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CESifo DICE Report

INSTITUTIONS AND ECONOMIC PERFORMANCE

TO GROW OR NOT TO GROW: WHY INSTITUTIONS MUST MAKE A DIFFERENCE

THORVALDUR GYLFASON*

This may not surprise you, but when I was a student of economics in the first half of the 1970s, we were taught that economic growth over long periods was always and everywhere a technological phenomenon. The theory of economic growth at the time taught that the rate of growth of national economic output per person in the long run must be equal to the rate of technological progress, which was taken to be outside the purview of economics. So, economic growth was "exogenous" – that is, it was not supposed to react to economic forces.

Two views of growth

The theory that traced long-run growth to technological advance and nearly nothing else was one of the most elegant economic theories of all time. It was beautiful and still is. It earned its main founder, Robert Solow of MIT, a well-deserved Nobel Prize in 1987. But even so, the implication of the theory, as it was understood at the time, that long-run growth was solely a matter of technology was not fully satisfying. I for one came from a country where high inflation was creating havoc: Icelanders at the time were busy emptying their bank accounts in order to spare their money holdings from the ravages of double-digit inflation, so domestic saving plunged before our eyes. I was concerned that a collapse in national saving would reduce Iceland's economic growth potential over

the long haul. In my doctoral dissertation, I tried to test the hypothesis that increased inflation in the United States – for the US also had double-digit inflation for a short while in the 1970s! – would discourage saving (I found that it did), and thereby stimulate expenditure and employment in the short run, but I was unable to say anything of value about the likely consequences of less saving for long-run economic growth. True, the theory taught that a reduction in saving, or rather in the fraction of national income that is saved, would dent the economy's growth rate temporarily, or in the medium term, but there was not much discussion of how long it would take for the adverse effect of reduced saving on economic growth to evaporate. Strange, but somehow this was not an issue. I bumped against the same ceiling as no doubt many others had bumped against before: economic growth was exogenous! Call in the engineers!

This was at Princeton. In between the brilliant lectures in the economics department that some of Solow's best and brightest former students gave on growth and how growth ultimately had to be immune to all but technological progress, I sneaked across the street to hear Sir Arthur Lewis lecture on economic development at the Woodrow Wilson School. His lectures were also superb and supremely entertaining. He taught us that greater economic efficiency, more and better education, and, yes, more saving and investment were good for growth. He, too, was awarded a Nobel Prize, in 1979. In Lewis's own words (1955, p. 164), "The proximate causes of economic growth are the effort to economize, the accumulation of knowledge, and the accumulation of capital." Notice the reference to "the effort to economize". This phrase encapsulates many different things, including, for instance, foreign trade, for trade allows nations to specialize in what they do best and thus to benefit from their comparative advantages as well as from economies of scale and thus to become more efficient, as had been known from the days of Adam Smith (1776). And Lewis was, unless I misremember, sympathetic to the idea that high inflation

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could hurt growth, in principle at least, because inflation may discourage the accumulation of capital and perhaps also "the effort to economize". The basic idea is really quite simple: if economic growth depends on "the effort to economize", then virtually everything that enhances economic efficiency, no matter what, is also good for growth.

But there was a problem: there was no "proof". I do not recall Lewis writing a single equation on the blackboard in his fabulous lectures. And Solow's elegant theory that implied that the sources of growth identified by Lewis must be irrelevant to growth in the long run (with the possible exception that technical progress and hence also economic growth might depend on education as pointed out by Nelson and Phelps, 1966) appeared watertight. It did not seem promising – indeed, it looked patently unacceptable – to go and look for empirical evidence for economic relationships that could not conceivably exist in theory. For even if we can find them, facts are not enough; we must also have models that fit the facts. This did not bother many development economists, however, for they kept looking around for economic explanations for growth, albeit not with any great success at the time, but growth economists made no such attempts. As they saw it, there was no point in trying. Development economics and growth theory were two different branches of economics, separated by method as well as by geography: development was a nontechnical, quasi-historical subject confined to poor countries, and growth was a hard-core, high-tech branch of modern macroeconomics reserved for rich countries. There was, in most places, little communication between the two.

