effects are likely to be seen prior to this point and, as such, these findings present a conservative estimate of the potential impacts.

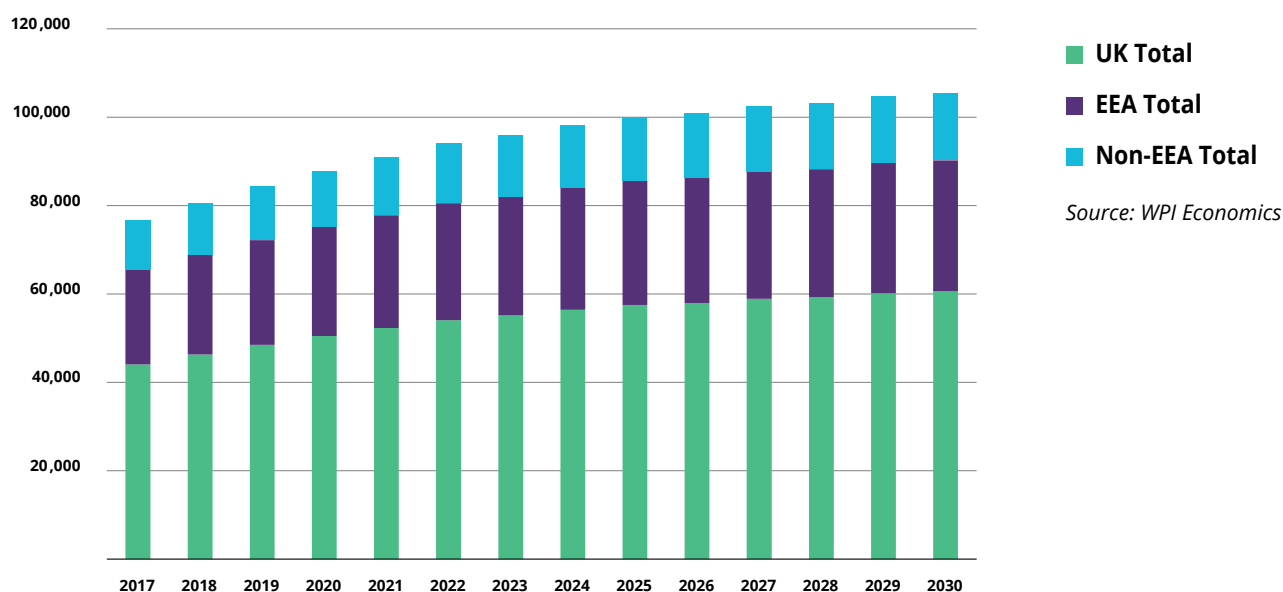
Headline findings

Total workforce

Our baseline scenario estimates the total growth of the FinTech workforce if there was no change to the current immigration system, and if it therefore remained simple and easy for EEA workers to move to, and work in, the UK. Figure 4, demonstrates this estimate, split into groupings of migrant workers.

The total workforce grows from around 76,500 in 2017 to around 105,500 in 2030. With this total, UK workers grow from approximately 44,000 to 60,500, EEA workers grow from 21,500 to 29,500 and non-EEA workers grow from 11,000 to 15,200.

Figure 4: FinTech workforce in the UK (if the immigration system did not change) 2017-2030



Immigration restriction impact

Under our central scenario, we predict that increased restrictions on immigration would lead to shortages in the FinTech workforce due to the following factors:

- **Demand for EEA workers:** Our forecast suggests that UK FinTech will need to recruit approximately 33,500 EEA workers between 2017 and 2030 if it is to meet its expected growth targets and replace staff lost to turnover.
- **Reduced supply of EEA workers:** The scenario suggests that increased restrictions will cause a shortfall of over 3,200 EEA workers between 2021 and 2030. Based on 2017 figures, this equates to the workforce of 67 FinTech businesses.

The purpose of presenting different scenarios is to reflect the uncertainty attached to how the FinTech sector will evolve, and what future immigration policy will look like. Any combination of scenarios of these two variables is possible, and the results of these different combinations are outlined in the below table.

Table 1: Modelled estimates of the employment gap created by changing the EEA immigration system post Brexit

		Sectoral Growth		
		Low	Central	High
Migration restriction	No restriction*	Negligible	Negligible	Negligible
	Central	2,600	3,200	7,200
	High	3,700	4,700	10,500

Source: WPI Economics

* This scenario accounts for an immigration system that does not result in a reduction in the number of EEA immigrants, but comes with increased bureaucracy. While there would be no direct effects, there would obviously be potential demand and supply-side responses to increased bureaucracy and wider potential implications of a system viewed as less liberal. These are not modelled here.

Impact of uncertainty and secondary factors

The modelling above presents the potential impacts of changing immigration rules post-Brexit from one relatively narrow route. While this provides an original and important contribution to our understanding of the potential impact of Brexit on one of the UK's most innovative and fast-growing sectors, there are clearly much wider potential effects. These include:

- **Anticipation effects** before the end of the Brexit implementation period (between now and 2021), as firms and workers begin to adapt to potential future changes. While it is hard to assess what these might be, it is likely that they will create an uncertainty which could be damaging to businesses investment plans; and
- **Wider indirect effects** on the perception of the UK as an attractive place for global talent to work and set up businesses.

The survey of FinTech firms for this research demonstrated the potential scale of challenges that these broader effects could represent for the UK's FinTech sector:

- Just under nine in ten (86%) of firms that intended to change behaviour were considering relocating outside of the UK; and
- One in three (32%) had already delayed planned recruitment activity.

Given the inherent uncertainty of these potential impacts, and the range of responses that firms may adopt, it is impossible to accurately model these effects. However, to give an indication of the potential scale of impacts, the report outlines results from a scenario where uncertainty and other factors that stem from changes to the UK's migration cause an annual one percentage point reduction in the growth of the FinTech sector. Under this scenario, by 2030, the FinTech sector would have approximately 10% fewer firms within it than would have otherwise been the case.

Ultimately, if these effects materialise, the impacts would need to be added to the headline findings. This would mean that our central case would be too conservative and the impacts on the sector and economy from changing the UK's EEA immigration system would be larger than modelled.

Conclusion

Under the central scenario for sectoral growth and immigration restrictions, our modelling suggests that the sector will face a shortfall of 3,200 EEA workers between 2021 and 2030 (or around 320 a year). In the context of the whole economy, this might seem like a small number. However, the impacts could, in fact be large. There are a number of ways in which this could be conceptualised:

- **What it might mean for today's FinTech sector:** 3,200 workers represents a total of 3% of the total expected FinTech workforce in 2030. Based on GVA per head in the wider financial services sector, if this 3% were applied to today's FinTech workforce, this would amount to a direct loss of £361m to the FinTech sector. To put this figure in context VC funding for FinTech in 2016 was approximately £572 million, illustrating the size and significance of this cost.^{viii} Indirect and induced effects would make the impact even larger for the UK economy.
- **What it might mean if replicated across the economy:** It is important to remember that an average yearly shortfall of 320 EEA migrants is equivalent to a 13% reduction in EEA migration for the FinTech sector. If this reduction in immigration from the EEA were seen more broadly across the economy, estimates from the Office for Budget Responsibility suggest that trend growth could fall by 0.06%. That would suggest that by 2030, the economy would be 0.7% smaller than would otherwise be the case, or around £14 billion.^{ix}

Using the high scenarios for both growth and immigration restrictions would lead to even larger impacts. It is also important to remember that these estimates are likely to be conservative, because:

- As highlighted above, the modelling assumes that there are no impacts on the FinTech workforce between now and the end of the Brexit implementation period. In practice, there are likely to be some impacts, which could significantly increase the estimates highlighted here;
- It is conceivable that the immigration system could become even more restrictive than assumed here. For example, other research has used an estimate of a 50% reduction in EEA immigration. If this assumption were used here, the EEA worker gap would be nearly 400% larger.

Overall, we believe that the estimates outlined in this report represent a realistic estimate of the challenges that the FinTech sector may face if the UK's post-Brexit immigration policy for EEA migrants becomes more stringent.

Section 1: Introduction

Context

The background to this report is the decision of the United Kingdom (UK) to leave the European Union (EU). This means that, over the coming years the UK is likely to exercise increased control over its regulatory environment, and its immigration policy. The formal process to leave the EU began with the triggering of Article 50 on 29th March 2017 and is currently ongoing. A formal leave date is set to occur by 29th March 2019. Ultimately, the UK will leave the EU and, most likely, withdraw from the single market and customs union (though recent developments suggest that this will be followed by a period of close regulatory alignment). Before that happens, there will be an implementation period to be agreed between the EU and the UK as part of the current negotiations.^x

Between now and then, the UK Government and EU will have to set out the path through which the UK will diverge from European regulation. Part of this process depends upon the chosen 'end state' of the relationship, which is yet to be determined. In particular, decisions over the extent to which UK regulations mirror those of the EU are dependent upon the nature of the trade relationship that is established, and sector-specific decisions depend on a combination of domestic political choices, decisions over European Court of Justice jurisdiction, and how the UK extracts itself from European regulatory bodies.

There are a wide range of possible impacts of these changes. This report focuses on potential changes to immigration policy and the subsequent impact on skills and the UK's workforce. Changes to immigration policy could be either positive or negative. For example, if changes in immigration policy were used to drive an increase in high-skilled immigration into the UK, businesses and UK productivity and growth would benefit. However, given the Government's ongoing commitment to reduce overall net migration, it seems more likely that (compared to the current situation) changing immigration policy will lead to more stringent rules and visa application processes, particularly for potential EEA migrants. If this were the case, this could negatively impact on UK businesses, productivity and growth.

Immigration and UK FinTech

To understand these potential impacts, this report examines the possible workforce implications of potential changes in immigration policy. It focuses on the UK's FinTech sector. To frame this analysis, it is vital to understand the importance and vibrancy of the UK's FinTech sector and its current reliance on an international workforce.

FinTech is the collective term for companies that, "...use technology to transform or enable businesses and operating models in the financial services sector."^{xi} The UK is currently able to boast of being a global leader in FinTech due to a combination of government backing, supportive regulation, access to high levels of human capital, access to start-up capital and a stable legal system.^{xii} Governmental support is based on three core principles; competition, competitiveness, and consumer outcomes. These principles are aimed at reducing concentration in the UK's banking sector, and driving competition within the financial sector – with FinTech being a critical method through which this might be achieved.

As box 1 outlines, the sector is not only thriving, but growing at a rapid rate. This reflects a substantial push by both the UK Government to boost the FinTech industry, and to enable competition in areas such as banking.^{xiii} The Chancellor of the Exchequer's description of FinTech as one of the UK's most exciting industries^{xiv} is an accurate one, and its growing success is demonstrative of the benefits of a well-functioning partnership between Government, regulators, and innovators.

“*Governmental support is based on three core principles; competition, competitiveness, and consumer outcomes.*”

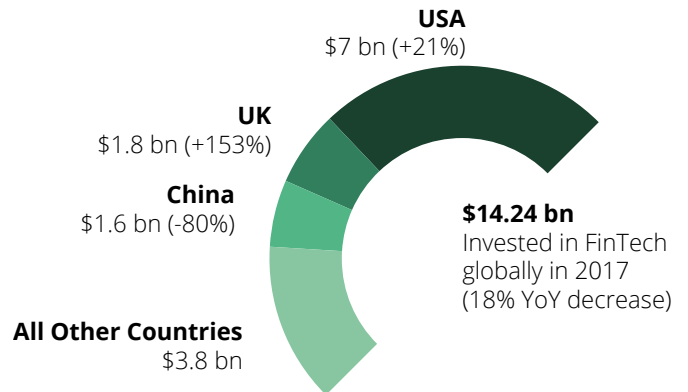
Box 1: Scale and growth of the UK's FinTech Sector

The UK FinTech sector's significant growth in recent years, wide diversity of different products and services, and overlap with a number of other sectors means that measuring the scale and impact of FinTech can never be an exact science. Nonetheless, there is a growing body of work that provides some measurement of the sector, and indications of the growing value of UK FinTech can be demonstrated by elements such as VC investment. Globally, the UK is a leader, ranking second in the world by deal volume, and by total investment, indicating the strength of the UK's performance in this area.

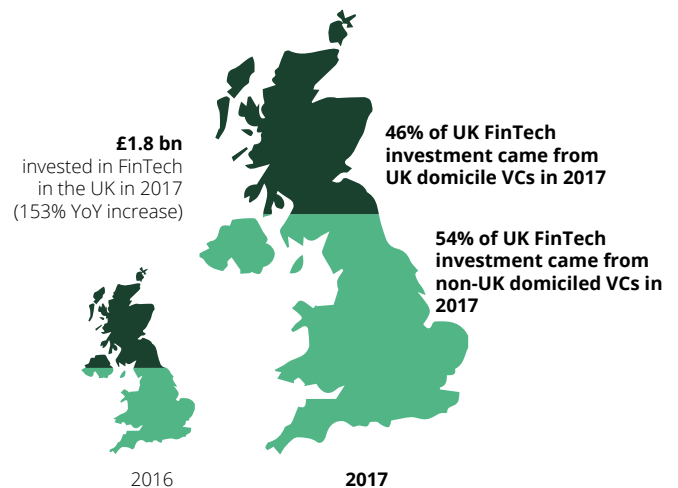
The growth of the sector appears to be both significant, and sustained. Estimates suggest that from 2016-2017 the VC funding of FinTech start-ups more than doubled, and the results from 2017 saw a 153% increase in investment in UK FinTech year-on-year with \$1.8bn of VC investment. This scale of growth, combined with the nature of the industry means that much of the domestic, and global financial system could be transformed by the innovation fostered by the sector. In particular, UK FinTech is maturing, and leads in areas such as the growth of challenger banks. It is also building on this status by fostering a more conducive regulatory atmosphere through a mix of domestic support and international partnerships.

