

CHAPTER 4

Why Is Immigration Policy Becoming More Skill Focused?

In this chapter we explore possible explanations for why rich-country immigration policy has become more skill focused and consider whether it is likely to continue along this path. The central questions of interest are (1) whether and how the economic *costs* and *benefits* of (skilled) immigration have changed, and (2) whether and how the *politics* of (skilled) immigration has changed. They are explored in the context of three widely discussed “big trends” that are likely to have implications for the economics and politics of alternative immigration strategies. The first is *skill-biased technical change*.¹ New technologies in areas such as computing and medicine are making educated workers more valuable, leading governments everywhere to declare that they want more of them. The second is *population aging*. Over the coming decades the share of elderly in the population will rise rapidly owing to increasing life expectancies as well as the aging of the post–World War II baby boom generation, which has the potential to roil labor markets and strain social security systems. The third is the increased international integration of product and capital markets—or simply, *broader globalization*. While in theory free trade and capital flows can substitute for labor flows, in practice all three forms of integration have tended to occur together.

1. For an excellent survey, see Acemoglu (2002).

It is important to keep in mind, of course, that trends can be interrupted or change direction. Indeed, skill-focused immigration policies have been dampened by terrorist attacks in New York, Bali, Madrid, and elsewhere, and by the deflating of the bubble in the information and communications technology sectors that began in early 2000. It is also possible that rich-country governments will find new policy instruments for appropriating the often-large wage gains from immigration and hence become more willing to accept less-skilled immigrants from poorer countries, for whom wage gaps tend to be especially large, or that rich countries will individually or collectively agree to refrain from competing for highly skilled workers from poorer countries as part of a broader development policy, or that the world will experience a humanitarian crisis that will swamp the available willingness to absorb immigrants.² Thus it is not inevitable that competition through selective recruitment of the world's skilled workers will increase. Nevertheless, a plausible case can be made that each of these three trends is changing the economic and political calculus for immigration policy substantially and is having an impact on the restraints on international competition for talent.

Skill-Biased Technical Change

There is mounting evidence that the skill bias of technical change has increased in recent decades.³ In the United States, for example, the average college wage premium has risen sharply despite large increases in the supply of college-educated workers. A technology-driven increase in the relative value of skilled workers is considered the most likely reason for this development because there has been an increase in the relative use of more skilled workers *across* industries despite their rising relative cost. If the rising education premium were related to increased international trade with poorer countries—the primary competing theory—we would expect to see the rise in the demand for skilled workers coming through a relative expansion of skill-intensive industries rather than a pervasive shift to more skill-intensive production methods within industries.⁴ The advancements in information technologies are widely considered the key

2. At present most of this gain is believed to go to the immigrants themselves. There is evidence that the wage gain is large. Jasso, Rosenzweig, and Smith (2002) estimate an average initial income gain for legal immigrants to the United States (in family unification and employment categories) of almost \$21,000 (purchasing power parity adjusted).

3. Berman, Bound, and Griliches (1994); Katz (1999); Acemoglu (2002).

4. For further discussion of this argument, see Collins (1998).

skill-using technological development.⁵ Although the increase in skill premiums has been most pronounced in the United States, the relative demand for skilled workers has expanded across industrialized countries.⁶

How is this structural change in the labor market likely to affect optimal economic immigration policy? Suppose for a moment that the goal of immigration policy is the narrow economic one of maximizing the average income of domestic residents. In that case, there will be a stronger economic reason for selecting skilled workers over less-skilled workers since the relative value of skilled workers increased. The problem with this argument, however, is that the impact of an immigrant (or group of immigrants) on the average income of natives depends both on the difference between the value of their addition to national output *and* on the wages they are paid—that is, on the *immigration surplus*. Immigrants adding high value do not provide income gains for domestic residents if they take out as much in commensurately high wages as they put into the economy.

To illustrate the immigration effects in the wake of skill-biased technical change, suppose that there are just two factors of production—skilled workers, S , and unskilled workers, U —each with wages determined in competitive labor markets. The economy is closed to international trade, and national output, Y , is given by the (constant returns to scale) constant elasticity of substitution production function,

$$(4-1) \quad Y = [(A_s S)^\rho + (A_u U)^\rho]^{\frac{1}{\rho}}$$

A_s/A_u is a measure of the relative productivity of skilled and unskilled workers, and ρ is less than or equal to one.⁷ Initially, we assume that there are no uncompensated externalities, that there is no fiscal system, and that wages are determined in competitive skill markets. Our main interest is to see how changes in A_s/A_u alter the economic case for a skill-focused immigration policy.