As time passed, many economists became increasingly dissatisfied with their inability to say something new and useful about economic growth in the long run. To compound the frustration, more and better data from an increasing number of countries around the world showed that some grew much more rapidly than others. Korea, for example, was poorer than Bangladesh in the 1950s, and yet, by the late 1990s, Korea had an income per head that was ten times higher than that of Bangladesh. Why? Had Korea made more rapid technological progress than Bangladesh? Hardly. There had to be economic forces at work. So economists went back to their drawing boards. To make a long story short, what happened next

was this: new theories were built to make room for the possibility that long-run growth could depend on all kinds of things besides technology and thus to pave the way towards a respectable empirical search for the sources of growth. One branch of the new growth theory emphasized that growth can be driven forward by more and better education, regardless of technology. Another branch stressed that growth depends on saving, investment and efficiency, just as Lewis had taught (and many others before him, all the way back to Adam Smith), and provided the equations to "prove" it. A third branch showed how growth can be driven forward by technology and organization in ways that make it possible for government policy and institutions to stimulate growth. Economic growth was thus made "endogenous" – economic events, policies and institutions were shown to be capable, in theory, of influencing economic growth over long periods. This was not, however, achieved by discarding the older theory but rather by digging deeper, for it turned out that endogenous long-run growth according to the new growth theory was not all that different from medium-term growth in the Solow model because the medium term could be quite long – long enough almost to be empirically indistinguishable from the long run. Besides, Solow's theory had all along given a convincing economic explanation – in terms of saving, investment and efficiency, much like Lewis – of why the level of income per head differs across countries even if long-run growth was viewed as a technological phenomenon. So the two ways of looking at economic growth over long periods were perhaps not all that different after all. Solow (1997, p. 89) agrees.

I am not changing the subject when I say that, in the 1960s, it cost roughly ten times as much as it costs today for a student from Buenos Aires or Santiago to fly to Boston or Chicago and back. It is not difficult to imagine the implications of this dramatic change. Students from far-away countries can now afford to flock to the United States and Europe to educate themselves, something that only a few could afford a generation ago. The boost to efficiency is twofold: (a) more young people get more and better education and (b) the money that otherwise would have been spent on sky-high airfares can now be put to other productive uses. This improvement did not result from technological advances, for we had essentially the same aircraft in the 1960s as we do now; the jet plane had already

entered service. Rather, the improvement resulted from increased efficiency through deregulation of air traffic, increased competition in the skies, scale economies, and so on. The engineers, useful work as they do, had very little to do with this.

The main point about "the effort to economize" is this: increased efficiency increases the amount of output that can be produced by given inputs as if technological progress had taken place. Equivalently, increased efficiency reduces the amount of inputs needed to produce given output, thus releasing the extra inputs to other uses. Thus technological advance can be viewed as one form of increased efficiency. Put differently, there are many – indeed, almost innumerable! – ways of squeezing more output from given inputs and thus increasing economic efficiency and growth, even if technology remains unchanged.

The search for the keys to growth

What happened next? Literally hundreds of economists all over the world have spent a good part of the past ten years or so looking for empirical confirmation of endogenous growth. They have not returned empty-handed from their expeditions. There is now a large and rapidly growing literature that indicates that saving and investment are good for growth and, moreover, that many other factors associated with economic efficiency also vary systematically with economic growth across countries as well as over time.

Let us begin with saving and investment. Is it a coincidence that economic growth in Southeast Asia, where saving and investment rates of 30 percent of gross domestic product (GDP) have been common since the 1960s, has outpaced growth in Africa? – where, at least until recently, saving and investment rates of around ten percent were the norm. Hardly. Figure 1 shows a scatterplot of the average rate of growth of gross national product (GNP) per capita and the average ratio of investment to GDP in 1960–2000, based on data from the World Bank (2003). In order to adjust for the possibility that poor countries grow more rapidly than rich because they are catching up, I have purged the growth variable of that part which can be explained by the country's initial income per head by first regressing growth on the logarithm of initial income per head and then subtracting the initial income component from the observed growth rate. The regression line through the 164 observations, one per country, suggests that an increase in the investment ratio by eight percentage points goes along with an increase in annual per capita growth by about one percentage point. The relationship is statistically as well as economically significant: the rank correlation is 0.41. The slope of the regression line through the scatterplot is consistent with the coefficients on investment in cross-country growth regressions reported in several recent studies. Saving and investment seem to be good for growth, and perhaps vice versa. If so, economic policies and institutions that foster saving and high-quality investment seem likely to spur growth.