Box references: See xv, xvi, xvii, xviii

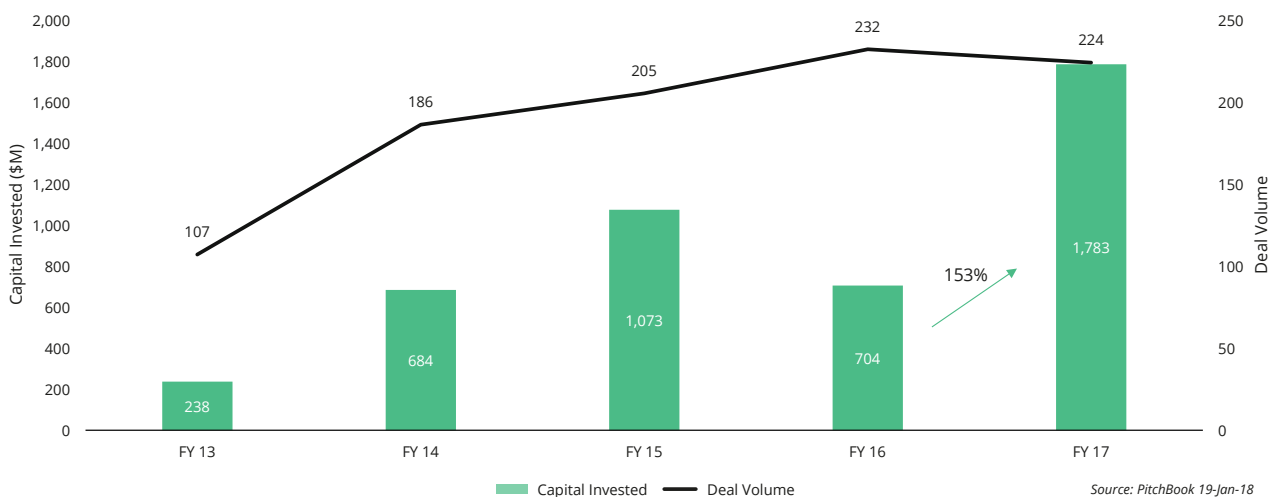
Global FinTech VC Investment



UK FinTech VC Investment



UK FinTech VC investment - 5 Year Trend



As well as demonstrating significant growth and contributing to other UK sectors, UK FinTech also generates a large volume of high-skilled employment. It is estimated that around 76,500 people are employed in UK FinTech, with that number expected to grow rapidly in coming years.^{xi} Here the importance of immigration, and future challenges that changing policies post Brexit could bring, are clear; given that, some 28.1% of the UK's FinTech workforce are estimated to be EEA migrants, and another 14.4% to be non-EEA migrants. This means that any changes to immigration policy post-Brexit could significantly impact on this workforce and the productivity and growth of the sector.

The immigration policy context

The current state of play is characterised by significant uncertainty around what the UK's relationship with the EU will look like in the future. How the UK will design its immigration policy is part of this uncertainty. However, as an important factor behind the vote to leave the EU was concern about levels of immigration enabled by freedom of movement (one of the 'four freedoms' required as part of membership of the single market or customs union) the UK's immigration policy is likely to change substantially.^x

The consequence of this is that – despite agreement in December 2017 to protect the rights of EU citizens currently residing in the UK up to the time of withdrawal (with an agreement over settled status) – there will still be a change in the treatment of new EEA migrants after withdrawal, possibly under a new or altered migration system. While, in theory, changes could make the UK's immigration system more, or less, liberal, in practice it is likely that any future changes will increase restrictions placed on potential EEA migrants wishing to come to work in the UK.

Commitment to this course of action was signalled by the Conservative Manifesto of 2017 which made a commitment to control immigration from the EU and "establish an immigration policy that allows us to reduce and control the number of people who come to Britain from the EU, while still allowing us to attract the skilled workers our economy needs."^{xi}

This implies that when considering the future of the UK's immigration policies, there are four major groups that will be affected in different ways. These are:

1. **EEA migrants in the UK up until the date of departure:**

This group have been the primary focus of negotiations so far, under the negotiations regarding citizens' rights in the first phase of negotiations. Given agreements regarding reciprocal rights, and the development of agreements on "settled status",^{xii} the key impacts of Brexit on this group are likely to be due to a combination of uncertainty and plausibly a reduced level of recruitment and retention due to a less welcoming environment. Recent moves to provide guarantees to EEA migrants and outline the processes they will have to go through means that the Government has already taken substantial steps to improve certainty in the future.

2. **EEA migrants entering the UK after the date of departure:**

This group are likely to face significantly higher barriers to entry than EEA migrants entering prior to the date of departure, due to the as-of-yet undefined restrictions on freedom of movement. It is possible that these will take the same form as restrictions currently placed on non-EEA migrants, such as a required earnings threshold.

3. **Non-EEA migrants prior to the date of departure:**

These immigrants are likely to already hold visas such as Tier 2 or Tier 5 visas, and are not likely to be subject to immediate change.

4. **Non-EEA migrants after the date of departure:**

There are few indications, as of yet, as to how this group might be affected by Brexit. Various statements were made during the referendum and after about the ability to partially liberalise the system for skilled workers, reflecting the move to an immigration system which prioritises skills rather than EEA nationality. However, as of yet, the direction and likely movement is unclear, beyond manifesto commitments to continue to reduce immigration from outside the EU.^{xiii}

In short, there are a number of different ways in which immigration is likely to be reduced after the exit from the EU, primarily through reducing access of EEA migrants to the UK's labour market after the date of departure from the UK. How this will occur is unconfirmed, but current Government positions provide some insight into how policy might change.

Current Government positions

The most immediate and high-profile immigration issue that has been addressed is the rights of EU citizens currently residing in the UK. The recent joint report on negotiations published on the 8th December 2017 outlined a joint commitment to "enable the effective exercise of rights derived from Union law and based on past life choices, where those citizens have exercised free movement rights by the specified date."^{xiv} In short, this represents a commitment to, subject to final agreement, protect the rights to reside and work in the UK for EEA migrants who have been resident in the UK up until the time of withdrawal.

In practical terms – this will be governed by some form of administrative status – as set out in the agreement which notes that the UK can "require persons concerned to apply to obtain a status conferring the rights of residence...and be issued with a residence document attesting to the existence of that right."^{xv} The agreement also sets out requirements about proportionality, unnecessary administrative burdens, affordability, and prescribes the ability to gain a restricted form of permanent residence, provided that those who acquire it do not leave the UK for five or more consecutive years.^{xvi} In practice, residence under this status for a sufficient time would also then enable migrants to apply for full citizenship.

The Government has indicated the plan to implement this through ‘settled status’. Under this plan, EU citizens^{xxvii} who have been resident for five years will automatically be able to apply for this status, and those who arrive before the 29th March 2019 but have not yet lived in the UK for five years will be able to stay under ‘temporary permission to stay’ until they meet the threshold.^{xxviii} At this point, they will be able to apply for the status, which will entitle them to a continued right to work.

Applications for settled status are expected to open in the second half of 2018, using a fast-tracked system of six to eight questions. The charge for the process will be no more than that to obtain a British passport (currently £72.50)^{xxix} and the Government has urged all three million EU citizens currently residing in the UK to stay. To this extent, it appears that at the current stage of the negotiations on Citizens’ rights, current EEA migrants will be able to stay, and EEA migrants will continue to be able to come to the UK until the date of exit in 2019.

There is less insight into what the post-Brexit migration system will look like for EEA migrants entering after the date of exit. The Government has committed to retaining a focus on skills, noting in the 2017 manifesto that there is a need to “address the immediate needs of those sectors of the economy suffering shortages in skills,” and to “make the immigration system work for these sectors.”^{xxx} The commitments to control immigration suggest that the system will move more towards harmony with the immigration system faced by non-EU citizens, with increased requirements to find a sponsor, reach an earnings threshold, and for companies to pay an Immigration Skills Charge. However, as of yet – there is little detail on what these proposals will look like, as well as whether the treatment of non-EEA migrants might soften in order to counteract the reduced access to skilled European labour.

Brexit and the Migration Advisory Committee

Recognising the need for a wider rethink of the immigration system, especially as it pertains to skilled immigration and the industrial strategy, the 2017 Conservative manifesto indicated a desire to use the expertise of the Migration Advisory Committee (MAC); an independent non-departmental body which advises the Government on issues related to migration. Since then, the Government have asked the MAC to:

“...make recommendations to the government about how the visa system can become better aligned with our modern industrial strategy. We will envisage that the committee’s advice will allow us to set aside significant numbers of visas for workers in strategically-important sectors, such as digital technology, without adding to net migration as a whole.”^{xxxi}

This intention was followed up by action in July 2017, where the Government requested the MAC to advise on the, “economic and social impacts of the UK’s exit from the European Union and also how the UK’s immigration system should be aligned with a modern industrial strategy.”^{xxxii} Following this request, the MAC launched a consultation aimed at incorporating

evidence on the characteristics of EEA migrants in different industries, how patterns of migration have changed over time, and an assessment of the impact of possible reductions in the availability of EEA migrants.

The themes of the MAC consultation reflect the close relationship between levels of human capital and economic growth, and the need to fully understand how this relationship varies across sectors. This report aims to provide responses to these questions from the perspective of the UK FinTech sector and, in particular, to give an indication into the effects that a more stringent immigration system for EEA migrants would have on the future prospects of what is currently a fast-growing and innovative sector.

This Report

To understand the potential impacts that changing immigration policies could have on the FinTech workforce and sector overall, this report establishes the role of migrant labour in UK FinTech; how the supply of and demand for FinTech talent could be affected by the vote to leave the EU; and the potential implications this could have on the workforce and FinTech firms. What follows in the report is:

- An overview of the FinTech sector and its exposure to Brexit, and in particular to changes in immigration policy;
- A summary of findings from surveys and interviews conducted as part of this research, including the views and expected reactions of FinTech companies to the current uncertainty they are facing;
- An outlined methodology for modelling what the reaction of the FinTech sector to the effects of Brexit are likely to be, including a documentation of our assumptions and how they might change over time;
- The estimated impacts of uncertainty and a change in the immigration settlement on the FinTech sector, including the level of future growth and employment, and how this would vary depending on immigration policy;
- A summary of key challenges for the sector in light of our findings, and the areas of critical importance to the future prosperity of the sector as the UK navigates the process of leaving the EU;
- The report concludes with a guiding set of Policy Principles developed by Innovate Finance to form the basis for further consultation.

The primary audience for the report is the Migration Advisory Committee. However, the report’s findings and conclusions will also be relevant to labour market economists, public policy researchers, those with an interest in the effects of Brexit and those that work within FinTech.

Section 2: FinTech and Brexit

As the process of leaving the EU evolves, companies across the UK will undoubtedly face challenges transitioning to the new arrangements, regulatory regimes, and changing labour market. The extent to which this is the case will depend on the nature of the business, as well as the composition of the workforce, and the future skills needs the industry has.

FinTech is one of the most innovative and fast-growing sectors of the UK economy, and an area where the UK is a global leader. Given the challenges it may face in the future, it is crucial to examine the exposure the sector has to these potential changes, and what their impacts might be on its future growth and prosperity.

Challenges to the sector after Brexit

There is little doubt that FinTech is a sector in which the UK has a strong competitive advantage, and indicators such as the continued strength of VC investment suggest that the UK's future exit from the EU has not yet had any reductive effects on the sector. Nevertheless, exit from the EU raises several risks to the sector which will need to be properly mitigated if it is to retain its position of global pre-eminence.

These areas include regulation, where Brexit has created uncertainty around the future regulatory environment for FinTech. For instance, the passporting of financial services is an integral part of the UK's position as a hub for European FinTech,^{xxxiii} and the approach that the UK takes to carrying over various EU Directives – such as those related to data protection – will also have a bearing on the operational environment of FinTech firms. Other challenges that might present themselves due to Brexit include access to European investment capital, and the increased attractiveness of European cities as competitor 'hubs' for FinTech. Addressing such issues will be crucial, but the varied nature of the FinTech sector suggests that the exact requirements will vary from firm to firm.

Immigration and FinTech after Brexit

One key challenge faced by all FinTech companies is the subject of how they access the talent and skills they need in a post-Brexit immigration system. A failure to address this issue is likely to impact the competitiveness of the sector as a whole, and reduce its future growth prospects. This is both because the sector is inherently international – with financial innovation having an impact across globally connected services – but also because it relies upon STEM skills and entrepreneurial talent. The sustained growth of the FinTech sector, and its international nature, mean that attracting the best talent from across the world is essential if the sector is to continue to innovate and grow, and support growth across the economy with broader horizontal impacts and agglomeration effects.

However, ensuring this pipeline of talent can be challenging. Research suggests both that the UK is suffering from a "homegrown" digital skills shortage and that, even with existing immigration rules, many tech / digital sectors are struggling to

fill the vacancies that they have.^{xxxiv} This suggests that due to the nature of the workforce, the FinTech sector is highly exposed to a change in the immigration settlement post-Brexit, and that a restriction on the movement of workers, and in particular EU workers, could limit its growth and prosperity. Preliminary analysis of the effects of Brexit has touched upon the importance of accessing talent to the FinTech sector, noting that:

“The UK start-up scene has been nurtured by skilled workers' willingness to move to London. Continued access to talent is important for London FinTech businesses to compete with other hubs across the world.”^{xxxv}

In particular, the digital and tech sectors may be more exposed than most to changes in immigration policy. Research on the UK Digital sector after Brexit has noted that approximately 45% of the growth in the sector has been due to non-UK born staff and employees, and that 18% of digital sector employment is foreign-born.^{xxxvi} Part of this reflects the labour needs of such companies, and it has been noted that future growth sectors such as FinTech are reliant on EU nationals precisely due to their need for swift access to expertise and short hiring periods, which are facilitated by access to a larger pool of potential workers.^{xxxvii}

Furthermore, the importance of migrants to company formation is significant, and the Centre for Entrepreneurs estimates that migrant founded companies employ 1.16m people across the UK, and note that digital start-ups comprise a "significant subset" of this group.^{xxxviii} This is corroborated by submissions from Innovate Finance to the House of Lords European Union Committee which estimated that 30% of the founders of their start-up member base were born overseas.^{xxxix}

In this sense, it is noted that the response to changes in immigration policy will depend heavily on policy choices made. On the one hand, steps to provide certainty and help prioritise highly-skilled individuals from other areas, such as the US and APAC, may serve to boost the FinTech sector.^{xl} However, a prolonged period of uncertainty and/or a lack of assurances for EU workers could make it harder to attract and retain the talent that FinTech companies rely on, limiting their ability to grow and prosper.

There is a significant chance that this will impact business growth and development over the coming years if a satisfactory settlement is not found. A 2016 survey by Tech City UK of 1,200 people working in tech found that, despite optimism, 22% expected to scale back planned growth ambitions and 31% were likely to slow down hiring. Crucially, the ability to hire and retain talent appeared to be central to these concerns, and 51% thought it would be more difficult to attract and retain the best talent. This illustrates both a challenge, but also an opportunity;

“79% expressed a desire to improve the visa system to allow talented people to live and work in the UK,^{xli} suggesting that if the right steps are taken, FinTech could not only survive, but prosper further.”