This simple model yields a number of noteworthy—and a few surprising—findings about surplus-maximizing immigration policy. First, a

5. See Kruger (1993); Levy and Murnane (1996); Autor, Katz, and Krueger (1998); Bresnahan, Brynjolfsson, and Hitt (1999).

6. Berman, Bound, and Machin (1998). Outside the United States, the rise in the skill premium has been held down by larger increases in the relative supply of skills and by wage-setting institutions that hold down inequalities. See Freeman and Katz (1994); Murphy and others (1998).

7. The elasticity of substitution between skilled and unskilled workers is then $\sigma \equiv 1/(1 - \rho)$.

single immigrant (either skilled or unskilled) will not produce an immigration surplus since the immigrant will be paid the value of his or her marginal product in a competitive labor market. Second, there is also no immigration surplus from a balanced immigrant inflow, where “balanced” means that the immigrants have the same kinds of skills as the native population. This is simply a reflection of the well-known fact that under constant returns to scale, a scaling up of the economy has no effect on factor incomes. Third, holding the number of other skill types constant, the size of the immigration surplus rises approximately with the square of the number of immigrants of a particular skill type. The reason is that increases in the number of immigrants of a given skill type lead to increases in the surplus of earlier immigrants of that type as their wage is driven down. Fourth, if the goal is to maximize the immigration surplus from some given number of immigrants, the optimal policy is one that favors the extremes—either all skilled or all unskilled.⁸ Most interesting in the present context, skill-biased technical change (as measured by an increase in A_s/A_u) has no effect on which of these extremes yields the larger immigrant surplus. In effect, the higher relative wage received by skilled immigrants offsets the increase in relative productivity, which leads to no overall change in the relative surplus. In this example, the choice between an immigration policy focusing on skilled workers versus one focusing on the unskilled depends only on the relative supplies of skilled and unskilled workers in the domestic population. The superior productivity of skilled workers *does not* create a presumption in favor of skilled immigrants, and so an increase in the relative productivity of skilled workers cannot improve the case for skilled immigrants.

Not surprisingly, it is easy to modify the model so that skill-biased technical change does strengthen the case for a skill-focused immigration policy given a narrow immigrant surplus-maximizing goal. Two obvious ways to do this are to allow for a progressive fiscal system and for uncompensated knowledge spillovers from skilled immigrants to natives. With a progressive fiscal system, high-earning immigrants are likely to be net fiscal contributors, which is an additional source of immigration surplus. In this case, even a single high-skilled immigrant earning the going competitive skill-specific wage will yield a surplus, and skill-biased technical change will raise that surplus to the extent that it raises the skilled wage and net fiscal contribution. Our simple

8. See Borjas (1995).

example also assumes that all the benefits from immigration go to the firms employing the immigrants. In particular, no allowance is made for uncompensated knowledge spillovers from immigrants to domestic workers. To the extent that such spillovers exist, they are probably largest for more skilled knowledge workers, further tilting the advantage to skilled immigrants from a surplus-maximizing perspective.

The foregoing discussion of optimal immigration policy assumes that the government's objective is to maximize the immigration surplus for any given number of immigrants. Of course, the government may also want to minimize wage differentials between skilled and unskilled natives, or at least to prevent wage differentials from rising. Here the case for a skill-focused immigration policy in the presence of skill-biased technical change is more clear-cut. All else equal, such change increases the relative wage of skilled workers, whereas a skill-focused immigration policy reduces the relative wage of skilled workers. Thus a skill-focused immigration policy can be used to reduce wage differentials in the absence of technical change or to counteract rising differentials in the presence of technical change.