How about efficiency? Here the plot thickens a bit because efficiency appears in many different guises and depends on a number of different things. So let me focus on just a few.

I have already mentioned the age-old hypothesis that trade – domestic as well as foreign! – is good for growth. What is the evidence? Figure 2 shows a scatterplot of economic growth as defined above and exports of goods and services in proportion to GDP in 163 countries around the world. The regression line through the scatterplot suggests that an increase of 40 percentage points in the export ratio from one country to another goes along with an increase in per capita growth by one percentage point per year on average. The relationship is economically as well as statistically sig-
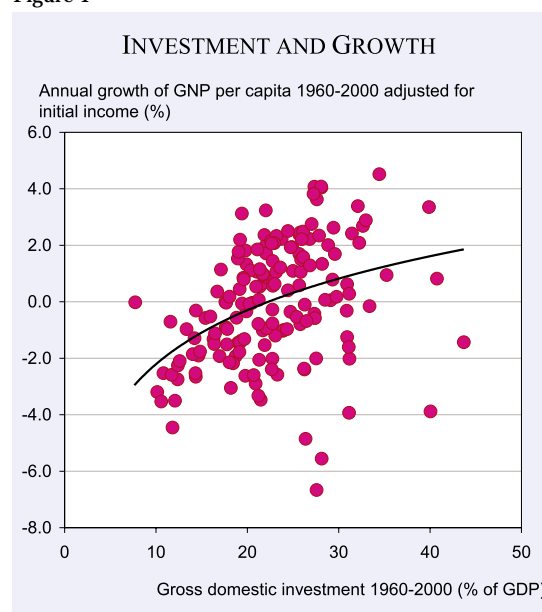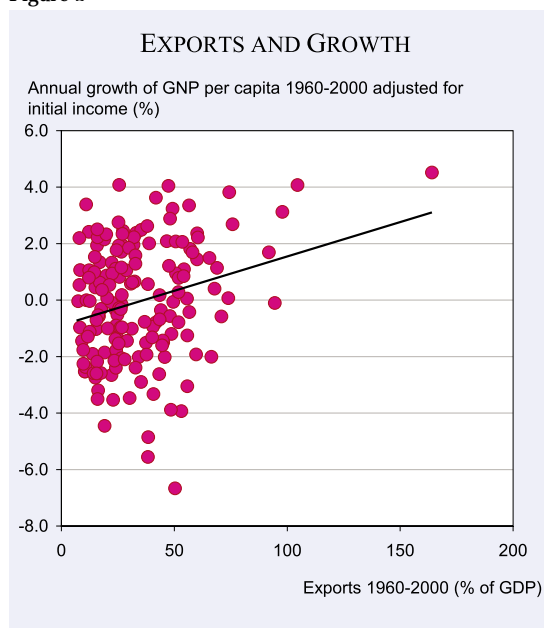
Figure 1

INVESTMENT AND GROWTH

Annual growth of GNP per capita 1960-2000 adjusted for initial income (%)

Gross domestic investment 1960-2000 (% of GDP)

Figure 2

EXPORTS AND GROWTH

Annual growth of GNP per capita 1960-2000 adjusted for initial income (%)

Exports 1960-2000 (% of GDP)

nificant (the rank correlation is 0.20). The data thus seem to support the view that exports are good for growth, and maybe vice versa. Adam Smith would not have been surprised. Exports, however, are not an ideal measure of openness to trade because large countries depend less on foreign trade than smaller ones that need to extend their home markets beyond their national borders to make up for their small size. If Texas were to trade more with New York and less with Mexico, this would reduce the extent of US foreign trade, but efficiency and growth in the US economy would scarcely suffer. When the export ratio is replaced by a measure of openness defined as the difference between the actual average ratio of exports to GDP during 1960 to 2000 and the export ratio predicted by country size, an indicator of openness that is positive for countries that are more open o trade than their size predicts and negative otherwise, the pattern that emerges is very similar to that shown in Figure 2. The predicted export ratio was obtained from a linear cross-country regression of the average export ratio on the logarithm of the average population (in thousands) to adjust for country size.