Consequently – it is clear that, whilst FinTech as a sector is growing at a significant rate, the combination of uncertainty and regulatory challenges due to Brexit threaten to jeopardise this progress. In particular, access to a talented workforce and the ability for start-ups to rapidly access the right type of skills is crucial, and preliminary research suggests that if this is not achieved then the ability of FinTech companies to start and scale may be negatively impacted.

Modelling the potential impacts

Overall, it is apparent that FinTech companies are highly mobile and international, as is the human capital that they employ. This means that despite there being numerous post-Brexit implications for FinTech, such as how a domestic GDPR regime will work, the implementation of a restrictive immigration policy could be the determining factor on the sector's ability to grow.

To understand the potential scale of the impact of changes to immigration policy, we have undertaken a modelling exercise to provide a feasible range for the impacts. There are two significant challenges to modelling these impacts: uncertainty over the future immigration system; and data availability.

Modelling the future immigration system

As already highlighted, while a number of routes are still possible, it is likely that the UK's immigration system with regards to EEA workers will become more aligned to that currently used for non-EEA workers. However, the lack of details of this make it impossible to model with any kind of certainty the exact nature and impact of changes to future immigration policy. Instead, we have chosen to model a broad scenario of the system of immigration for EEA workers becoming more restrictive as the UK ends freedom of movement for this group, and moves towards a system with a greater degree of control. This is most obviously characterised by the treatment of EEA nationals becoming more like that of non-EEA nationals (e.g. subject to requirements such as a minimum salary, greater conditions placed on employers, and successful application for a particular visa type).

To gain a better sense of the exposure that the FinTech sector has to changes in post-Brexit immigration policy, we have modelled three potential degrees of change; low, central and high (detailed in Sections 5 and 6). We have accompanied this with a broader analysis of how changing immigration systems could have wider indirect effects (for instance by reducing the attractiveness of the UK as a location for FinTech business start-ups).

Data availability

Comprehensive data on the UK FinTech sector is scarce. This is due to the rapid growth of the sector in recent years, as well as the lack of government datasets and definitions to catch up with changing sectors. In particular, Standard Industrial Classification (SIC) and Standard Occupational Classification (SOC) codes do not account well for companies which span across multiple industries, presenting a particular challenge for measuring impacts across the intersection of Financial Services and Technology.

To resolve this, we have used a set of research steps to provide an innovative approach and a picture of how the sector is likely to respond to significant changes in how its workforce is recruited. This includes:

1. **A wide-ranging review of existing evidence:** We surveyed existing literature and existing policy to understand the current evidence about the scale of migration to the UK and the extent to which FinTech companies are reliant on migrant workers. This acted as a base that our methods built on;
2. **Surveying FinTech companies:** To fill data gaps and explore how the sector plans to respond, we distributed a survey across a wide range of different FinTech businesses, asking specific questions that informed our assumptions. The survey was issued to a total of 1,100 FinTech firms. We received just short of 100 responses to a variety of questions including their workforce composition and expected responses to different immigration scenarios. A full copy of the survey can be found in Annex 1;
3. **Interviewing FinTech companies:** To get a greater degree of insight into the factors motivating FinTech companies to respond as they did, we interviewed a subset in order to understand the context around their decisions, and the critical points that would motivate them to change their business practice; and
4. **Original analysis of official data:** In addition, we undertook an analysis of returns to Companies House from a random sample of 100 FinTech firms.^{xiii} Since these returns regularly have an indication of "average staff levels" throughout the reporting year, we were able to use these to gain a sense of the scale of the growth of this sample of FinTech firms. This served to verify the other sources of data we were using, and to get a sense of the overall level of accuracy of our primary research.

These data sources were combined to create our assumptions for the baseline and scenarios for growth and the impact of immigration restrictions. They were then used to designate the reasonable bounds for three different scenarios; 'low', 'central', and 'high' (for both growth and immigration restriction impacts). These were developed such that we could gain a full appreciation for the sensitivity of findings, and in acknowledgement of the fact that the set of possible immigration settlements is extremely diverse.

A review of the findings from the survey results and the interviews can be found in Sections 3 and 4, whilst the assumptions can be found in Section 5, and the findings from our model in Sections 6 and 7. Section 8 concludes.

Section 3: Results from FinTech firm survey and analysis of Companies House data

Before outlining our approach, assumptions and results to modelling, this chapter presents key findings from the survey of FinTech firms and our analysis of Companies House data.

It provides new insight into the FinTech sector's workforce composition and workforce requirements, and into how the vote to leave the EU is currently affecting – and is expected to affect – the supply and demand of labour. These results feed into the assumptions of the modelling that are presented in the next chapter.

Methodology

The survey focused on questions including workforce composition, the size of FinTech businesses, and their perspectives on a variety of emerging challenges. It was disseminated to around 1,100 firms through Innovate Finance's mailing list, and to the wider sector, and received just short of 100 responses. A full copy of the survey questions can be found in Annex 1.

We are aware that, because of the size of the sample, these responses are unlikely to be fully representative of the whole FinTech sector and, on their own, should be treated with caution. However, there are a number of reasons to believe that the results represent a good overview of the sector:

- While relatively low in number, responses were from a range of businesses currently operating within the FinTech sector. These included a spread of large and small firms and established and new firms and firms from various parts of the sector; and
- The results were assessed and benchmarked against existing evidence on the sector and results for key factors (e.g. firm size and growth) matched with these existing data points.

The analysis of Companies House data also provided a sense-check on the results from survey data (since we were able to compare and contrast two independent sources of information on similar questions). This analysis comprised an assessment of official company returns from 100 randomly selected FinTech firms, obtained through the Companies House website. Of these, 84 had information in the returns on average employee numbers, which allowed us to assess current employee numbers. We were also able to look at returns over a number of years to understand how these had developed over time.

Together, we believe that these results provide a unique assessment of the sector's current workforce and workforce planning, as well as the attitudes of business leaders towards future growth and Brexit. From the results, it is clear that the sector depends on access to the best and brightest talent, and as such, there are significant concerns about how the post-Brexit immigration settlement might affect their prospects.

Workforce size and growth

The survey results suggest that there is significant diversity within the FinTech community in terms of size of business and level of growth.

The results (figure 5) show that the average (mean) number of employees working in respondents' businesses (40) is much larger than the median (11). This suggests that the sector is comprised of a majority of smaller companies, combined with a few larger players.

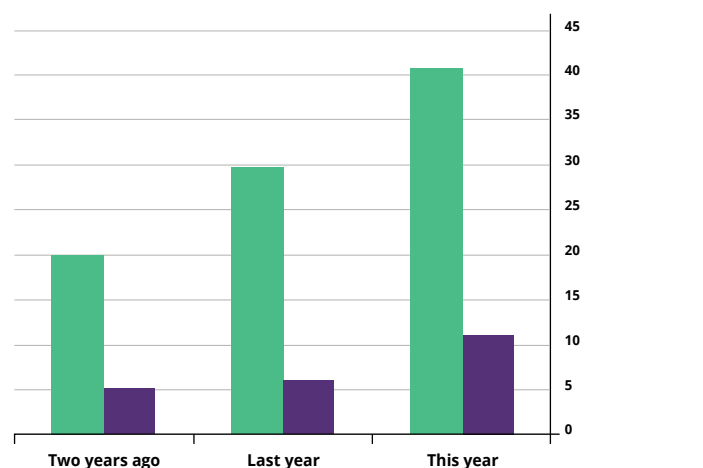
While our analysis of Companies House delivered larger figures for both the average (119) and median (31), the ratio between the two was the same. The difference is likely to be attributed to selection bias (larger firms are required to report more comprehensively on Companies House and were more likely to include reports on employee numbers). However, the consistent pattern suggests that the overall picture of the sector is accurate.

With such small company sizes, it is clear that finding the right workers will play a huge part in the success, or failure, of companies.

“The growth indicated by the survey results suggests that under current conditions FinTech companies are growing, with the average number of employees doubling compared to two years ago.”

This finding is supported by Companies House data, where our sample of 84 companies over the past four years showed an increase in total employment from 5,437 workers to 8,522 workers. This is growth of 57%. By way of contrast, workforce jobs in the financial services and insurance industries fell by around 1% in the same period.^{xiv}

Figure 5: How many people are employed in your business in the UK on a full time basis?



Source: WPI Economics' survey of FinTech firms

■ Average (mean)
■ Median

The picture is clear; under current arrangements, FinTech businesses in the UK are thriving. The survey results indicate that respondents expected this to continue at a rapid rate, with respondents indicating that, on average, they expect employee numbers to increase by 60 workers next year, and 120 in three years' time.

Who works in Fintech?

Results from the survey (figure 6) indicate that a large proportion of workers in FinTech companies come from abroad, with approximately 42.5% of workers at firms we surveyed being non-UK nationals. Approximately 28.1% of workers were drawn from EEA countries, and 14.4% were drawn from non-EEA countries. This reflected the clear view that access to EEA migrants had helped support growth and fill skills needs within FinTech businesses. Over 70% identified that they relied on migrants to fill skills needs (62.5% identified that they predominantly relied on EEA migrants and 8.3% identified that they predominantly relied on non-EEA migrants).

For those saying that they rely on migrants to fill a skills need, figure 7 demonstrates the main reasons stated for why firms feel that they need to do so.

From these results it is clear that the most common reason for firms to need to rely on immigrants to fill a skills need is a lack of available talent in the UK; this demonstrates that UK FinTech firms use the immigrant workforce as a complement to the UK's existing workforce, rather than a substitute.

The overall picture is that FinTech is an industry with a diverse and highly-skilled workforce, and drawing on EEA and non-EEA workers is a key component of enabling FinTech companies to flourish.

What type of skills does the industry need?

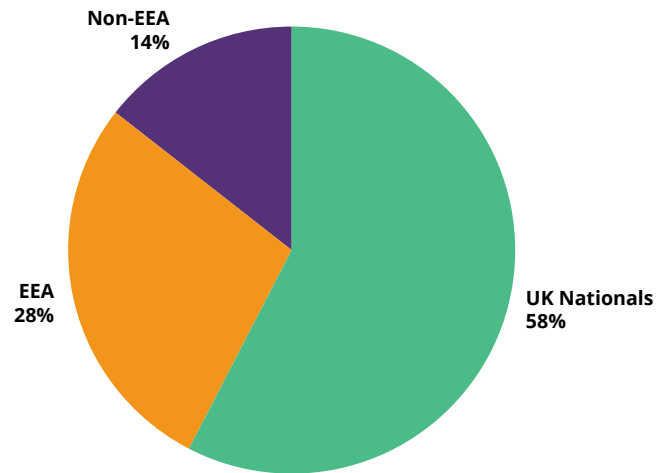
To gain insight into this question we asked respondents about the job categories that were most common for UK workers, EEA workers, and non-EEA workers.

Our findings suggest businesses are recruiting from outside the UK to meet a skills need that cannot be met from within the UK. In this sense, rather than substituting UK-nationals in the workforce, EEA and non-EEA migrants should be seen as complements to the UK nationals.

This is highlighted by the fact that there are several job roles that are more likely to be performed by EEA and non-EEA workers, than by UK nationals. These include computer and software development, user experience and design, and process and design optimisation. This suggests that EEA and non-EEA workers are relied upon to fill some of the more technical roles.

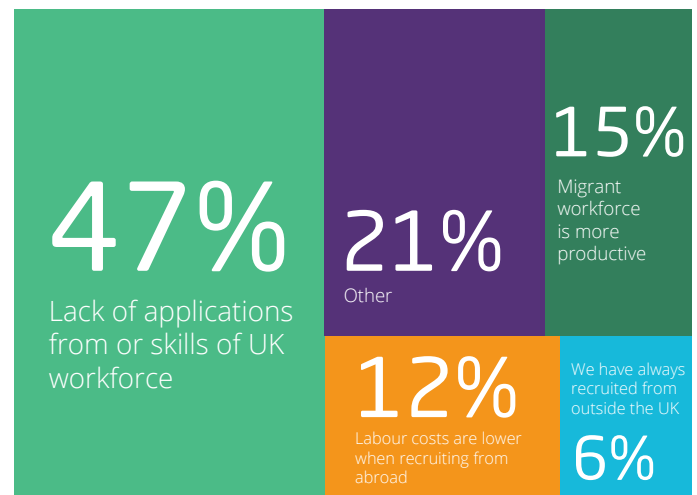
For example, 62% of companies say that the most common role for EEA migrants is in computer and software development, and 43% say this is true for non-EEA migrants. This compares to 36% for UK nationals, suggesting that EEA migration plays an extremely important role in enabling access to a wide pool of technically skilled individuals and complementing the skills that UK nationals have in sales, management and finance.

Figure 6: Proportion of workforce from each nationality type.



Source: WPI Economics' survey of FinTech firms

Figure 7: Reasons for relying on immigrants to fill a skills need (of firms who say that they do so)



"Other" includes responses such as:

- "The right talent mix – skills, grit, and personality mix."
- "We will always look for the best wherever they come from, and we see diversity of culture as an important contributor to our success."
- "London and the UK have been a desirable 'HQ location' for many businesses that operate across different European jurisdictions. To operate in this way requires a mix of native speakers to work here in the UK. Our business, although small at this stage, has followed the same concept of taking on native speakers to eventually cope with expansion into other markets."
- "As a global service, diversity is important."
- "Being in London and running a global business requires a diverse workforce which cannot be sourced from UK nationals only."

Source: WPI Economics' survey of FinTech firms

Possible response to changes in immigration rules

With this dependence on EEA migrants to fill technical roles, the sector is susceptible to future changes in immigration policy that impact on the ability to recruit EEA migrants. If FinTech firms begin to find it more difficult to recruit and retain a skilled workforce, this could negatively impact the future growth of the sector, and could endanger the UK's place as a global leader in FinTech.

To gauge the extent to which this was true, we asked respondents both whether they thought that the system for non-EEA migrants was more challenging to navigate than the existing system for EEA migrants and how they would respond if it became equivalently difficult to employ EEA migrants as is currently the case for non-EEA migrants. While this is only one way in which immigration policy could change in the future, it provides a tangible example that firms can understand in terms of how a more stringent immigration system might work.

