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### The global competition for talent: Life science and biotech careers, international mobility, and competitiveness

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# PART I: WHAT STRUCTURES THE GLOBAL COMPETITION FOR TALENT?

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## INTRODUCTION

In one of his monumental papers, Drucker (1986, p. 768) discusses the changing nature of international competition, stating,

The talk today is of the ‘changing world economy.’ I wish to argue that the world economy is not ‘changing’; it has already changed – in its foundations and its structure—and in all probability the change is irreversible.

Drucker, in the 1980s, was referring to specific changes related to international production and the increasing global mobility of capital replacing trade as pillars of the economy. The increasing globalization of capital was coupled with dramatic changes in industry whereby increasing production was no longer equated with increases in employment to the extent it had in the past due to new technologies for production and the proportionally lower cost of materials in technically-oriented products as compared to the research that goes into producing them. These changes lead to the emergence of the knowledge economy and changes in the factors that contribute to competitiveness.

‘Competitiveness’ is an elusive term (Barkley, 2008; Krugman, 1994). Although it serves as a buzzword for measuring economic strength, including in global context, truly being competitive covers an enormous range of measures and can be assessed for individual firms and institutions, cities and regions and countries as a whole. As such, it is a concept that is relevant to a wide stream of academic literature, including management, economics and political-economy.

This chapter build on these ideas to better understand the theoretical foundations supporting the ‘global competition for talent,’ which are linked to understanding the theoretical underpinnings of international competitiveness as it applies particularly to workforce and employment issues, the importance of the knowledge worker, and the rising interest in the concept of ‘talent’. This chapter first discusses the concept of competitiveness, primarily focusing on the work of Porter (see e.g. 1990; 1998; 2003) and some critiques of the concept of competitiveness. It then discusses the association between competitiveness and knowledge worker, building mainly from the work of Drucker (1986; 1999). It then argues that an assumed link has been made, particularly following the IT boom in the 1990s, between immigration and competitiveness. Building from this association, the ‘talent’ perspective has emerged, as this perspective integrates discussion of how immigration can contribute to competitiveness. This perspective has been popularized in part by the influential work of Florida (2002; 2005) and has also been taken up in the human resources literature. This premise is essential for understanding both the reasons the ‘global competition for talent’ is emerging as a top topic of future concern and for advancing further study of this phenomenon. Theoretical perspectives related to skilled migration are addressed in the next chapter.

## THE DIFFICULTIES IN DEFINING COMPETITIVENESS

### Importance of productivity to competitiveness

The work of Porter (see e.g. 1990; 1998; 2003) has been important in advancing the concept of competitiveness, which he argues is often used in various contexts, lacks one coherent definition, and has changed across time. Porter explains that competitiveness had been long understood as being driven by “factor comparative advantage,” commonly defined by share of exports to assess the strength of various countries and industries, by taking into account global trade. In brief this perspective argues that countries will have a cost advantage in specific products or industries, and will therefore specialize in these products for export. With this perspective, there is a strong focus on lowering costs of production, either in materials or in the cost of labor, to increase the relative advantage for the product traded. Changing economic structures, with growing importance of knowledge-based sectors, have rendered such economic models insufficient. One of the key problems is that factor comparative advantage only looks at trade; it does not account for international mobility of labor or capital (Porter 1990, p. 12) or assesses the contribution of technology.

Porter (2003, pp. 2-3) therefore states that competitiveness is actually defined by *productivity*, not exports, and assessing competitiveness requires investigations of the “underlying sources of prosperity”. In his definition, factors, especially technology, innovation, relationships between firms, infrastructure, and labor force characteristics are essential. Porter also advances the idea of clusters, whereby various institutions (large and small firms, universities, etc.) cooperate to create stronger interdependencies and social as well as industry ties within a certain region, (p. 5-6) thereby further rooting the industry in that particular location (region) and creating advantages for countries that cannot compete on lower costs. Furthermore, Porter (1990) argues that *individual industries* must remain the filtering lens through which macro-level competitiveness can be viewed and assessed. Porter argues that while looking at measures for the aggregate economy can reveal “the importance of the quality of a nation’s human resources and the need for improving technology,” it cannot explain:

[...] why and how meaningful and commercially valuable skills and technology are created. This can only be fully understood at the level of particular industries. The human resources most decisive in modern international competition, for example, possess high levels of specialized skills in particular fields. These are not the result of the general educational system along but of a process closely connected to competition in particular industries (p.9).