Education is also good for growth, as it turns out, and conversely. Figure 3 shows a scatterplot of economic growth as measured before and secondary-school enrolment for both genders as a percentage of each cohort from 1980 to 1997. Imperfect though it is, secondary-school enrolment is the most commonly used yardstick for education in the empirical growth literature. Even so, other measures of educa-

tion such as primary-school enrolment rates, tertiary-education enrolment rates, public expenditures on education and years of schooling for girls or boys yield similar results. If we fit a straight line (not shown) through the 131 observations, Figure 3 shows that a 25 percentage point increase in secondary-school enrolment – an urgent necessity in many developing countries! – goes along with a one percentage point rise in the annual rate of growth of GNP per capita. Actually, the relationship is significantly nonlinear as shown, indicating decreasing returns to education, and either way it is statistically significant (the rank correlation is 0.60). It needs to be emphasized, however, that school enrolment reflects, at best, the quantity of education provided rather than the quality of education received.

We have seen that the accumulation of both physical and human capital is positively related to economic growth. How about social capital? – that is, the infrastructure and institutions of society in a broad sense: its culture, cohesion, law, system of justice, rules and customs and so on, including honesty, liberty and trust. This is a long list, so let us first consider corruption and then political oppression, to take but two aspects of social capital corrosion into account. Figure 4 shows the relationship between economic growth and corruption across 88 countries, the maximum number for which reasonably reliable data are available. I use the corruption perceptions index from Transparency International, Berlin, for the year 2000 on the assumption that corruption changes slowly. The index is constructed from information
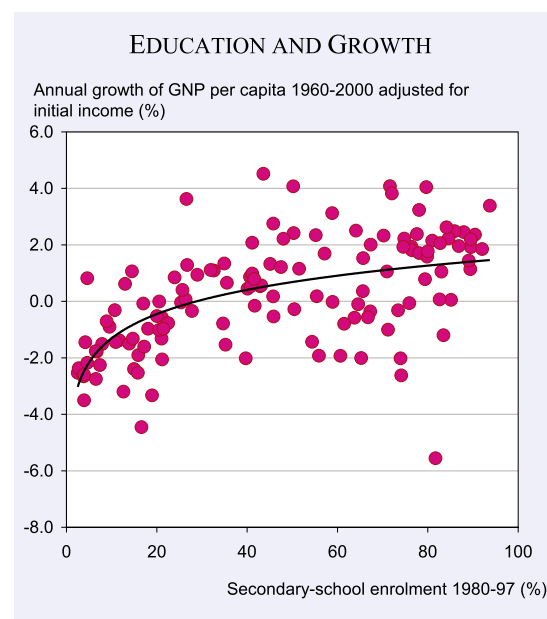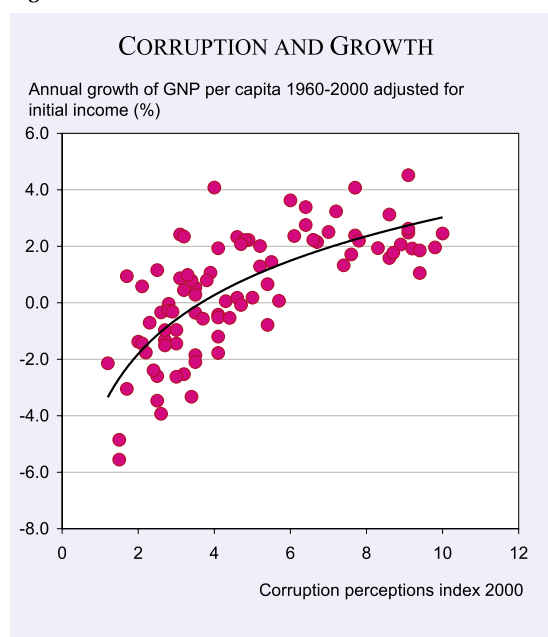
Figure 3