Challenges of the immigration system for non-EEA migrants

The results demonstrated that, of those who had employed both EEA and non-EEA migrants, 82% of respondents agreed that, compared to EEA migrants they faced "additional difficulties when attempting to recruit and employ non-EEA migrants". When asked to identify the challenges they face, all respondents who identified challenges talked about onerous processes, rules and costs that delay and restrict their recruitment activity. Sample responses included:

“*“Visa rules are too complicated and onerous to be worth the investment for a firm our size, we simply won't consider candidates without current right to work.”*

“The visa sponsorship process is complex, time-consuming and expensive.”

“Need to assure them of the ability to live here for suitable length of time (2+ years in future). Need to give them time to go through visa renewal process which can be painful.”

“Having to sponsor non-EEA migrants means additional obstacles and delays in hiring process, significantly restricting our talent pool.”

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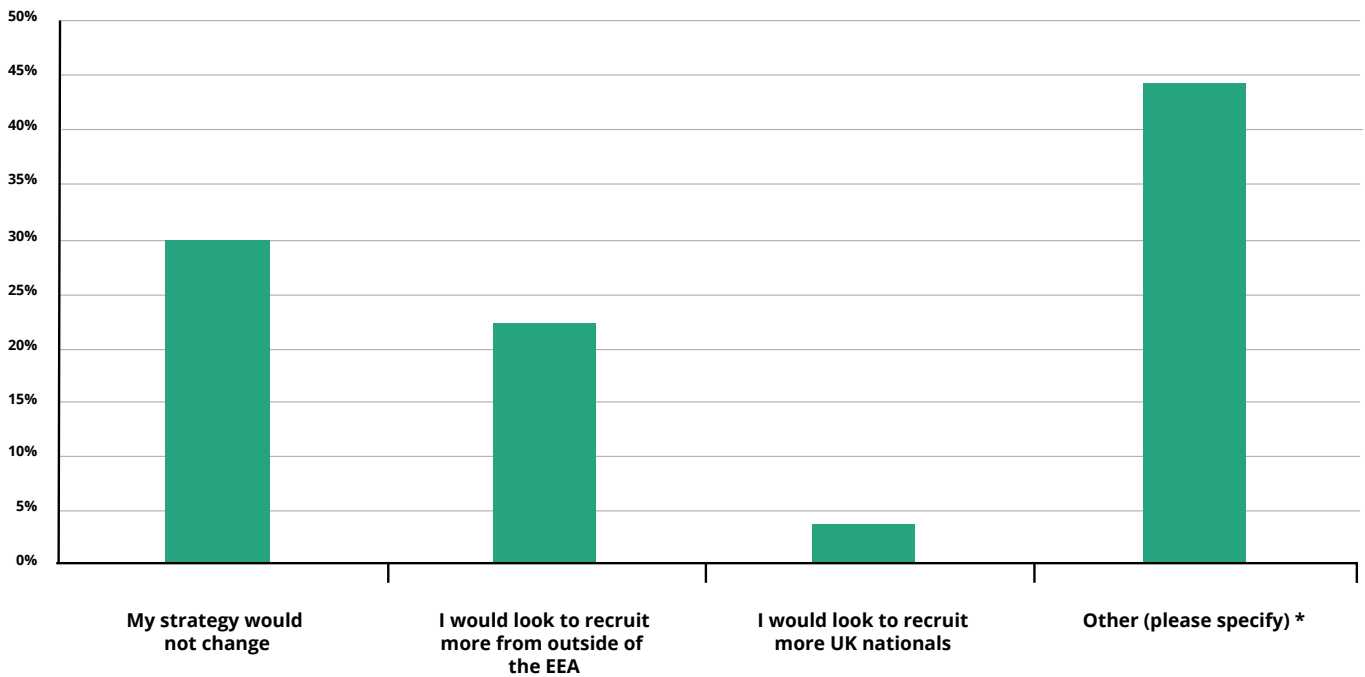


Impact of moving the EEA system closer to that of the existing system for non-EEA migrants

If it became equivalently difficult to employ EEA migrants as is currently the case for non-EEA migrants, one in three (30%) of respondents said that they would not change their recruitment strategies, just under one in four (22%) indicated that they would instead try to recruit more from outside of the EEA. Only one respondent suggested that it would result in more domestic hiring, again demonstrating that

“ migrant talent is viewed as a complement to (rather than substitute for) UK nationals. ”

Figure 9: Which of the following best describes how your recruitment strategy would change if it became equally difficult to employ EEA migrants?



*** Specific Responses to Other included:**

- “We will contract EEA migrants regardless of their immigration/legal status”
- “We would most likely relocate the business”
- “We would simply have to grow less quickly”
- “I would probably relocate my business to a place with a deeper pool of talent.”

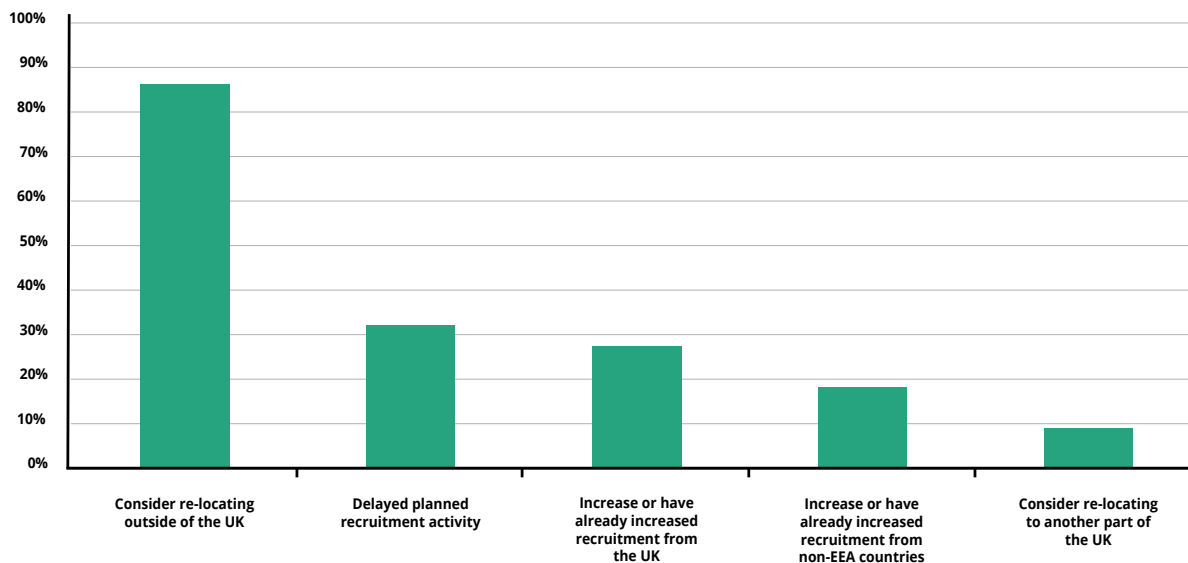
Source: WPI Economics’ survey of FinTech firms

Wider reactions to Brexit

As well as asking specifically about recruitment strategy, the survey also asked firms a broader question about how they would “change behaviour in relation to workforce management in response to Brexit”. Around half of firms (46%) said that they had already changed their behaviour or intended to change their behaviour in future, implying that at the sector’s current size (of approx. 1,600 FinTech firms), over 700 would shift their behaviour in some manner. The others said that they had no plans to change their behaviour.

Of those who stated that they had already changed or planned to change their behaviour, figure 10 demonstrates the most common areas where behaviour had changed or was planned to change.

Figure 10: Most common responses to the question “Please say how you intend to / have changed behaviour (tick all that apply):”



Source: WPI Economics’ Survey of FinTech firms

While positive that one in four firms had already increased, or planned to increase, recruitment activity in the UK, the majority of the results present a more challenging picture:

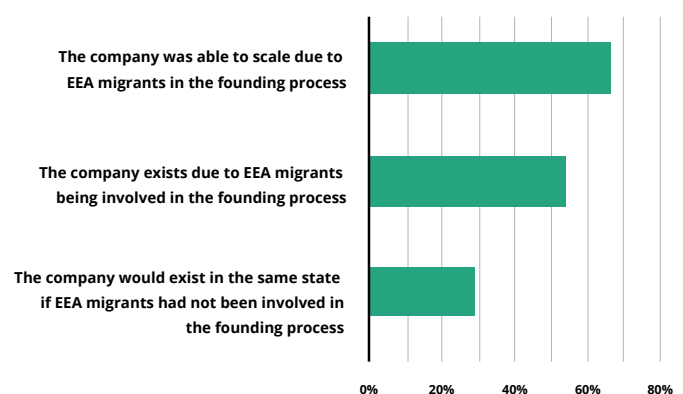
- Just under nine in ten (86%) of those intending to change behaviour were considering re-locating outside of the UK; and
- One in three (32%) had already delayed planned recruitment activity.

EEA migrants as business founders

While the majority of the survey questions focused on the role of immigrant labour in filling employee roles in UK FinTech firms, it also asked a series of questions on the role that EEA migrants played in founding and growing the firm.

Figure 11 demonstrates that the majority of respondents believed that EEA migrants were important in both the founding (54%) and scaling (67%) of their business and that almost a third (29%) of respondents thought that their business would exist in its current state without the involvement of EEA migrants.

Figure 11: Importance of EEA Migrants to the founding and growth of UK FinTech Firm



Source: WPI Economics’ Survey of FinTech firms

Section 4: Themes from interviews with FinTech firms

To complement the survey, we also asked a subset of respondents whether they would be willing to undertake a more in-depth, semi-structured interview for the research team to gain further insight and more depth on their responses. These interviews were structured around the topics of workforce composition, skills requirements, the impact of Brexit and growth plans.

Overall, there was a consensus view that Brexit had created uncertainty, that it may increase the cost of doing business and that it could affect the status of London as a leading FinTech capital of the world. However, while there were several examples given of how business decisions were being negatively affected by Brexit, the majority of interviewees were still expecting to increase their headcount in the UK in the next 12-18 months. Within this broader context of a sector that is confident of future growth, the four themes below were the most prominent messages that arose from the discussions.

The FinTech sector has an international culture and global outlook

As a general rule, the FinTech sector is not confined by borders and nor are the people who are attracted to work in it. In other words, FinTech firms tend to be global in nature because:

- They often undertake cross-border activities, such as sending or receiving payments;
- It is not unusual for them to have human capital and offices outside of the UK; and
- Their UK-based workforce tends to be a diverse set of nationalities.

These three factors are interlinked. For example, if a FinTech firm has customers spread across the world then employees with language skills are required to be able to converse with them. More generally, it was noted that the nature of FinTech as a sector attracts people who have both an international mindset and a desire to work and innovate in a sector that has a strong social purpose.

The pool of available talent accessible to the FinTech sector can be small

Together, the skills, job profiles and international focus of FinTech roles means that some of the talent required by FinTech firms is not just in short supply in the UK or even in Europe, but is limited across the globe. One interviewee highlighted how they required PhD-level skills, but that the global stock of PhD level talent in certain disciplines was in short supply and in high demand. To give an example of how niche some skillsets are, one firm told of how some of its more specialist employees were writing some of the first manuals on their area of technical expertise.

It is also important to highlight that FinTech firms need sector specific skillsets in what may be regarded as more traditional business roles, such as sales, marketing and finance.

For instance, the sales team needs to be able to translate what the company does into something that will resonate with customers. Equally, the finance team needs to understand how to manage the purse-strings in a fast-growing and dynamic sector.

One of the most obvious effects of a limited talent pool is reflected in the salaries that workers can command. But there were mixed reports on the subject: On the one hand, it was argued that migrant workers knew their value in the market place, and salaries had been pushed up due to the need to recruit and retain; on the other hand, it was also argued that some highly-skilled workers would accept lower salary levels to work in a non-traditional FinTech role.

The final point to make is that skills requirements can change quite rapidly. For instance, one firm explained its need for skills related to data security had changed dramatically in the last 12 months.

“ This means that a strong talent pipeline, and the ability to attract and recruit global talent quickly and easily is essential to securing the future growth and vibrancy of the UK's FinTech sector. ”

The vote to leave the EU has already affected the FinTech labour market

There were several anecdotes related to how the uncertainty surrounding Brexit had already affected workforce management and the supply of and demand for employees. This included:

- Firms growing the workforce of non-UK offices instead of UK offices because there was greater certainty around future regulatory environments in other countries;
- Some EEA and non-EEA employees opting out of auto-enrolment pension provision because of the uncertainty about their future UK status;
- A drop-off in the supply of overseas applicants, as the relative attractiveness of London as a place to work has weakened (especially when other major European cities are actively promoting their tech hubs);
- A drop-off in supply of overseas applicants and increased pressure to retain skilled employees has driven up salaries;
- Some employees leaving the UK because they did not feel welcome anymore; and
- Significant costs for paying for advice from immigration lawyers.

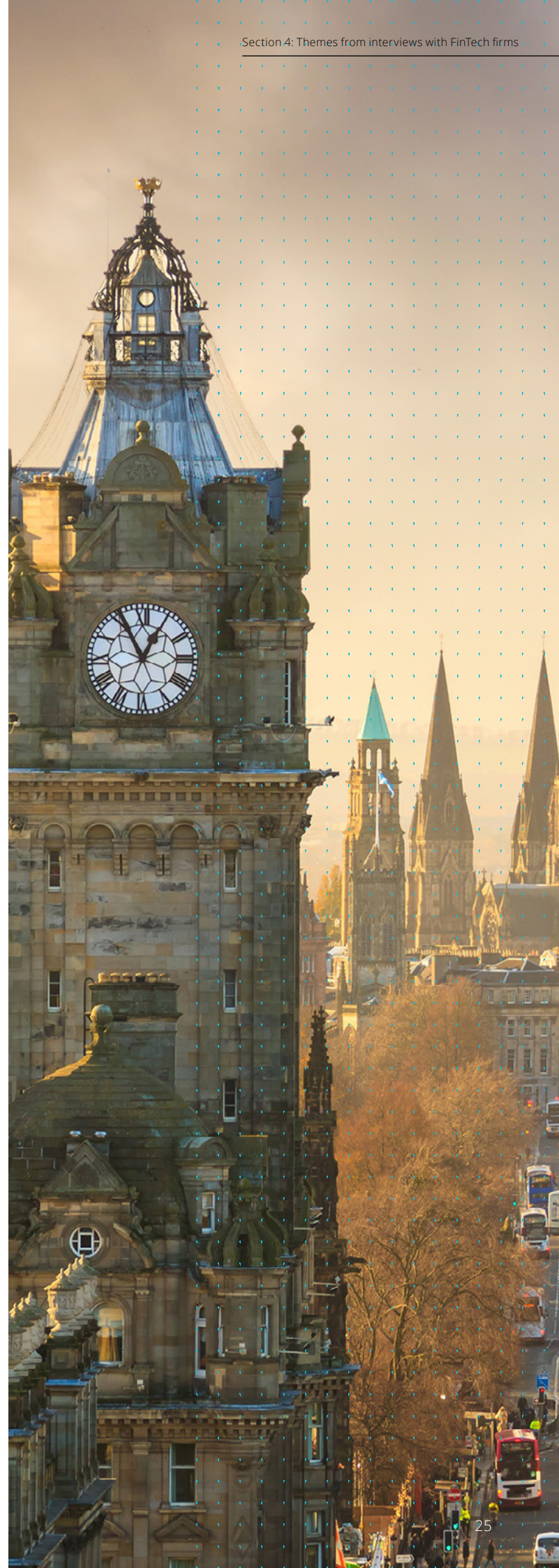
It is important to stress that none of the interviewees reported that Brexit was currently having a dramatic impact on their workforce; instead, these were frustrations and concerns for the future. The central message was that in a fast-growth and globally competitive market, it was hard to find talent before the vote to leave the EU, and the vote and future changes to policy could contribute to making it harder still in future.