It is also interesting to consider how skill-biased technical changes affect the politics of immigration policy. Immigration within a given skill class is more likely to draw political opposition when the wages of that skill class are static or falling. On the other hand, when technology-driven increases in demand lead to sharply rising wages for skilled workers such as programmers, engineers, or scientists, opposition is likely to be muted (though not entirely absent) in response to expansions of skilled visa programs such as the H-1B in the United States or the green card in Germany. By contrast, the rising cost of skilled labor will lead employers to complain that "shortages" are damaging their competitiveness, which may resonate strongly with governments when international competitiveness appears to be at stake. Thus even if the economic case for a skill-focused immigration policy in response to skill-biased technical change is less than overwhelming, the resulting strong wage gains for skilled workers (and the rising costs for the firms employing them) can be important in overcoming political opposition.

Aging Populations

With ongoing improvements in health and longer life spans, industrial-country populations will become substantially older over the next half-century. There will also be a sharp increase in the share of elderly in the

population around the end of this decade as the post–World War II baby boomers enter their senior years. When the UN Population Division (UNPD) calculated elderly dependency rates (the population 65 and older divided by the population aged 15–64) for six of the G-7 countries under the assumption of zero net migration (see table 4-1), the rate in the United States was expected to double from roughly 20 percent in 2005 to about 40 percent in 2050. Put differently, the number of (liberally defined) working-age individuals available to support each person of retirement age will fall from 5 at present to roughly 2.5 in 2050, with most of the change occurring by 2030. In Italy, the number of working-age individuals available to support each retiree is already down to roughly 3.3 and will fall to 1.5 by 2050 without migration. Population aging appears to be occurring especially quickly in Japan, where the support ratio is expected to fall to 2.5 as early as 2015.

Such rapid population aging is likely to have significant effects on labor markets and public finances. For one thing, demand and supply in different skill markets are likely to shift substantially. On the demand side, elderly populations will need substantial care services, many of which will have low skill requirements. At the same time, there will be greater demand for high-tech medical services that will be skill intensive in both use and development.⁹ On the supply side, it will be hard to acquire increasingly educated domestic workers to fill care positions without sharply raising wages. Although it is hard to predict precise manpower needs and availabilities, a reasonable assumption is that those facing rising health care prices will press to “import” both lower-skilled care workers and highly skilled health care/technology providers.

Many have already contemplated the effect of population aging on industrial-country public finances, and with some sense of alarm. We concentrate here on publicly funded retirement income systems, though aging may have even more significant effects on publicly funded health care. The implications of aging for a pay-as-you-go (PAYGO) retirement income system become quite clear under the following PAYGO identity (or PAYGO constraint), which relates the payroll tax rate required to

9. Moreover, as the new medicines and diagnostic technologies rely more on information technologies, there will be an indirect increase in the demand for a broader range of technology professionals.

Table 4-1. Hard Choices: Population Aging and PAYGO Retirement Income Systems without Migration, 2005–50

Percent

a. Projected elderly dependency rates (pop >65 / pop 15–64) with zero post-1995 net migration

Country	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
United States	0.19	0.20	0.23	0.27	0.32	0.37	0.39	0.39	0.38	0.39
Japan	0.29	0.34	0.40	0.44	0.45	0.46	0.49	0.54	0.57	0.58
Germany	0.28	0.31	0.32	0.36	0.41	0.49	0.57	0.58	0.57	0.57
United Kingdom	0.25	0.26	0.29	0.31	0.34	0.38	0.41	0.42	0.42	0.42
France	0.25	0.25	0.29	0.32	0.36	0.39	0.41	0.43	0.44	0.44
Italy	0.30	0.31	0.34	0.37	0.42	0.49	0.57	0.65	0.67	0.66

b. Implied PAYGO tax rate (assuming constant 1995 benefit generosity rate and zero post-1995 net migration)^a

Country	1995 benefit generosity rate ^b	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
	United States	0.48	0.09	0.10	0.11	0.13	0.16	0.18	0.19	0.19	0.18
Japan	0.44	0.13	0.15	0.18	0.19	0.20	0.20	0.21	0.24	0.25	0.26
Germany	0.83	0.24	0.26	0.27	0.30	0.34	0.41	0.47	0.48	0.47	0.47
United Kingdom	0.48	0.12	0.12	0.14	0.15	0.16	0.18	0.20	0.20	0.20	0.20
France	0.84	0.21	0.21	0.24	0.27	0.30	0.32	0.35	0.36	0.37	0.37
Italy	1.05	0.31	0.33	0.36	0.39	0.44	0.51	0.60	0.68	0.70	0.69

c.. Implied benefit generosity rate (assuming constant 1995 tax rate and zero post-1995 net migration)