As discussed in more detail in the chapter on skilled migration, in the 1990s, ‘new growth theory’ (building from Lucas, 1988; Romer, 1990) also emerged to further detail economic changes in competitiveness seen from the growing importance of technology and the importance of knowledge in creating profits. New growth theory further states the importance of R&D, innovation, quality of human capital for productivity and hence international competitiveness. This theory also linked ‘creativity,’ a largely subjective and individual attribute that has become viewed as essential for economic competitiveness, to knowledge economy growth.

These theoretical underpinnings then supported other work that looked at the contribution of measures such as human capital and creativity to the economic growth of regions and nations (Budd & Hirmis, 2004; Trippi & Maier, 2007). While much work has been done in the past decades to improve data collection and measure innovation (see OECD, 2010), measuring knowledge has been more difficult. Many of the measures of ‘knowledge’ rest in that related to technological advancement or ‘innovation’, such as through measuring R&D spend or patent statistics. While these measures allow for comparison between countries or cities, for example, they do not reach the core to understand skills and characteristics needed in the workforce that influence productivity. Despite recognition that the availability of creative employees and knowledge are crucial for competitiveness, understandings of how workforce availability have an impact on competitive advantages, nationally or regionally, and productivity are still emerging topics of research. Economic theory, which is quantitatively driven, has also had difficulties grasping changes linked to skilled migration as related to larger economic competitiveness. Brown, Green and Lauder (2001) researched strategies for skills development in various countries. Their more recent work (Ashton, Lauder, & Brown, 2009; Lauder, Brown, & Ashton, 2008) also argues that there has been a substantial shift from more national skills-based concerns to more global ones, based largely on actions taken by large, international corporations, who increasingly decide which knowledge will remain in the company, versus when to partner, including advanced research, and have coined the term ‘skill webs’ to explain the international connectivity of skills. These authors (Ashton, Brown and Lauder, 2009: 332-333) argue:

As they (companies) move from a national to a global orientation, TNCs (transnational corporations) cease their dependence on national institutions for their skill supply and start to exert greater skill over it, in order to take advantage of opportunities offered by global markets. This becomes possible only when they have loosened their bonds with their home institutions and national culture. For the companies we interviewed, decisions about what to produce, where to produce, how to produce, and what forms of organization to use, are no longer taken within the confines of national boundaries. The supply of skilled labor is no longer a given, determined by the national institutions and government policies but is now just another area of choice for managers [...]

In other words, skills are essential for economic success, but companies are able to move various parts of the business to any location where the skills needed are most accessible. This changes the nature of competitiveness, as not only are knowledge and skills crucial, but companies are likely to move locations when they are not found.

While the work named above all address aspects of changing economic competitiveness in relation to global changes, other research has focused more on individual contributions and micro-economic competitiveness. Notably, human capital theory (Becker, 1962; 1983) discusses ‘the economics of education’ including both the wage benefits for the individual as well as in macro-economic terms. According to the OECD (1998, p. 9), human capital is “the knowledge, skills and competencies and other attributes embodied in individuals that are relevant to economic activity.” The research on human capital and migration is extensive (see e.g. Beine, Docquier, & Rapoport, 2008; Bourdieu, 1986; Carrington & Detragiache, 1998; Poot, Waldorf,

& van Wissen, 2009; Williams & Baláž, 2005) and cannot be discussed in full here. However, two points relevant to the argument made in this study on immigration and competitiveness are focused on here. First, while human capital is now also associated with 'knowledge' and of interest in light of the knowledge economy, human capital has typically been defined by education levels, the foundation of the work by Becker (see e.g. 1962; 1983). While human capital theory has been important in understanding the implications of individual knowledge and skills on economic competitiveness, it is less useful to understanding changes related to the global competition for talent for several reasons. Looking at education alone does not allow proper assessment of skills availability in the total workforce as compared with demand. In other words, the problem may not be finding someone with a certain degree, but with certain skills as well as personality that fits with the organization. Second, migration to meet skills gaps has also been seen as an important, although again difficult to measure, factor (Doudeijns & Dumont, 2003; Sumption, 2011; World Bank, 2007).

Given these difficulties, although 'human capital' is seen as a crucial driver of innovation and competitiveness, it is also often absent from international country competitiveness indexes.