The ability to recruit and retain talent is fundamental to the growth of UK FinTech

FinTech firms need the right talent in place to be able to scale. While it was noted that, as a company becomes large, lower levels of skills are required to perform processes and tasks that can essentially be automated, it was still the case that high levels of technical skills were needed for a company to become large.

Interviewees referenced different models for how to access these high levels of technical skills, aside from recruiting people to work in the UK office. These models included outsourcing, setting up new offices in other countries and using remote-workers in other countries. Indeed, one interviewee saw remote-working as having the potential to grow significantly as a method of accessing talent, so long as the technology such as video-conferencing advanced enough.

The drain on resources associated with obtaining visas for non-EEA migrants was also referenced several times. Aside from the obvious cost implications, it was stated that the length of the process meant that productivity was lost as highly-skilled workers waited to be given the approval to be able to work. Several interviewees noted that applying a visa system to EEA migrant workers would have a significant detrimental effect on being able to recruit the right skillsets.



Section 5: Forming a baseline and assumptions for modelling

It is clear from our analysis that, as with all sectors of the UK economy, changing immigration rules and the wider impacts of Brexit could have far reaching impacts on the FinTech sector. There are a wide range of possible changes that could impact on the sector. Many of these could strengthen the opportunities for the sector in the future and provide opportunities for growth. Others present significant challenges to the sector and, as shown above, the sector's need to attract the top global talent and innovators means that one of the most significant challenges could be a more restrictive immigration system.

To understand the potential scale of these challenges, the following sections bring together the analysis above to form an economic model that attempts to tease out the likely impact of a more restrictive EEA immigration system on the FinTech sector. There are a number of ways in which a more restrictive system could impact on the sector. These include:

1. **Direct effects leading from a shortfall in talent.** Here, a more restrictive immigration system leads to a reduction in the number of immigrants coming to the UK to work in the sector. Given the complementarity of immigrant labour, this suggests that it will lead to an overall shortage of talent for the sector.

The modelling focuses on this primary effect and attempts to estimate the potential size of this mismatch in labour supply and demand. Results of this are presented in Section 6.

2. **Knock-on effects of reducing the attractiveness of the UK as a place to work and build businesses.** A more restrictive immigration system could also have much broader effects, for instance by making the UK a less attractive place for global talent to work and / or found businesses.

These effects are much harder to quantify, but are equally (if not more) important as the direct effects. Modelling these effects is not the primary goal of the modelling in this report, but a scenario analysis of the potential impacts is presented in Section 7.

Before presenting these modelled impacts, the rest of this section brings together the conclusions from the analysis above to outline how the model has been developed and specified.

Overall, the model is structured to:

- **Create a baseline:** To quantify how the business composition and employment composition of the FinTech sector will change until the year 2030;
- **Estimate immigrant labour demand:** Using the baseline above to estimate what it would mean for the FinTech sector's demand for immigrant labour;

- **Apply scenarios of changing immigration rules:** To estimate what would happen to the supply of immigrant labour if the immigration system became more restrictive; and
- **Estimate the impacts:** By combining the estimates of demand and supply to understand the potential gap created by changes in immigration rules and assessing the potential impacts on businesses.

To do this requires a set of data sources and a number of assumptions, both of which are set out below.

Key Assumptions

This section explains the assumptions that have been used to model the impact of a more restrictive UK immigration system post-Brexit on the FinTech sector's workforce. The two assumptions that have the biggest influence on the model's results are:

- The expected level of restriction on future immigration; and
- The growth rate of the FinTech sector over the forecast period.

Because of the sensitivity of the model's results to each of these assumptions, three different versions of them (low, central and high – detailed below) have been developed so that different post-Brexit workforce scenarios can be compared.

The level of restriction on future EEA immigration

As outlined earlier, it is most likely that a new post-Brexit migration system will be more restrictive for EEA workers coming to the UK than the current arrangements of freedom of movement. However, the range of potential systems is large and include points-based systems that favour highly-skilled workers all the way through to hard quotas / limits on overall net migration.

This means that, for specific sectors and firms, the overall impact of these changes is unclear. For instance (as seems most likely), if changes lead to a shift in the balance between low and highly-skilled workers, highly-skilled sectors like FinTech could, in principle, see an increase in the available high-skilled workforce.

In practice, adopting such a system would likely mean that the system of immigration for EEA workers becomes more like that currently in existence for non-EEA workers. The analysis above demonstrates that even this system would be likely to impact on the FinTech sector, as the vast majority of respondents to the survey above said that recruiting from outside the EEA is much more difficult than recruiting from inside the EEA. The qualitative interviews suggested that applying this system would significantly impact on the ability of firms to get the right talent.

Scenarios for immigration restriction

To reflect this uncertainty, this report chooses three scenarios of immigration restrictions based on the system for EEA immigration becoming more like the current system for non-EEA workers. The scenarios range from firms being able to achieve the same level of immigration, but with greater bureaucracy, to significant restrictions in the number of EEA migrants because visa applications are declined.

For each scenario, the model only applies assumed restrictions to the expected number of highly-skilled and to some of the medium-skilled EEA migrants that the FinTech sector will need. It is assumed that the sector will be able to substitute away from all low-skilled and some medium-skilled EEA migrants by hiring UK workers.

The scenarios are:

- **The central scenario:** is applying the performance of the existing visa system for non-EEA migration to EEA migrants in future. Statistics on how many visa applications get refused under this system go back to 2005. However, given that major changes to non-EEA immigration rules were introduced after the Coalition Government took office in 2010, it seems sensible to look at visa refusals since then. **Therefore, the model's central scenario is that 13% of visa applications from EEA migrants wanting to work in FinTech get refused under a post-Brexit immigration system.** This is the average rate of refusal between 2010-2017.
- **The low scenario:** is that no visas applications from EEA migrants wanting to work in FinTech get refused under a post-Brexit immigration system, reflecting the fact that the system may simply become more bureaucratic.
- **The high scenario:** is that 19% of visa applications from EEA migrants wanting to work in FinTech get refused under a post-Brexit immigration system, reflecting the largest annual average proportion of visa refusals to occur since 2005 (when the new non-EEA visa system was introduced).

In each scenario, we assume that restrictions are put in place following the implementation period post-Brexit. As such, impacts begin to be seen from 2021. In practice, anticipation effects are likely to be seen prior to this point and, as such, these findings present a conservative estimate of the potential impacts.

Number of FinTech companies operating in the UK

An understanding of the current size of the FinTech sector – both in terms of the number of firms and the number of employees – is needed as a starting point to model the sector's growth in coming years.

To this end, the assumption for the current size of the sector is drawn from the HM Treasury, Innovate Finance, and EY FinTech Census, which defines a FinTech organisation as, "one that undertakes one or more of a set of FinTech business activities". The Census estimates that the number of FinTech companies operating in the UK in 2017 stands at 1,600.

The Census did not quantify UK FinTech employment in 2017. Instead, the most robust estimate we found was from a 2015 study; ^{xiv} this figure was inflated by industry growth between 2015-17 to get to a current estimate. The result is an assumption of approximately 76,500 people employed in UK FinTech in 2017.

Annual growth rate of the FinTech business population

Assuming the growth rate of the business population in any sector is subject to numerous caveats. For example, even if an annual growth rate has been consistent for decades, the business population could be significantly reduced by new technology at any time.

FinTech has grown rapidly in recent years (at an average of around 11% since 2009), but how the sector evolves from here is an unknown.

Growth rate scenarios

To reflect this uncertainty the model uses three growth rate scenarios to reflect both past experience and potential changes to this experience in the future. The scenarios are:

- **Central scenario:** Growth in the number of UK FinTech firms starts at the 11% average seen since 2009 and that, over the forecast period, this rapid growth gradually reduces to a rate that is consistent with other similar sectors. ^{xvii} **Overall, this equates to an average growth of the UK FinTech population of 5.7% up until 2030.** This reflects an assumption of convergence to a steady growth rate, rather than one that is accelerating, and consequently may underestimate the rate of growth in the sector going forward. Regardless, **our central assumption suggests that by 2030 there will be 3,300 FinTech firms operating in the UK.**
- **Low scenario:** The number of FinTech firms in the UK grows consistently at a rate that is similar to that of other sectors at around 4% a year from 2017, rather than converging to it.
- **High scenario:** The number of FinTech firms in the UK grows at a rapid rate of around 11%; this is the average growth rate of FinTech firms being founded in the UK since 2009.

Composition of firm size within the FinTech sector over time

The assumption for the current composition of firm size within FinTech is taken from the HM Treasury, Innovate Finance and EY FinTech Census. This suggests that, by employment banding proportions within the sector are roughly as follows:

Table 2. Composition of the FinTech firm size (by number of employees)

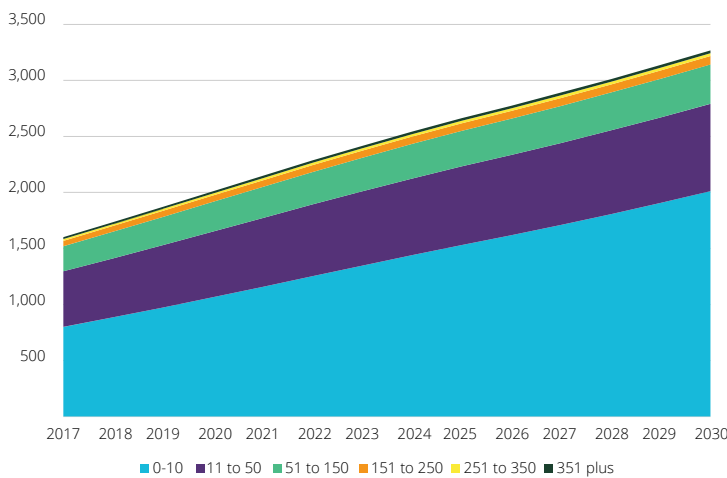
Firm size	Proportion of firms
0-10	50%
11-50	31%
51-150	14%
151-250	3%
251-350	1%
351-1000	1%

Source: WPI Economics' Survey of FinTech firms

As the sector matures and grows it is likely that more small businesses will be created, but relatively few of these firms scale to significant size (in terms of number of employees). This was suggested in the research interviews and has been seen in other sectors, which now have a much larger representation of small and micro businesses. For example, data on the sectors that are most comparable to FinTech show that firms with 0-10 employees make up over 90% of the total. The reason for this is that a sector such as financial services can have a large number of individual financial advisers.

With this in mind, the assumption is that, over the forecast period, the firm size composition of the workforce will gradually converge to that of sectors thought to be similar (figure 12).

Figure 12: Number of FinTech firms operating in the UK 2017-2030 (split by employee size-banding)



Source: WPI Economics' Survey of FinTech firms

Growth and turnover of the UK FinTech workforce

The assumption for the growth rate in FinTech employment is partly a function of the growth in the FinTech business population – as the number of FinTech firms grows, so too does the number of people who work within them. As we assume that FinTech firm-size composition converges to the pattern seen in other sectors over time, we also assume that the employment distribution within firm-size bands will converge to the pattern seen in other sectors.

On this basis, UK FinTech employment growth is assumed to be between 3.5-5% in the early forecast period, before falling to between 1.5-2% in the later forecast period. These rates have been sense-checked against the employment growth rates that other sectors have experienced in different stages of growth and are comparable.

In addition to FinTech firms growing their workforce numbers, they also have to replace those employees which leave. Whether or not FinTech firms have higher or lower staff turnover than other sectors is open to debate (those we spoke to for this project made convincing arguments on both sides). Therefore, the modelling assumes that the FinTech workforce turnover rate is the same as the whole economy at around 15%, as suggested by survey evidence.^{xlvii}

Workforce composition by nationality

Information on the composition of the FinTech workforce was primarily gathered from the survey distributed to FinTech firms, and confirmed using other data sources. Respondents were asked a question about the proportion of their workforce from EEA and non-EEA countries.

The findings (table 3) suggest that at present FinTech companies are reliant on every type of worker, including UK nationals, EEA nationals, and non-EEA nationals, and that they work across a large majority of different roles in the FinTech workforce.

Table 3: Composition of the FinTech workforce

UK	57.5 %
EEA	28.1%
Non-EEA	14.4%

Source: WPI Economics' Survey of FinTech firms

Workforce composition by nationality and role

Taking results from the survey of FinTech firms suggest that there are three technical job roles that are typically performed to a greater degree by EEA and non-EEA migrant workers. These are “computer and software development”, “user experience and design” and “process and design optimisation”. The model weighted the survey responses to create assumptions about the FinTech workforce composition split by role and nationality.

In contrast to the EEA and non-EEA migrant workers, there are three job roles that are typically performed to a greater degree by UK nationals. The first is sales, the second is general management (perhaps not surprising given the bias towards FinTech companies created in the UK), and the third is HR and talent management.

Skills distribution by FinTech role

The below table set out the proportion of workers in each FinTech job role that is estimated to have “high”, “medium” and “low” skills. The definitions are taken from the Migration Advisory Committee’s call for evidence,^{xlviii} which are briefly explained as follows:

- High skills are degree level and above;
- Medium skills are A levels or some other kind of Further Education; and
- Low skills are GCSE and below.