Country	1995 tax rate	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
	United States	0.09	0.48	0.46	0.40	0.34	0.28	0.25	0.24	0.24	0.24
Japan	0.09	0.32	0.27	0.23	0.21	0.21	0.20	0.19	0.17	0.16	0.16
Germany	0.19	0.66	0.61	0.58	0.53	0.46	0.38	0.33	0.32	0.33	0.33
United Kingdom	0.12	0.48	0.46	0.41	0.38	0.34	0.31	0.28	0.28	0.28	0.28
France	0.19	0.77	0.76	0.67	0.60	0.54	0.50	0.47	0.45	0.44	0.44
Italy	0.26	0.87	0.82	0.75	0.69	0.62	0.53	0.45	0.40	0.39	0.39

Sources: United Nations Population Division (2000); OECD (2000, 2001); authors' calculations.

a. The PAYGO tax rate, t , is the ratio of total (retirement income) taxes to total wages. This is the tax rate required if retirement benefits are funded on a purely pay-as-you-go basis. That is, $t = b \times d$, where d is the elderly dependency rate.

b. The benefit generosity rate, b , is the ratio of the average benefit (total benefits/elderly population) to the average wage (total wages/working-age population).

fund benefits on a purely PAYGO basis given the relative generosity of benefits and the elderly dependency rate:

$$\begin{aligned} \text{PAYGO tax rate } (t) &= \frac{\text{Total benefits}}{\text{Total wages}} = \frac{\frac{\text{Total benefits}}{\text{Elderly population}}}{\frac{\text{Total wages}}{\text{Working-age population}}} \times \frac{\text{Elderly population}}{\text{Working-age population}} \\ &= \text{Benefit generosity rate } (b) \times \text{Elderly dependency rate } (d). \end{aligned}$$

An increase in the elderly dependency rate (d) must be matched by some combination of an increase in the PAYGO tax rate (t) or by a decrease in the benefit generosity rate (b). Note that average benefits to be funded by future taxpayers can be reduced in a number of ways: by raising the normal retirement age, cutting back on inducements for early retirement, adjusting the formula for initial earnings-related benefits, lowering flat-rate benefits, or reducing post-retirement benefit indexation.¹⁰ These benefit-saving methods do not necessarily place the same burden on retirees. Where rules relating to early retirement substantially distort retirement decisions, reforms can be designed to yield benefit cost savings with relatively low burdens on retirees. Nonetheless, to the extent that the benefit generosity rate must bear part of the adjustment to a higher elderly dependency rate, some of the burden will inevitably fall on retirees.

When one examines the implied increases in the PAYGO tax rate holding the benefit generosity rate constant and the reductions in the benefit generosity rate holding the PAYGO tax rate constant (see table 4-1), the implied changes are quite dramatic.¹¹ For the United States, with no

10. We also treat the prefunding of retirement benefits that were to have been funded on a PAYGO basis as a benefit cut for those doing the prefunding. Individuals are partly funding themselves benefits that were to have been funded by later workers.

11. The benefit generosity rate is the ratio of average benefits (per elderly person) to the average wage (per working-age person). The average benefit in 1995 is calculated as total retirement income benefits excluding survivor benefits as measured in the OECD's comprehensive Social Expenditure Database divided by the population 65 and older. This average benefit measure could be further decomposed into the product of the average benefit per retired person and the ratio of the number of retirees to the population 65 and older. Thus the average benefit measure is affected by both the generosity of benefits for those actually retired and the ease of eligibility for retirement benefits, including the ease of eligibility before age 65. The average wage is the calculated labor share of income multiplied by GDP divided by the working-age population, where an adjustment is made for the output gap in each country in 1995. The PAYGO tax rate is the tax rate required to completely fund benefits on a pay-as-you-go basis in a given year.

change in the ratio of the average benefit payment for those 65 or older to the average earnings of the working-age population, the PAYGO tax rate will rise from 9 percent in 2005 to 18 percent by 2030. On the other hand, if the payroll tax paid by the working-age population to fund the retirement income benefits of those already retired is held constant, the benefit generosity rate will fall from 48 percent in 2005 to 25 percent by 2030. The scale of the implied adjustments is even greater for Italy, with its very generous retirement benefits and even more dramatic population aging. Under a constant benefit rate, the tax rate would rise from 31 percent in 2005 to 69 percent in 2050; under a constant tax rate, the benefit rate would fall from 87 percent to just 39 percent over the same period.