EDUCATION AND GROWTH

Annual growth of GNP per capita 1960-2000 adjusted for initial income (%)

Secondary-school enrolment 1980-97 (%)

Figure 4

CORRUPTION AND GROWTH

Annual growth of GNP per capita 1960-2000 adjusted for
initial income (%)

Corruption perceptions index 2000

obtained from businessmen who are willing to report how often and how forcefully bribes and the like are demanded of them in various countries, and how high these are, and so on. The index extends from zero, in countries where corruption is rampant, to ten, where it is practically nonexistent. The figure suggests that an increase in the corruption perceptions index (i.e., a decrease in corruption) by two points from one place to another goes along with an increase in per capita growth by more than one percentage point per year on average, for given initial income. This is not a small effect – if it is an effect, that is, as opposed to a mere correlation. The pattern is significant; the rank correlation is 0.73. Honesty, it seems, is good for growth because corruption breeds inefficiency, and vice versa.

How about political oppression? Figure 5 shows the relationship between per capita growth as measured before and political liberties across 65 countries. The political liberties index is an average for the years 1972–1990 and is taken from Przeworski et al. (2000). The index ranges from 1 (full civil liberties) to 7 (negligible civil liberties). The rank correlation, at -0.64, is significant statistically as well as economically. An increase in political liberties by two points from one country to another, corresponding to the difference in liberties between India (index = 2.0) and Bolivia (index = 4.0), or between Bolivia and Ghana (index = 6.0), goes along with an increase in per capita growth by more than one percentage point

per year. Hence, political liberty seems good for growth because oppression hurts efficiency.

Finally, consider this: From 1960 to 2000, GNP per capita in the Organization of Petroleum Exporting Countries (OPEC) increased on average by only 0.3 percent per year. How come? Abundant oil and other natural resources may seem an unlikely impediment to economic growth, but they can nevertheless lead to (a) an overvalued and unstable currency that in turn can hurt manufacturing exports and foreign investment and thereby also economic growth (the Dutch disease); (b) rampant and socially divisive rent seeking that diverts valuable time and effort away from useful production, which may also be followed by corruption and oppression; and (c) a false sense of security that can lead to a feeling that anything goes, thereby weakening people's understanding of the need for good economic management, good investments and good education: if you are awash in cash, then why exert yourself? In sum, unless they are carefully managed, abundant natural resources can weaken the foundations of growth, including investment (Figure 1), trade (Figure 2), education (Figure 3), honesty (Figure 4), and liberty (Figure 5).

Figure 6 shows a scatterplot of economic growth and the share of primary (i.e., non-manufacturing) production in GDP. Other measures of the weight of natural-resource-based activity in economic life, such as the share of primary exports in total

Figure 5

POLITICAL LIBERTY AND GROWTH

Annual growth of GNP per capita 1960-2000 adjusted for
initial income (%)