The distribution of each skills level within each job role category are primarily taken from an analysis of the Labour Force Survey in London.^{xlix} In our modelling, the skills distribution, set out in the table below, for sales and marketing roles, were amended to represent a greater proportion of higher-skilled employees for smaller FinTech firms. This is because interview feedback suggested that these job roles in FinTech required technical knowledge – as firms grew, these proportions reverted to those in the table below.

Table 4: Skills profile of workforce in each job role

	Computer and software development	Product	Sales	Regulatory and risk management	User experience and design	Process design and optimisation
High Skilled	82%	67%	14%	82%	82%	82%
Medium skilled	13%	20%	26%	13%	13%	13%
Low skilled	5%	13%	60%	5%	5%	5%

	Marketing	General Management	Project Management	Financial and tax	HR and talent management
High Skilled	67%	61%	82%	67%	61%
Medium skilled	20%	22%	13%	20%	22%
Low skilled	13%	17%	5%	13%	17%

Source: WPI Economics’ analysis of Labour Force Survey

Section 6: Modelling the Impact of Brexit on the FinTech Sector

This section presents findings from the direct effects of tighter immigration controls for EEA workers following Brexit. It models the extent to which these controls could lead to the supply of foreign workers failing to keep up with demand. It uses the assumptions outlined in the previous section to create forecasts of the FinTech workforce between 2017 and 2030. The forecasts vary according to which of the low, central and high scenarios for growth and migration restrictions are used.

Headline findings

The headline findings for the central scenarios for both growth and migration restrictions are as follows:

- **Our central sectoral growth scenario:** Suggests that UK FinTech firms will require approximately 33,500 EEA workers in the period 2017 and 2030 if they are to meet their expected growth and respond to staff turnover.
- **Our central scenario for immigration restriction:** Suggests that there will be a shortfall of over 3,200 EEA workers between 2021 and 2030. Based on 2017 figures, this equates to the workforce of 67 FinTech businesses.

The purpose of presenting different scenarios is to reflect the uncertainty attached to how the FinTech sector will evolve, and to what future immigration policy will look like. Any combination of scenarios of these two variables is possible, and the results of these different combinations are outlined in the below table.

Table 5: Modelled estimates of the employment gap created by changing the EEA immigration system post Brexit

		Sectoral Growth		
		Low	Central	High
Migration restriction	No restriction*	Negligible	Negligible	Negligible
	Central	2,600	3,200	7,200
	High	3,700	4,700	10,500

Source: WPI Economics

* This scenario accounts for an immigration system that does not result in a reduction in the number of EEA immigrants, but comes with increased bureaucracy. While there would be no direct effects, there would obviously be potential demand and supply-side responses to increased bureaucracy and wider potential implications of a system viewed as less liberal. These are not modelled here.

The rest of this chapter presents two elements of the modelling in more detail:

- The **baseline scenario**, which presents the expected growth of FinTech firms in the UK and the FinTech workforce in the UK up until 2030, assuming that there are no changes to the existing immigration system; and
- An analysis of how a **more restrictive immigration system** for EEA workers may prevent the UK FinTech sector from meeting its skills needs, including an assessment of the likely shortfall of skilled workers.

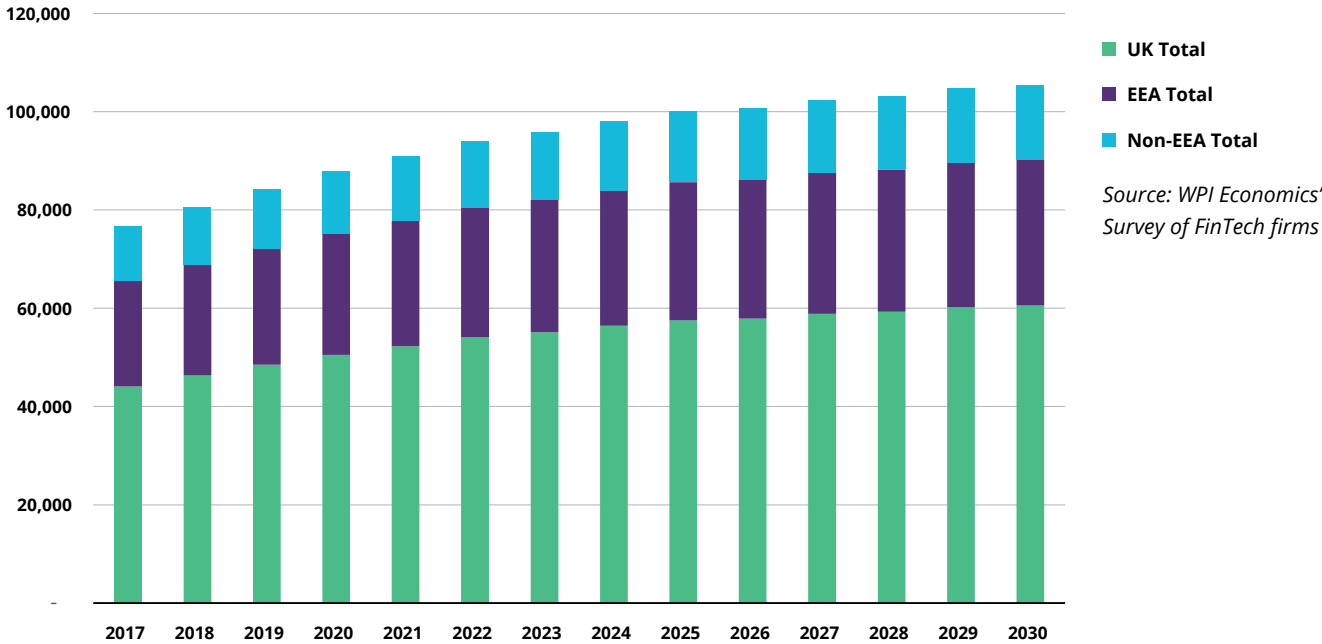
Potential indirect or wider effects, for instance created by the UK becoming less attractive to global talent as a place to work and establish businesses, are discussed in the section 7.

The UK FinTech workforce baseline 2017-2030 in three charts

The FinTech workforce baseline represents the model's forecast for UK FinTech employee growth assuming there are no changes to the existing immigration system. The central scenario of the impact of a more restrictive immigration system is built upon adjustments to this baseline.

Figure 13, below, shows the baseline for FinTech workforce growth, split into groupings of migrant workers. The total workforce grows from around 76,500 in 2017 to around 105,500 in 2030. With this total UK workers grow from approximately 44,000 to 60,500, EEA workers grow from 21,500 to 29,500 and non-EEA workers grow from 11,000 to 15,200.

Figure 13: FinTech workforce in the UK 2017 - 2030 (Split by UK, EEA and non-EEA)



The skills distribution for EEA FinTech workers in the UK is shown in figure 14 below. Highly skilled EEA workers are expected to grow from 14,450 to 19,800 in the period. Moreover of the 29,500 EEA workers forecast to be employees in UK FinTech in 2030, just under a quarter (24%) are expected to be working in computer and software development roles.

Figure 14: Skills distribution projections of the UK EEA workforce (2017 - 2030)

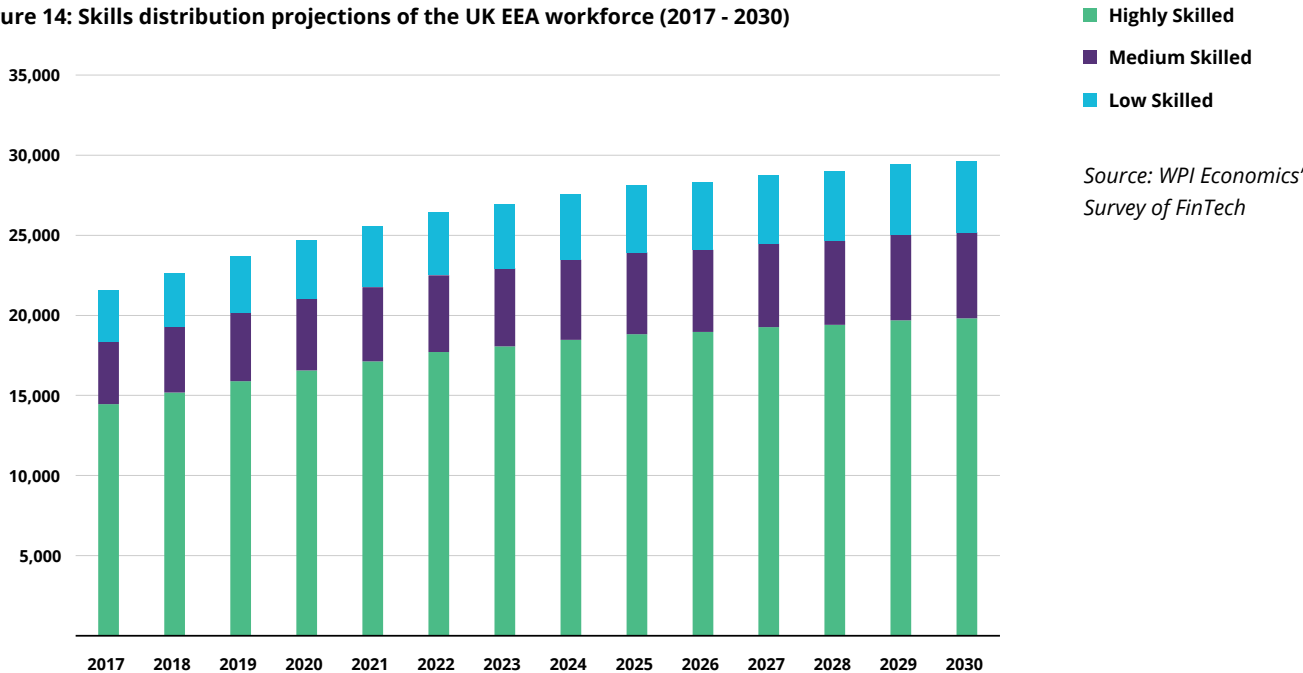


Figure 15: UK FinTech workforce annual EEA requirement

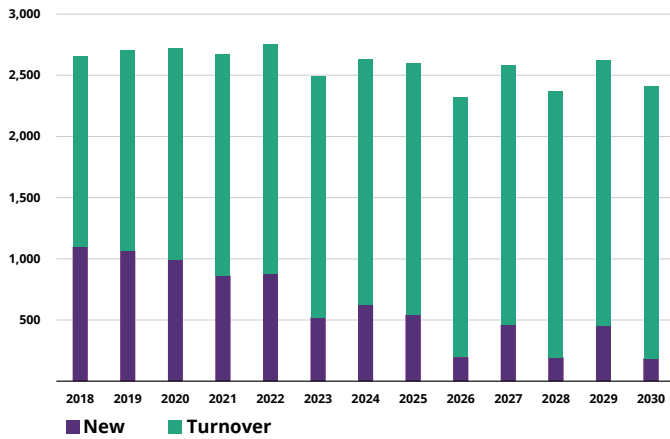


Figure 16: Projected EEA worker shortfall 2021-2030, central scenarios for both growth and immigration restriction

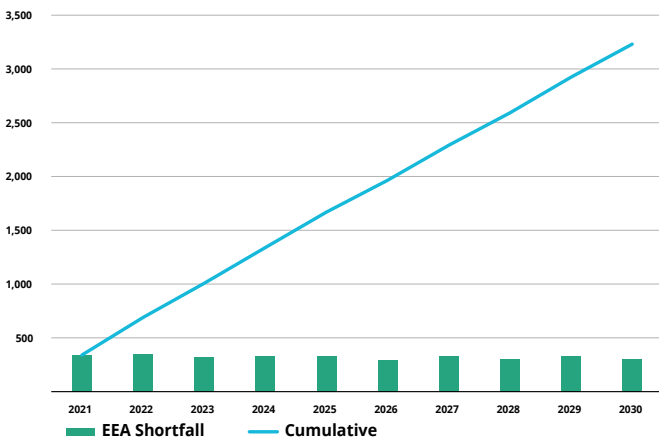


Figure 15, shows the baseline for how many EEA workers the UK FinTech sector needs to both support forecast industry growth and to replace staff who leave. The central projection suggests that from the beginning of this year the UK FinTech sector will require 33,500 EEA workers to support these twin needs.

The figure shows that greater numbers of EEA workers are needed to account for staff turnover than growth, and that greater numbers of EEA workers are needed to support growth at the beginning of the forecast period (reflecting that the central projection sees the sector grow more rapidly during this early part of the forecast period).

A more restrictive migration policy for EEA workers over 2021-2030 in three charts

The model assumes that a more restrictive migration policy will be put in place after the transition period has ended. Hence, the forecast looks at the period 2021-2030. The numbers presented here refer to a EEA “shortfall” – this is the difference between the forecast number of EEA workers that the FinTech sector needs and the number of EEA workers that are available under a more restrictive immigration regime.

Figure 17: Cumulative shortfall in EEA workers in FinTech under low, central and high growth scenarios (2021-2030). Immigration restriction scenario held constant at the central case

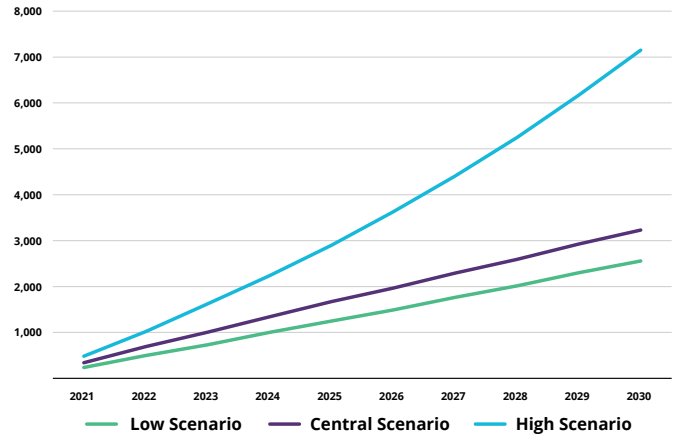


Figure 18: Cumulative shortfall in EEA workers in FinTech under low, central, and high immigration restriction scenarios (2021 to 2030). Growth scenario held constant the central case

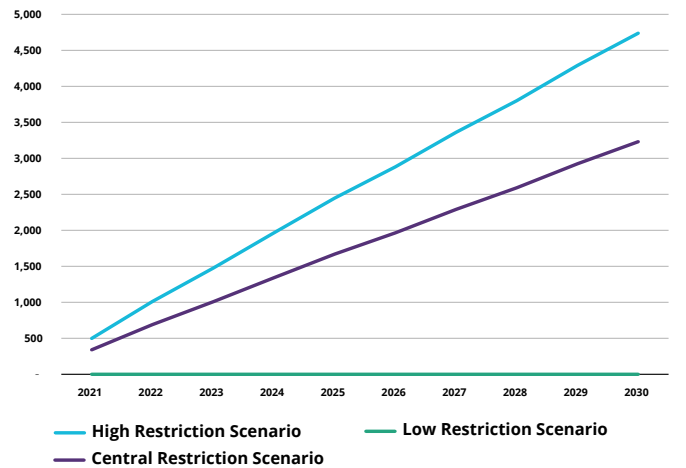


Figure 16, shows the central projection for the shortfall (this is based on the central growth projection and the central immigration restriction). **Over the forecast period, the shortfall amounts to over 3,200 workers.**

Figure 17, shows the cumulative EEA worker shortfall for the low, central and high sector growth scenarios. This amounts to a shortfall of 2,600, 3,200 and 7,200 under each respective scenario.