Is there any way to avoid the pain of higher taxes and lower benefits when the domestic population is aging? The PAYGO constraint makes it clear that the only alternative is to stop the demographics from changing. Since rising mortality rates at older ages must obviously be excluded, and the economic and social forces that affect fertility are difficult to change, the only alternative is to “import” younger workers and taxpayers through more relaxed permanent and temporary migration policies.

UNPD projections suggest that *permanent* migration is far from being the sought-after “silver bullet.”¹² From assumptions about the age and sex of immigrants, and also immigrant fertility and mortality after arrival, the UNPD has estimated the immigrant inflows required to keep the dependency ratio constant, as shown in table 4-2. If one also assumes that immigrant workers receive the same average wages as native workers, and that immigrant retirees receive the same average benefits as native retirees, these estimated inflows can be viewed as the inflows required to maintain tax and benefit generosity rates at their 1995 levels. Clearly, the numbers are very large in comparison with recent immigration trends. For the United States, the required annual average inflow between 2005 and 2050 is more than 13 million a year (the average legal permanent immigration to the United States in recent years was about 1 million a year)! Such numbers are not politically feasible.

Why are the required numbers of permanent immigrants so large? The simple answer is that today’s permanent working immigrants become tomorrow’s retirees. Therefore, while immigration may initially increase the taxpayer base, once those immigrants become retirees, they

12. UNPD (2000).

Table 4-2. Migration Required to Keep PAYGO Tax and Benefit Rates Constant at 1995 Levels, 2005–50
 Temporary migrant share of total working-age population (θ)

a. Average temporary migrant wage = average nonmigrant wage ($\theta = 0$)

Country	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
United States	0.00	0.05	0.17	0.30	0.41	0.48	0.50	0.50	0.50	0.51
Japan	0.28	0.38	0.48	0.52	0.53	0.55	0.57	0.61	0.64	0.64
Germany	0.20	0.27	0.30	0.36	0.44	0.54	0.60	0.61	0.60	0.60
United Kingdom	0.01	0.05	0.14	0.21	0.28	0.36	0.41	0.42	0.42	0.42
France	0.08	0.09	0.20	0.29	0.36	0.41	0.44	0.47	0.48	0.48
Italy	0.17	0.22	0.29	0.34	0.41	0.50	0.57	0.62	0.63	0.63

b. Average temporary migrant wage = 150% of average nonmigrant wage ($\theta = 0.5$)

Country	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
United States	0.00	0.03	0.12	0.22	0.31	0.38	0.40	0.40	0.40	0.41
Japan	0.20	0.29	0.38	0.42	0.43	0.44	0.47	0.51	0.54	0.54
Germany	0.14	0.20	0.22	0.28	0.35	0.44	0.50	0.51	0.50	0.50
United Kingdom	0.00	0.03	0.10	0.15	0.21	0.27	0.32	0.33	0.33	0.33
France	0.05	0.06	0.14	0.21	0.27	0.31	0.35	0.37	0.38	0.38
Italy	0.12	0.16	0.21	0.26	0.32	0.40	0.47	0.52	0.53	0.53

Sources: United Nations Population Division (2000); authors' calculations.

begin increasing the benefit recipient base. Eventually, as the earlier immigrants reach retirement age, even more young immigrants will be required to sustain initial tax and benefit rates.