#### Knowledge workers as contributors to competitiveness

Similar arguments about the changing nature of the economy have been made in the management literature about the importance of the individual for productivity. Notably, Drucker (1986) stated that there had been a "substitution of knowledge and capital for manual labor" (p. 777). The identification of the rising importance of 'knowledge' and productivity built from recognition of the declining role of blue-collar work in manufacturing in advanced economies (Drucker, 1986, pp. 777-778). In the late 1990s, Drucker further assessed the changes, building on his expertise in business and management, and popularized the term the *knowledge worker* to explain the shifts:

The most important, and indeed the truly unique, contribution of management in the 20th century was the fifty-fold increase in the productivity of the manual worker in manufacturing. The most important contribution management needs to make in the 21st century is similarly to increase the productivity of knowledge work and knowledge workers. The most valuable assets of a 20th-century company was its production equipment. The most valuable asset of a 21st-century institution (whether business or nonbusiness) will be its knowledge workers and their productivity. (Drucker, 1999, p. 79)

Drucker emphasized that knowledge is an important concept for understanding both modern-day productivity as well as innovation:

We know now that the source of wealth is something specifically human: knowledge. If we apply knowledge to tasks we already know how to do, we call it 'productivity'. If we apply knowledge to tasks that are new and different we call it 'innovation'. Only knowledge allows us to achieve these two goals. (Drucker, 1992, p. 23)

Drucker discussed that knowledge workers' productivity is not necessarily based just on the amount produced while working, it is essentially about the quality of work produced. This work

entails specialized knowledge or creativity that is less easily measured, and the output is also based on the level of motivation of the individual. This idea makes it essential that employers build an environment in the workplace that can foster this type of work.

Assessing competitiveness to understand its role in the global competition for talent

In comparing the various viewpoints above, one key debate about competitiveness relates to the level, micro (by company) versus macro-economic (by country), on which it can be assessed. Krugman (1994, p. 31) claims that competitiveness is only appropriate on the company level, as countries ‘do not go out of business’. Furthermore, Krugman argues that if competitiveness does exist, it must be defined by, and hence is the same, as productivity. However, this is refuted by Martin and Tyler (2003, cited in Budd & Hirmis, 2004, p. 1021) who argue that regions are in direct competition for *resources*, namely: 1. investment; 2. “for technology through region’s ability to attract knowledge and innovation activity;” and 3. “for labour by being able to attract skilled employees, entrepreneurs and creative workers.” In other words, one aspect of understanding the foundations of prosperity, relates to identifying limitations of the key resources required, and in the knowledge economy today, many of these key resources have changed. Therefore the ability of regions to ‘attract’ these resources has gradually become seen as a part of the definition of regional competitiveness. For instance, one definition of regional competitiveness (Huovari, Kangasharju, & Alanen, 2001, p. 1) states that it can be seen “as the ability of regions to foster, attract, and support economic activity so that its citizens enjoy relatively good economic welfare.” Or, according to Cerny: “the main task or function of the contemporary state is the promotion of economic activities, whether at home or abroad, which make firms and sectors located within the territory of the state competitive in international markets” (quoted in Lavenex, 2007, p. 33). The literature that studies these relationships is currently very large, and often falls within the geography discipline and particularly, geography of knowledge or innovation, and has been a large topic of research since the early 2000s (see e.g. Boschma, 2004; 2005; Bunnell & Coe, 2001; Malecki, 2004).

## THE MERGING OF WORK ON COMPETITIVENESS AND THE WORKFORCE

The ‘talent’ perspective

Florida’s (2002) work, which focuses on the competitiveness of cities in comparative perspective through identifying (quantifying) and defining the needs of ‘creative class’, is another breakthrough piece in trying to better define and assess the workforce aspect of competitiveness. Florida defines competitiveness of places as resting on three aspects: technology, talent, and tolerance (the 3Ts). Florida (2002, p. 249) summarizes the value of his perspective as adding more than the theories that argue that social capital and/or human capital drive regional growth:

But I believe my creative capital theory does an even better job. Recall its basic argument: that regional economic growth is powered by creative people, who prefer places that are diverse, tolerant and open to new ideas. Diversity increases the odds that a place will attract different types of creative people with different skill sets and ideas. Places with diverse mixes of creative people are more likely to generate new combinations. Furthermore, diversity and concentration work together to speed the flow

of knowledge. Greater and more diverse concentrations of creative capital in turn lead to higher rates of innovation, high-technology business formation, job generation and economic growth

Florida's analysis also places explicit emphasis on the importance of individual preferences in determining a location's competitiveness—people can choose where to live and can move away from an environment that does not foster their creativity, is intolerant, or does not offer the type of lifestyle they seek.