Figure 18, uses the central growth scenario to show how the shortfall in EEA workers in the FinTech sector responds to each of the immigration restriction scenarios. As can be seen from the figure, the low immigration restriction scenario is estimated to create no shortfall (as there are no direct effects, only impacts on the level of bureaucracy and potential wider knock on effects, not modelled here). However, as a more restrictive system is implemented, the shortfall increases and, with relatively high immigration restrictions (the ‘high’ scenario), the shortfall grows to a total of 4,700 over the period.

Conclusion

This section has outlined estimates of the potential direct impacts on the FinTech workforce of making the system of immigration for EEA workers more restrictive following Brexit. It has done so under various scenarios for sector growth and restrictions under a future immigration system.

Under the central scenario for sectoral growth and immigration restrictions, our modelling suggests that the sector will face a shortfall of 3,200 EEA workers between 2021 and 2030 (or around 320 a year). In the context of the whole economy, this might seem like a small number. However, the impacts could, in fact be large. There are a number of ways in which this could be conceptualised:

- **What it might mean for today's FinTech sector:** 3,200 workers represents a total of 3% of the total expected FinTech workforce in 2030. Based on Gross Value Added per head in the wider financial services sector, if this 3% were applied to today's FinTech workforce, this would amount to a direct loss of £361m to the FinTech sector. Indirect and induced effects would make the impact even larger for the UK economy.
- **What it might mean if replicated across the economy:** It is important to remember that an average yearly shortfall of 320 EEA migrants is equivalent to a 13% reduction in EEA migration for the FinTech sector. If this reduction in immigration from the EEA were seen more broadly across the economy, estimates from the Office for Budget Responsibility suggest that trend growth could fall by 0.06%. That would suggest that by 2030, the economy would be 0.7% smaller than would otherwise be the case, or around £14 billion.¹

Using the high scenarios for both growth and immigration restrictions would lead to even larger impacts. It is also important to remember that these estimates are likely to be conservative:

- As highlighted above, the modelling assumes that there are no impacts on the FinTech workforce between now and the end of the Brexit implementation period. In practice, there are likely to be some impacts, which could increase the estimates highlighted here;
- It is conceivable that the immigration system could become even more restrictive than assumed here. For example, other research has used an estimate of a 50% reduction in EEA immigration. If this assumption were used here, the EEA worker gap would be nearly 400% larger; and
- The analysis does not include any assumed behaviour impacts (e.g. if firms become less profitable because of the additional administrative burdens, annual fees and the immigration skills charge) or broader indirect impacts, which are discussed in section 7.



Section 7: The further impacts of Brexit

The modelling above presents the potential impacts of changing immigration rules post-Brexit from one relatively narrow route. While this provides an original and important contribution to our understanding of the potential impact of Brexit on one of the UK's most innovative and fast-growing sectors, there are clearly much wider potential effects. These include effects both before the end of the Brexit implementation period (between now and 2021) and wider indirect effects on the perception of the UK as an attractive place for global talent to work and set up businesses.

Anticipation effects 2018-2021

The modelling in this report assumes that restrictions in immigration begin once the Brexit implementation period ends (at the time of writing the EU has stated that any transition period will end no later than 31 December 2020).ⁱⁱ With uncertainty over the future immigration system, the nature and length of the implementation period and future trading arrangements, there is clearly a great deal of uncertainty over the period 2018 – 2021, which is likely to impact on the FinTech workforce.

- On the one hand, there could be an immediate 'pull' factor as EU citizens attempt to move to the UK ahead of the cut-off date;
- If so then we would expect this to be compensated for by a reduced 'pull' immediately after the UK leaves (as people who were planning to move around that date brought their moving date forward); and
- Equally, we might expect an immediate reduction in 'pull' as EU citizens anticipate a future where the UK labour market is harder to enter and navigate. The general perception of the UK as a good place to work and set up a business might also diminish; again resulting in a reduced 'pull' in the period up until 2021. In either case, immigration would begin to fall immediately and the impacts of potential changes in the immigration system would be brought forward. Note that recent data showing reduced net migration into the UK would support this hypothesis.

Overall, while it is hard to distinguish between these various potential effects, one thing that is certain is that they create an uncertainty which is likely to be damaging to businesses investment plans.

Broader effects, 2018 – 2030

As already outlined, there are also a wide range of potential indirect and knock-on effects of changing the immigration system for potential EEA migrants. For example:

- Changes in the availability of global talent in the UK FinTech sector could lead to increased salaries as a result of skills shortages. This could have a range of impacts; at the very least it could impact on firm profitability and more significant changes could impact on the viability of firms in the sector;
- As above, changes in the immigration system and international views of the UK's approach to Brexit may reduce the desire of global talent to move to the UK, fill skills gaps and contribute to business start-ups; and
- Any increases in skills shortages and / or the availability of global talent in the UK may impact on firm location decisions.

The scale and nature of many of these effects are obviously hard to assess with any level of accuracy. However, as with the anticipatory effects outlined above, they are likely to introduce uncertainty into business investment decisions in both the short and long-term.

Impact of uncertainty and secondary factors

Together, the factors above are likely to have a negative impact on growth in the FinTech sector, at least in the short term. Although modelling the precise size of these impacts is beyond the scope of this report, it is most likely that they will be seen as reductions in firm and employment growth.

The survey of FinTech firms for this research demonstrates the potential scale of challenges that these anticipation and broader effects could represent for the UK's FinTech sector:

- Just under nine in ten (86%) of firms intending to change behaviour were considering re-locating outside the UK; and
- One in three (32%) had already delayed planned recruitment activity.

Based on this data, there is a possibility that London and the rest of UK may become a less attractive place to found and grow FinTech companies due to a combination of uncertainty, and lower access to both European markets, and human capital. Consequences could include companies being founded elsewhere, choosing to expand to different jurisdictions instead of growing their UK presence, or simply delaying investment and growth.

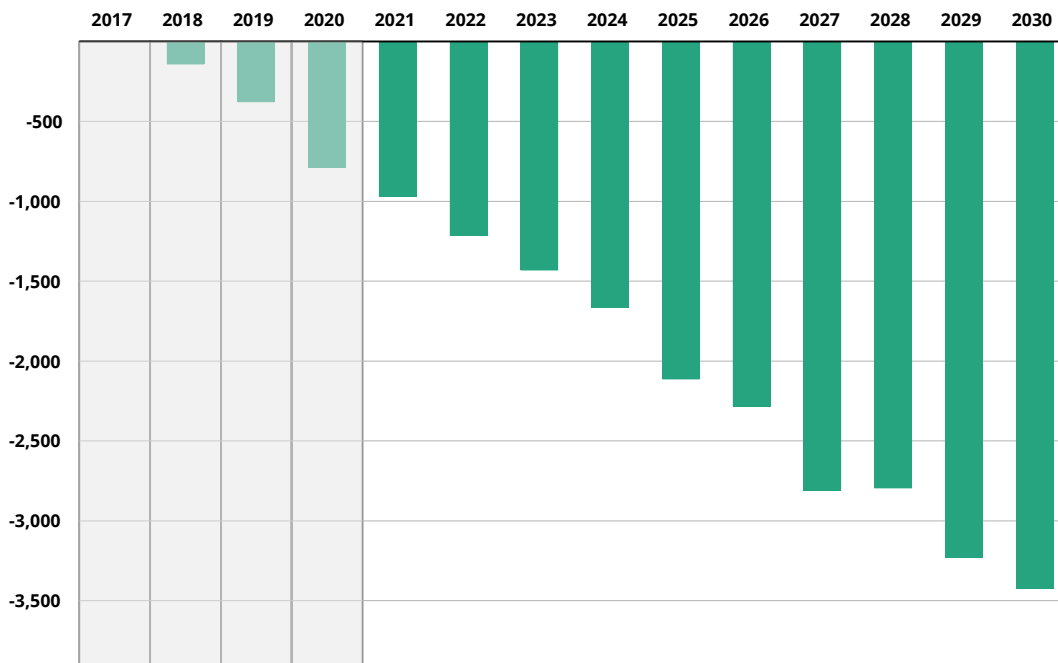
Whilst the impacts are intangible and cannot be accurately predicted at this stage, it is not unfeasible to expect that at least some of them will materialise. Based on this, figures 20 and 21 below present indicative modelling of a scenario where uncertainty and secondary factors associated with changes with the UK's EEA immigration policy lead to a 1% reduction in the FinTech sector's growth.

mean that the FinTech sector has over 10% less firms within it than would have otherwise have been the case.

Ultimately, if these effects materialise, the impacts would need to be added to the analysis presented in Section 6. This would mean that our central case would be too conservative and the impacts on the sector and economy from changing the UK's EEA immigration system would be larger than modelled.

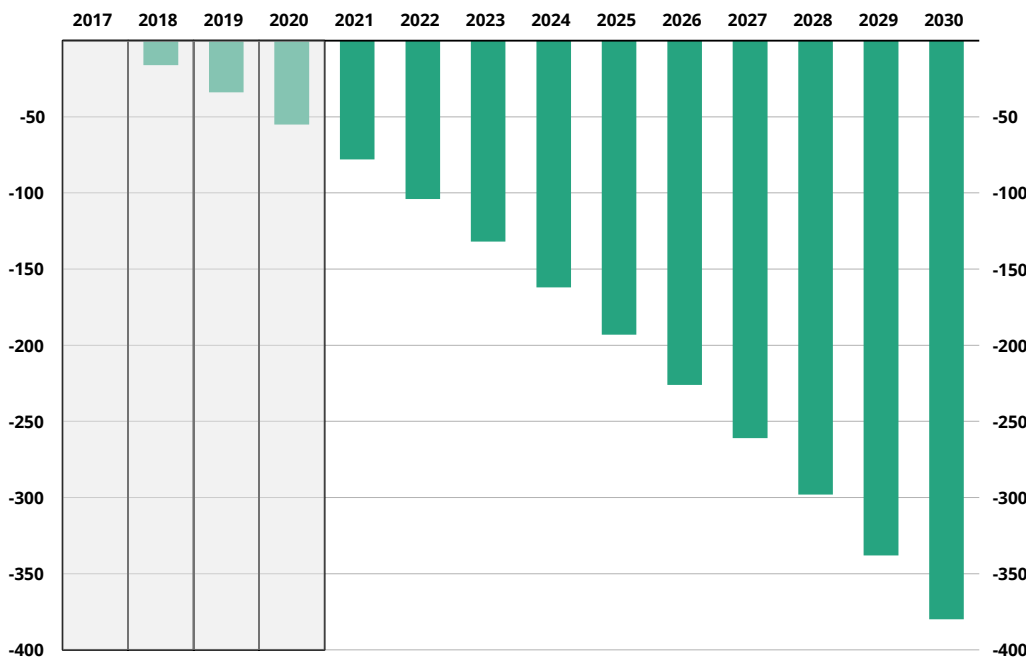
Even with this conservative assumption, the effects over the coming decades would compound quite significantly. By 2030, this could

Figure 20: Indicative cumulative loss in EEA employment in UK FinTech caused by the dampening effect of uncertainty and secondary factors



Source: WPI Economics

Figure 21: Indicative cumulative loss in UK FinTech firms caused by the dampening effect of uncertainty and secondary factors



Source: WPI Economics



Section 8: Conclusions

This report has modelled the potential impacts of a more stringent system of immigration for EEA migrants into the UK, after the end of the Brexit implementation period (assumed to be 2021). It has used original data collected from UK FinTech firms and in-depth interviews to present new insights into the size and nature of the UK's existing FinTech sector and to understand both how this might change over time and how changing immigration rules might impact on these changes.

The overall conclusion is that, despite positive steps in terms of securing the future status of those EEA migrants currently resident and working in the UK, future changes to immigration policy post Brexit could present significant challenges to the UK FinTech sector. In particular, the report highlights that steps to restrict the number of high-skilled EEA workers coming to the UK, or to increase the bureaucracy surrounding the process through which they come to the UK, could exacerbate the skills shortage that already exists for UK FinTech.

At the very least, by reducing the pool of available global talent and increasing the costs of doing business, this could make the environment for the UK's existing FinTech sector more challenging. However, the impacts are likely to be much broader; surveying and interviews as part of this research highlighted that many FinTech firms are already considering their location choices and that changes to make immigration policy more stringent could reduce the attractiveness of the UK as a base for new and existing FinTech businesses. Were this to occur, this could put at risk the UK's global standing as a leader in FinTech.

However, if talent is managed in a way which encourages flexibility around access and the development of local skills then UK FinTech will likely remain attractive to businesses and be well placed to grow and succeed in the next decade.

INNOVATE / FINANCE

Policy Principles

The following section details the opinions only of Innovate Finance.



Policy Principles

This report, commissioned by Innovate Finance and produced by WPI Economics, has concluded that there are several factors which could impact on the overall attractiveness of the UK's FinTech ecosystem, the sector's continued growth, and the skills base that enables FinTech businesses to thrive.

Supported by the data, Innovate Finance have put forward a guiding set of policy principles to form the basis for further consultation across the FinTech ecosystem, and to ensure there is continued dialogue on the key issues raised in this report. Taken together, these principles will ensure future discussions recognise that flexible access to a global talent pool is vital, but so is the continued development of local talent.

Innovate Finance supports a flexible approach to the development of one immigration system that demonstrates complementarity between international talent and the UK's local skills base for FinTech.

As this report found, FinTechs continue to experience operational difficulties with the existing non-EEA immigration system on a day-to-day basis, particularly around:

- processing applications while the applicant remains overseas;
- understanding the complexity of rules surrounding the system;
- costs of the system, particularly for small fintech businesses;
- delays in applications having an adverse effect on businesses seeking to grow, or scale; and
- complexity of third-party sponsorship, on which many smaller businesses are reliant.