If permanent immigration is not a silver bullet, what about a policy of selective temporary migration? In the extreme, temporary migrants could be disallowed from staying long enough to gain entitlement to retirement income benefits. In the United States, for example, this would limit total stays to less than 10 years, since this is the amount of work required to qualify for Social Security retirement income benefits. Moreover, by selecting relatively skilled temporary migrants (as is the case with H-1B visas), the policy could raise the average wage in the economy and thus increase the tax take for any given working-age population. To be more concrete, assume the temporary migrant share of the working-age population is given by θ , and the average proportionate wage premium earned by migrants over domestic workers is given by α . It is then easy to show that the PAYGO constraint is given by

$$t = b \times \left(\frac{1 - \theta}{1 + \alpha\theta} \right) \times d,$$

where t is the tax rate levied on all workers, b is the average benefit rate received by domestic workers (average benefit divided by average wage of domestic workers), and d is the dependency rate for the domestic population.¹³

As table 4-2 shows, even in the case of a 50 percent migrant wage premium and no benefit liability, the required migrant shares are very high, averaging more than 37 percent across the six countries in 2030. It seems reasonable to suppose that such high migrant shares would neither be acceptable to the working-age population nor feasible to attract—especially with such a high relative wage. Thus a policy of selective temporary immigration is unlikely to provide the silver bullet either.

Even though migration policies are not a panacea for avoiding tax increases and benefit cuts, it is possible that self-interested younger generations will try to expand the future tax base to forestall the harsh benefit cuts that are likely to occur if tax rates begin to rise too sharply.¹⁴ Given the alternatives of falling benefits or rising taxes, there will be strong incentives to “import” workers to take up at least some of the burden. Such pressures are likely to be especially strong in a number of European countries, where workers know that current benefit rules will

13. To understand the basis for the additional term in parentheses, note that the total elderly dependency rate (natives and immigrants) can be written as $(1 - \theta)d$, and the average wage in the economy can be written as $(1 + \alpha\theta)W$, where W is the average wage of natives. The product of the last two terms in the equation can be viewed as an adjusted dependency rate, where the adjustment depends on the share of temporary migrants in the working-age population and the proportionate wage premium that migrants earn over native-born workers.

14. McHale (2003) develops a model of one generation’s extraction of benefits from the following generation. The reason that the older generation can extract benefits from the younger generation is that the younger generation has an obligation to make sufficient transfers (tax-funded retirement income or family-funded in-kind benefits) to its elders to allow them to sustain their working-life consumption in retirement. There is a proviso to this obligation, however: the choice of working-life consumption and thus retirement savings must be based on rationally anticipated social security benefits. A key restraint on the benefits that can be extracted is the burden placed on the tax-paying generation by a labor-supply-distorting social security tax. In the model, the working generation can choose an immigration policy (in addition to promising itself social security benefits) that comes into effect with a one-period lag. A selective temporary immigration policy lowers the tax rate on the following generation for any given chosen benefit level. This induces the working generation to credibly promise itself a higher benefit level. With the higher benefit, members of the following generation end up facing an even higher tax burden despite the migration-expanded tax base. The upshot of the model is that the current working generation has an incentive to put in place an immigration policy that will expand the tax base available to pay its benefits. In fact, the only thing that restrains the number of migrants (assuming an infinite willing supply) is a concern on the part of domestic residents that they will increase the political power of a group without a family obligation to sustain their consumption in retirement.

become so expensive that future workers are unlikely to honor them. Although there is undoubtedly more antipathy toward immigrants there than in the more traditional immigration countries (notably Australia, Canada, New Zealand, and the United States), the debate surrounding the new German immigration law shows that the likely scarcity of future taxpayers to share the social security burden is leading politicians to look for ways to selectively augment the working-age population.

Broader Globalization

The next question to consider is to what extent the increasing internationalization of trade, capital flows, and production is pushing rich countries to relax restrictions and indeed compete more intensively for skilled workers. Although broader globalization is knitting together an international labor market, the economist's workhorse model of international trade—the Heckscher-Ohlin (H-O) model—predicts that international trade in goods and services will *substitute* for international migration.¹⁵ Under the standard assumptions of the model, international trade leads to complete factor price equalization. This removes the key incentive to migrate on the supply side: the possibility of earning higher wages abroad. It also means that the standard immigration surplus is zero, since the existence of a surplus depends on the domestic wage being driven down.¹⁶ Of course, the prediction of complete international wage equalization is not borne out by reality. There are vast differences in incomes across countries even after adjusting for the lower prices of nontraded goods in poorer countries.¹⁷ Once allowance is made for productivity differences across countries, however, there is strong evidence of productivity-adjusted factor price equalization.¹⁸ In such a world, there is a willing supply of poor-country residents ready to improve their living standards by moving to a place where they can be more productive and earn higher incomes. But if wages are fixed by productivity-adjusted factor price equalization, the absence of an immigration surplus means that there is no incentive for rich countries to admit them if the goal is to maximize the average income of natives.