His book on the creative class was followed by a work aiming to apply his ideas to the global competition for talent, *The Flight of the Creative Class* (Florida, 2005). He applies the 3T framework to countries as a whole. The main argument of his book is that the United States has lost its advantage in attracting talent. He argues the US needs broader strategies that build both economic opportunity as well as people's "basic security – physical, social, political, and economic" (p.268-269).

Florida's work has several short-comings. First, although Florida has a basic premise that the creative class is rooted in technology, talent, and tolerance, he has changing definitions of how to measure them. For instance, the volume of *The Rise of the Creative Class* that I have contains an appendix (p.353-379) in the back listing out all the new measures that have been added since the first edition, only 2 years earlier. For example, his original calculations of tolerance were only based on an index on the presence of gays, and he since added an index of foreign born, creative individuals who he calls "bohemians" and an index of racial composition. The statistics used for international destinations as a proxy for his assessment of tolerance on the national level in *The Flight of the Creative Class* are completely different, which makes sense given that his earlier index of tolerance was based on aspects particular to the US. He instead uses the results of Inglehart's World Values Survey, which instead measures whether a country has traditional or secular values. While this may address similar issues, it is clear the calculations going into his ratings are very different.

Second and I believe more importantly, Florida's work neither accounts for the nuances of economic structures across cities nor for policy differences. His emphasis on the creative class assumes that these individuals play a similar economic role across all cities, and that individuals share common values for an attractive environment, irrespective of their field of specialization or work. This is problematic, as a city may have high opportunities in one field, such as IT, and few in another, such as biotech. Second, he does not address policy differences, particularly those for assessing the national level. For example, he argues that negative scores on one of his indexes, the mosaic index, show cities internationally that "are either attracting a very narrow band of immigrants or not attracting many immigrants period" (2005, p. 173). Yet, this assessment does not look at whether or not there are policies in place that even allow immigrants to come in the first place.

While the work of Florida is often identified more by his concept of the creative class or creative capital, I believe his focus on 'talent' is equally, if not more, important, and the popularity of his work may have given additional fuel to the idea of a global competition for talent. From

Florida's perspective, immigration is essential to competitiveness, not only for bringing in talent, but also because diversity helps a city to thrive. Despite its shortcomings, his work is very important for the study of the global competition for talent in that it led to more acceptance or recognition that immigration can contribute to competitiveness.

The importance of 'talent' has also been identified by businesses and there has been an explosion of interest in the new field of "international" or "global talent management" in the past few years (for a review of the literature, see Tarique & Schuler, 2009). There is a general impression that the younger workforce values more creativity, flexibility, and are less set on finding permanent positions. At the same time, companies have already expanded internationally, and aim to expand further. In this context, diversity and respect for diversity is highly valued among employees to better understand the needs of a broader population and to work with more types of people. The phrase the 'global competition for talent' is being echoed not only in terms of skilled migration policies, but also as companies support their workforce to meet these demands. Like competitiveness, talent can be assessed as related to its value to both the company and the national level.

Furthermore, in order to best handle this next wave of globalization, large-scale international mobility of people, companies and organizations, across sectors, countries and businesses are already placing increasing value on international experiences as criteria for hiring. Deloitte consulting explains that many businesses are moving away from a view of offering 'international assignments,' which is more characteristic of the expatriate model of the 1980s and onwards, to one of trying to best manage 'global mobility' (Deloitte., 2010), whereby moves are not only, for instance, from the US to developing economies, but also from developing economies into the previous 'core' as well as in between developing countries. They also explain that the change to 'global mobility' reflects that individuals increasingly want international experience as part of their career paths. In other words, rather than companies 'sending' people abroad they can offer opportunities for mobility for interested individuals. At the same time, there has been recognition that global mobility is increasingly initiated by individuals, rather than the company, with a stream of human resources literature on self-initiated expatriation starting in the 2000s (see e.g. Al Ariss, 2010; Andresen, Al Ariss, & Walther, 2012; Doherty, 2013; Doherty, Richardson, Thorn, Al Ariss, & Crowley-Henry, 2013; Myers & Pringle, 2005; Vaiman & Haslberger, 2013). One of the crucial questions for companies and organizations then becomes how to best balance the goals of the individual with that of the company or organization.