To mitigate this, we envisage a future system that is flexible enough to address these challenges. This will enable the UK to continue to attract overseas talent, especially those job creators from overseas to move or set up their businesses here. This also supports the complementarity that international talent brings to the UK, supporting the transfer of skills for UK residents seeking employment in such businesses.

FinTech is not just a beneficiary but a driver for enabling a future migration system which benefits the entire UK economy.

Recognising the scale of the challenge facing officials, industry might provide an avenue for collaboration with policy makers on identifying those practical technological solutions that will enable a frictionless system to exist. Current technologies being developed with a view to supporting EEA migrant applications during the forthcoming transition period could be expanded upon. Such innovations could also provide the necessary tools and the framework for a more flexible immigration system.

Smarter methods of sponsorship will enable costs to smaller FinTech companies to be reduced.

Accelerators and Incubator spaces could provide a means to bring down the cost of relying on overseas talent by being utilised as third-party sponsors. This could extend to the government also providing access to immigration specialists in such spaces thereby tackling the disproportionate cost of UK immigration for smaller businesses. It is important to ensure that within an already restricted global talent pool, addressing the cost and complexity of hiring overseas talent will remain critical.

We recognise that the definition of 'highly skilled' is not necessarily based on academic achievement but a more sophisticated analysis of experience.

Countries comparable to the UK often make a more nuanced distinction regarding the term 'skilled', taking a less arbitrary approach to these definitions by grouping occupations in different ways, for example by job tasks or experience, rather than solely by educational attainment. We support the adoption of this approach to tech roles as it allows for certain skills acquired by the workforce to be recognised without the basis of academic achievement, an approach that could also be beneficial to other sectors that require a multiplicity of different skills.

The UK should continue to undertake an assessment of key skills to understand where the gap in digital skills exists, creating a mechanism for training local talent.

Whilst the UK might lead on FinTech, the need to improve the domestic skills base through secondary and further education and other vocational training has existed for some time. We recognise the government's own commitment, highlighted in the UK Digital Strategy, to increasing the pipeline for specialist skills to support the tech industry. As such, continuing to bridge the informational gap by better understanding where digital skills shortages lie will provide a stronger evidence base for public policy, and in meeting training requirements for local talent.

The UK should continue to ensure by way of investment into education that the changing digital nature of the UK economy is reflected in the curriculum.

The government's own industrial strategy highlighted the UK's systemic "poor performance in basic and technical skills" and committed to the creation of "a proper system of technical education". We welcome the government's commitment to the creation of 'T-Levels' as an example of this policy being taken forward, and the continued support for STEAM subjects in education. According to this report, many FinTechs currently recruit from overseas due to a lack of applications from or skills of the UK workforce. The report does however recognise that importing skills from overseas is complementary to the existing domestic talent base and is a generational challenge which needs to be addressed. This alongside investment in developing a local tech talent pipeline will remain essential if the UK is to continue its comparative advantage in innovative sectors of the economy, such as FinTech.

FinTech has an economic and a societal value, beneficial to both the future of financial services as well as potential consumers, across the UK. We therefore look forward to ensuring there is continued success for UK FinTech by building on these policy principles in the coming months, and working with stakeholders across the financial services and technology industries, to present a series of recommendations aimed at addressing the challenges raised in this report. Critically, resolving how we are best able to develop local talent, whilst at the same time ensuring we are reducing the barriers towards supporting and attracting a global talent pool, will remain important for the future growth and prosperity of UK FinTech.



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Annex 1: Questions on survey of FinTech firms

- 1 **As this survey is designed to inform the understanding of employment behaviours in FinTech, please state whether or not you meet the following criteria:**

Do you agree with this statement?

- "I currently work in a FinTech organisation."
- Yes / No

Note: A FinTech organisation is one whose activities relate to the use of innovative business models and technology to enable, enhance or disrupt financial services - and can include both B2C and B2B propositions, which broadly cover:

- Money transfer and payments;
- Insurance;
- Borrowing;
- Financial planning;
- Savings and investments;
- Enterprise and RegTech;
- Small-and medium-sized enterprises (e.g. trade finance); and
- Corporates (e.g. merchant acquirers, fraud detection software etc.)

- 2 **How many people are employed in your business in the UK (please provide an estimate of total numbers):**

	This year	Last year	Two years ago
On a full-time basis			
On a part-time basis			

- 3 **How many people do you expect will be employed in your business in the UK (please provide your best estimate of total numbers):**

	Next year	In three years	In ten years
On a full-time basis			
On a part-time basis			

4 Approximately what percentage of your UK workforce are currently located in the following regions:

- a. London
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- b. South East
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- c. North West
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- d. North East
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- e. West Midlands
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- f. East Midlands
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- g. South West
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- h. Yorkshire and the Humber
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- i. East of England
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- j. Wales
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- k. Scotland
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%

5 Approximately what percentage of your UK workforce are?

- a. UK nationals?
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- b. Migrants to the UK from within the European Economic Area (EEA)?
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%
- c. Migrants to the UK from outside the EEA?
0-10% / 10-20% / 20-30% / 30-40% / 40-50% / 50-60% / 60-70% / 70-80% / 80-90% / 90-100%

6 Which of the following roles does each type of worker typically perform?

If you do not employ any UK Nationals/ EEA Migrants/ non-EEA Migrants, please select “Do not employ any [...]” for each column respectively.

Please do not select the same answer twice per column.

Role type	UK Nationals	EEA Migrants	Non-EEA Migrants
Most common role	<ul style="list-style-type: none"> • Computer and software development • Product • Sales • Regulatory and risk management • User experience and design • Process design and optimisation • Marketing • General Management • Project Management • Financial and tax • HR and talent management • Other (please specify) • Do not employ any UK nationals 	<ul style="list-style-type: none"> • Computer and software development • Product • Sales • Regulatory and risk management • User experience and design • Process design and optimisation • Marketing • General Management • Project Management • Financial and tax • HR and talent management • Other (please specify) • Do not employ any EEA migrants 	<ul style="list-style-type: none"> • Computer and software development • Product • Sales • Regulatory and risk management • User experience and design • Process design and optimisation • Marketing • General Management • Project Management • Financial and tax • HR and talent management • Other (please specify) • Do not employ any non-EEA migrants
Second most common role	<ul style="list-style-type: none"> • Computer and software development • Product • Sales • Regulatory and risk management • User experience and design • Process design and optimisation • Marketing • General Management • Project Management • Financial and tax • HR and talent management • Other (please specify) • Do not employ any UK nationals 	<ul style="list-style-type: none"> • Computer and software development • Product • Sales • Regulatory and risk management • User experience and design • Process design and optimisation • Marketing • General Management • Project Management • Financial and tax • HR and talent management • Other (please specify) • Do not employ any EEA migrants 	<ul style="list-style-type: none"> • Computer and software development • Product • Sales • Regulatory and risk management • User experience and design • Process design and optimisation • Marketing • General Management • Project Management • Financial and tax • HR and talent management • Other (please specify) • Do not employ any non-EEA migrants
Third most common role	<ul style="list-style-type: none"> • Computer and software development • Product • Sales • Regulatory and risk management • User experience and design • Process design and optimisation • Marketing • General Management • Project Management • Financial and tax • HR and talent management • Other (please specify) • Do not employ any UK nationals 	<ul style="list-style-type: none"> • Computer and software development • Product • Sales • Regulatory and risk management • User experience and design • Process design and optimisation • Marketing • General Management • Project Management • Financial and tax • HR and talent management • Other (please specify) • Do not employ any EEA migrants 	<ul style="list-style-type: none"> • Computer and software development • Product • Sales • Regulatory and risk management • User experience and design • Process design and optimisation • Marketing • General Management • Project Management • Financial and tax • HR and talent management • Other (please specify) • Do not employ any non-EEA migrants

7 **Do you rely on recruiting migrants to meet a skills need?**

- Yes, predominantly EEA migrants
- Yes, predominantly non-EEA migrants
- No

8 **If so, please explain which of the following best describes your reasons for doing so:**

- UK workforce does not have the right skills
- Migrant workforce is more productive
- We have always recruited from outside the UK
- Lack of applications from UK workforce
- Labour costs are lower when recruiting from abroad
- Other (please specify)

9 **Compared to the recruitment of workers from within the EEA, do you face additional difficulties when attempting to recruit and employ non-EEA migrants?**

- a. Yes / No / N/A – have not recruited from outside of the EEA
- b. If yes, please explain the challenges you face:
- c. If yes, which of the following best describes how your recruitment strategy would change if it became equally difficult to employ EEA migrants?

I would look to recruit more UK nationals

I would look to recruit more from outside the EEA

My strategy would not change

Other (please specify)

10 **Which of the following statements best represents how you have changed behaviour in relation to workforce management in response to Brexit?**

- We have not changed behaviour, and do not intend to
- We have not changed behaviour, but intend to
- We have already changed behaviour

11 **If you said that Brexit has meant that you either intend to, or have changed behaviour in relation to workforce management, please say how you intend to / have changed behaviour (tick all that apply):**

- | | |
|--|--------------------------|
| Increase or have already increased recruitment from non-EEA countries | <input type="checkbox"/> |
| Increase or have already increased recruitment from the UK | <input type="checkbox"/> |
| Increase or have already increased planned level of training and development | <input type="checkbox"/> |
| Consider re-locating to another part of the UK | <input type="checkbox"/> |
| Consider re-locating outside the UK | <input type="checkbox"/> |
| Reduce our recruitment activity permanently | <input type="checkbox"/> |
| Brought forward planned recruitment activity | <input type="checkbox"/> |
| Delayed planned recruitment activity | <input type="checkbox"/> |
| Other (please specify) | |
| Please insert explanation here if relevant | <input type="checkbox"/> |

12 **To what extent do you agree with the following statements, concerning whether migrants to the UK from the EEA were involved in founding your business?**

- | | |
|--|---|
| The company would not exist without EEA migrants being involved in the founding process | Strongly disagree/ Disagree/
Agree/ Strongly agree |
| The company would not have been able to scale without EEA migrants being involved in the founding process | Strongly disagree/ Disagree/
Agree/ Strongly agree |
| The company would still exist in the same state even if EEA migrants had not been involved in the founding process | Strongly disagree/ Disagree/
Agree/ Strongly agree |
| EEA migrants were not involved in the founding process | Strongly disagree/ Disagree/
Agree/ Strongly agree |

End Notes

- i **Migration Advisory Committee Commission**, (2017). Call for Evidence – July 2017.
- ii **Note that some firms do not have to report average employee numbers, so our investigation reported findings from 84 firms that had reported employee numbers.**
- iii **KPMG**, (2017). Value of Fintech, Available here: <https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/10/value-of-fintech.pdf>
- iv **Karen McCullagh**, (2016). Brexit: Potential Implications for Digital and ‘Fintech’ industries. UEA Law School. UEA Prints. Available here: https://ueaeprints.uea.ac.uk/60566/1/Brexit_financial_digital_services_DCMS_report_KMcC.pdf
- v **Centre for Entrepreneurs and DueDil**, (2015). Migrant Entrepreneurs: Building our businesses, creating our jobs. Available here: <http://centreforentrepreneurs.org/wp-content/uploads/2015/11/MigrantEntrepreneursWEB.pdf>
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- vii **Similar industries are those within Standard Industrial Classifications.**
- viii **Innovate Finance**, (2017). The H1 2017 VC Investment landscape. Approximate figure - calculated by taking 2016 total FinTech investment (USD) and conversion to GBP using year-end exchange rate for 2016. Available here: <https://www.slideshare.net/innovatefinance/the-h1-2017-vc-fintech-investmentlandscape-by-innovate-finance>
- ix **WPI analysis of findings in this report and based on OBR**, (2010). Economic and fiscal outlook – November 2010: Net migration and trend growth. Available here: <http://budgetresponsibility.org.uk/box/net-migration-and-trend-growth>, PWC, (2017). UK Economic Outlook. Available here: <https://www.pwc.co.uk/economic-services/ukeo/ukeo-nov17-full-report.pdf> and Migration Watch UK, (2017). Net Migration Statistics. Available here: <https://www.migrationwatchuk.org/statistics-net-migration-statistics>
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- xi **KPMG**, (2017). Value of Fintech, Available here: <https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/10/value-of-fintech.pdf>
- xii **Bird&Bird LLP**, (2017). Brexit: The Making or Breaking of UK FinTech. Available here: <https://www.twobirds.com/en/news/articles/2016/uk/brexit-the-making-or-breaking-of-uk-fintech>
- xiii **Financial Times**, (2016). UK’s financial regulators move to boost challenger banks. Available here: <https://www.ft.com/content/3068994c-bf71-11e5-9fdb-87b8d15baec2>
- xiv **Phillip Hammond**, (2017). Our FinTech industry can power a prosperous future. Available here: <https://www.gov.uk/government/speeches/our-fintech-industry-can-power-prosperous-future-article-by-philip-hammond>
- xv **Innovate Finance**, (2017). The H1 2017 VC FinTech Investment Landscape. Available here: <https://www.slideshare.net/innovatefinance/the-h1-2017-vc-fintech-investment-landscape-by-innovate-finance>
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- xxi **Conservative Party**, (2017). Forward Together: The Conservative Manifesto. Available here: <https://www.conservatives.com/manifesto>
- xxii **Home Office, UK Visas and Immigration and Department for Exiting the European Union**, (2017). More detail provided on new settled status for EU citizens. Available here: <https://www.gov.uk/government/news/more-detail-provided-on-new-settled-status-for-eu-citizens>
- xxiii **Conservative Party**, (2017). Forward Together: The Conservative Manifesto. Available here: <https://www.conservatives.com/manifesto>
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- xxv **Europa Commission**, (2017). On Progress during phase 1 of negotiations under Article 50 TEU on the United Kingdom’s orderly withdrawal from the European Union. Available here: https://ec.europa.eu/commission/sites/beta-political/files/joint_report.pdf
- xxvi **Europa Commission**, (2017). On Progress during phase 1 of negotiations under Article 50 TEU on the United Kingdom’s orderly withdrawal from the European Union. Available here: https://ec.europa.eu/commission/sites/beta-political/files/joint_report.pdf
- xxvii **The Government notes that they “also expect that our offer will be extended to resident nationals of Norway, Iceland, Lichtenstein and Switzerland.”**
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