Another way to assess the effect of globalization is to assume there are skill-intensive industries in which the government wishes to gain a

15. See, for example, Mundell (1957).

16. See Treffer (1997).

17. Hall and Jones (1999); Parente and Prescott (2000).

18. Treffer (1993).

national competitive advantage but cannot do so with its existing skill supplies. The reasonableness of this assumption is attested by another important prediction of the H-O model: namely, countries will tend to specialize in industries that are intensive in the use of their more abundant factors of production. Thus a country having an abundance of skilled software programmers and microbiologists will tend to specialize in the production and international sale of software and biotechnology products. The special measures that governments are taking to support such industries strongly suggest they believe that national advantage will be served by an internationally competitive domestic presence. One reason often given for this is that knowledge-intensive industries generate localized knowledge spillovers, which means the domestic industry will be too small if left to market forces. According to the HO model, the way to expand these industries without resorting to outright subsidization is to engineer a relative expansion in the factor supplies used intensively in these industries—that is, the skilled workers. The most obvious long-term solution is to educate and train the workers needed for internationally competitive knowledge-intensive industries. But this is a costly and time-consuming exercise, and governments might be enticed to augment the process with skilled immigrants.

Earlier in the chapter we considered spillovers as a reason to support a more skilled immigration policy, on the assumption that knowledge spillovers have become more important given the nature of new technologies. We now consider how openness to international trade induces specialization based on resource availability. It can be argued that as product markets become more internationally integrated, the incentives to “import” skilled workers increase in order to ensure a reasonable presence in the desired knowledge-intensive industries.

The liberalization of international trade in services creates further pressure for the easing of restraints on migration. In many instances, international services cannot be provided without home-country workers operating at the buyer’s location. The General Agreement on Trade in Services (GATS) envisions an even more radical liberalization, under which *individuals* can temporarily move to a foreign country to offer their services. This essentially equates “temporary trade migration” with “trade in services.” Thus the momentum for greater multilateral trade liberalization may serve to liberalize temporary migration. Although opponents of such a regime might call this wishful thinking, some of the recent high-profile regional trade liberalizations have been accompanied by measures to liberalize migration. The archetypal case is the European

Union, which secures the free movement of goods, capital, *and* people among its members. The eastern expansion of the European Union will allow, probably after a phase-in period, for the free movement of workers from poorer Eastern European countries to their richer Western European neighbors. To take another example, the North American Free Trade Agreement (NAFTA) gives Canadian professionals relatively easy access to the U.S. labor market and vice versa; for Mexican professionals, however, access to the United States is much more limited.

Turning to capital market integration, it is also obvious that capital flows from rich countries to poor countries can substitute for labor flows from poor countries to rich countries. As already noted, poor countries have a reservoir of would-be immigrants of a given skill level because rich countries offer higher productivity and correspondingly higher wages. Productivity varies across countries largely because richer countries have more available capital and use better technology and organization than do the poor countries. Therefore an obvious alternative to bringing poor-country workers to rich-country capital and technology is to bring the capital and technology to the workers. Foreign direct investment—which often brings both capital and technology—can, for example, substitute for immigration. U.S. software multinationals can set up operations in India, rather than petition (and lobby) to have Indian programmers admitted to the United States.

That being said, a freer flow of capital may also create pressure to allow a freer flow of workers. A prime example can be found among internationally footloose corporations that explicitly or implicitly threaten to move their production overseas if the obstacles to immigration are not reduced. Some multinationals also need to move personnel between international locations and may lobby governments to allow this flexibility by issuing special intracompany transfer visas.

A final point meriting a few words concerns the much-disparaged homogenization of cultures. As locations become less culturally distinct and the costs of adapting to new surroundings decline, people are likely to be more willing to move. From the receiving-country side, electorates will become more willing to accept immigrants that they consider “not too different” from themselves. To the extent that this homogenization pervades all socioeconomic groups, it should lead to greater acceptance of immigrants in general. But, realistically, the skilled elites throughout the world are the ones more likely to share common experiences and interests, which may be one more factor shifting immigration policies in a skill-focused direction.