The rising interest in talent management can be broadly linked to a few main trends:

1. Companies are increasingly saying their location choice is based on the availability of qualified people.
2. Increasing global mobility, where it is no longer just skilled individuals from developed countries moving, but rather any combination, such as between developing countries, from developing to developed countries and so forth.
3. Increasing importance of emerging markets for the corporations' growth strategies, which entail a workforce that can understand and work with diverse people and markets.

4. A “talent paradox” (Deloitte., 2013; Schwartz, Barry, & Liakopoulos, 2013), whereby even during the recent recession with a supposed surplus of workers, businesses find certain positions as being hard to fill. Often these involve finding people with both the business or technical expertise required who also have strong management skills.

### Defining competitiveness in this study

With various debates surrounding the meaning and applications of competitiveness, it is necessary to better define how competitiveness will be applied in the research I have conducted on the global competition for talent. Competitiveness, will be used broadly in the analysis as “status as a leader.” In my view, competitiveness is an *outcome* that can be defined both in terms of productivity as well as in terms of reputation. Both of these aspects are influenced by access to resources, of which both technology and human capital are essential. Policy is important in shaping the degree that these resources are available. Competitiveness is also influenced by what Porter (has called the ‘business environment.’ The business environment can be identified not only through various statistics, but also through attitudes of its workforce.

The discussion above adds several important elements for understanding the idea of the global competition for talent. First of all, the availability of quality labor is an important, but often overlooked factor influencing competitiveness. Next, one of the difficulties in discussing ‘competitiveness’ relates to the blurring of associations between ‘competitiveness’ with ‘competition;’ however the two concepts are not synonyms. Competition must exist in order for the concept of competitiveness to be of use. Measures of protectionism aim to limit competition for various products, but they have historically been found to be stifling rather than increasing competitiveness. The same may apply to various measures to various policies that create a closed, insular labor market. As the focus of this research is not on how competitiveness is built, but rather on the workforce dimensions of it, the main focus is on defining aspects of competitiveness affecting the global competition for talent. This means much of the focus in this study is on international mobility or migration.

### CONCLUSION

With both changing demands of the knowledge economy and from globalization processes, advancing understanding of the global competition for talent, the focus of this research, is essential. Few studies have looked at issues of labor force availability for the knowledge economy in a way that integrates both the position of nationals as well patterns of skilled migration, including both supply and demand side factors. The concept of the ‘global competition for talent’ holds promise for creating a more integrated framework for assessing the changes and comparing the institutions and strategies supporting or hindering its growth in various countries and within specific sectors of the knowledge economy. This shifting interest to immigration as *global* is new, as immigration studies to date have mostly taken the view of the nation-state as the main context and ties between two specific countries, rather than of dynamic globalized systems. Although the situations of nation-states will continue to frame much of the skilled migration discussion, there will be a need to also compare the attractiveness *across* countries, which can also be viewed as *competitiveness* on an international scale, as well as to

understand *how* and *why* new international skilled mobility patterns are appearing. As discussed by Porter, understanding these trends involve not only more research on the workforce, but also in view of the dynamics of particular industries. It also involves understanding the local contexts which support or hinder their development, or variations in the broader opportunity structure. It is important to acknowledge that economic changes will also be reflected in institutions, both as institutions lead the changes, whether done strategically or unintentionally, as well as shifts when policies change and organizations adapt.

In the history of globalization, the earliest measures were related to goods, evident for several centuries already, then more recently marked by massive changes in international movements of capital particularly since the 1980s. The dramatically increasing mobility of people, labor, on a truly global scale seems to be the next major shift. While it had been argued that globalization has been primarily enacted through increased internationalization of capital and goods, rather than labor, a new period is arising where the mobility of labor too is seen as impacting competitiveness by comparing positions of countries in the global context. While the scale of these movements may reflect a minority of the working force, they are nonetheless seen as essential for certain, particularly innovation driven, sectors and occupations. The questions they bring about will likely be further reflected, perhaps even echoed in future debates on the next wave of globalization – the dynamics of the global competition for talent and government’s responses to it. To borrow from and adapt Drucker’s (1986) insights – perhaps the importance of international mobility of skilled workers is not changing – it has already changed.