Index of political liberties 1972-90
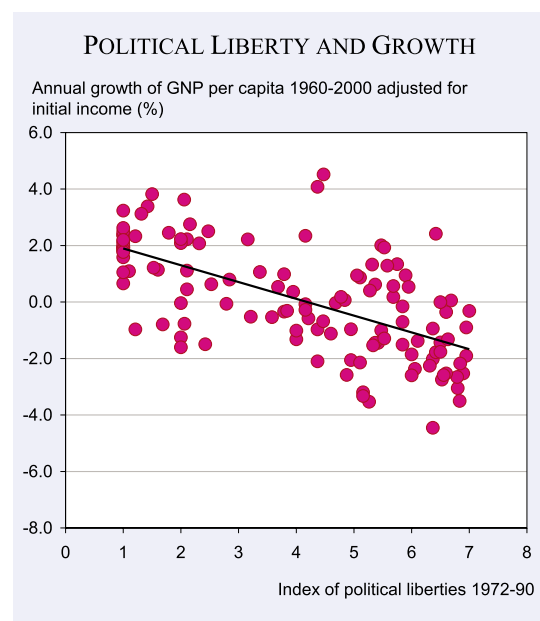
exports or in GDP and the share of the primary sector in employment give similar results. The regression line through the scatterplot of 164 countries in the figure suggests that an increase of about six percentage points in the primary-sector share from one country to another is associated with a decrease in per capita growth by one percentage point per year on average. The relationship is als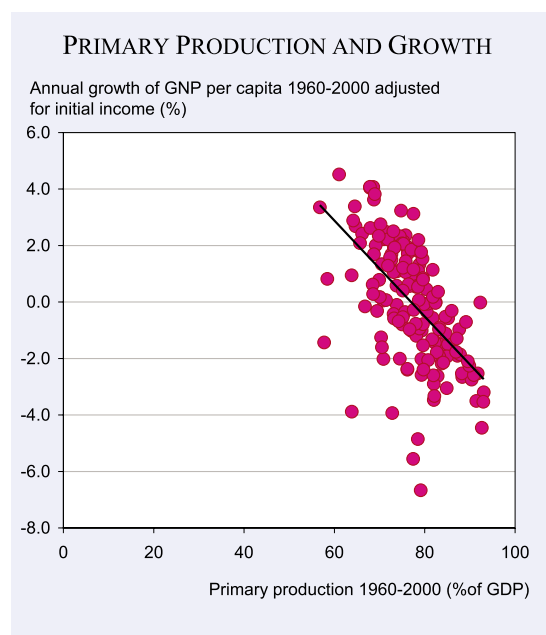o significant in a statistical sense (the rank correlation is -0.64) and conforms to the results that have been reported in multiple regression analyses where other relevant determinants of growth (investment, trade, education, etc., as well as initial income to account for catch-up and convergence) are taken into account. The data seem to confirm that manna from heaven can be a mixed blessing.

The correlations reviewed above do not by themselves establish cause and effect even if we have some pretty good reasons to believe that growth may be affected by the variables shown on the horizontal axes in Figures 1 to 6. It is conceivable that increased growth across countries stimulates investment, trade, education, honesty, liberty and diversification away from heavy dependence on natural resources. But this does not mean that investment, trade, education, honesty, liberty and diversification do not stimulate growth. Most likely, some of the causal relationships work both ways. Moreover, there may be still other factors that influence some or all of these variables, helping to generate some of the patterns observed.

Figure 6

PRIMARY PRODUCTION AND GROWTH

Annual growth of GNP per capita 1960-2000 adjusted for initial income (%)

Primary production 1960-2000 (%of GDP)

The main point here, however, is this. Some of the key determinants of economic growth that have been identified in recent studies and briefly described above depend in important ways on institutions as well as on economic policy undertakings from year to year. It takes an efficient financial system and probably also an independent central bank to channel national saving into ample high-quality investment. It takes an outward-looking, liberal exchange and trade regime to foster rapidly expanding foreign trade. It takes a good, subsidized, incentive-compatible education system to offer a good education to all. It takes an honest and independent judiciary to keep corruption under control. It takes liberal laws and constitutions to secure political and civil liberties. Likewise, it may take institutional reforms – such as those in Norway, where the management of the Petroleum Fund was transferred from the Ministry of Finance to the more independent Central Bank in 1999 – in order to avert the adverse consequences that otherwise may follow from heavy dependence on nature's bounty. In short, institutions make a difference: they must.

A matter of choice

The economics of endogenous growth and development has made swift progress over the past 15 to 20 years. It is now understood that, over long periods, even the older theory of exogenous growth can include considerably more factors than technological progress, including economic policies and institutions that encourage investment, trade and education as well as honesty, liberty and diversification away from natural resources. In one important respect the recent revolution in growth theory resembles the revolution in macroeconomic theory which John Maynard Keynes set in motion in the 1930s: just as Keynes rebelled against the powerlessness of public authorities in dealing with mass unemployment during the Great Depression and rejected the theory which lay at the root of this impotence, the new growth theory has challenged the powerlessness of public authorities faced with abject poverty in developing countries. The new theory does not, however, have to completely jettison older theories of economic growth, but instead merely reinterpret, improve, expand upon and strengthen them. This work is well underway around the

world. The emerging synthesis is rich in its implications for economic policy.

With appropriate policies and institutions, rapid economic growth is, or at least ought to be, achievable almost anywhere. True, there are important natural and political obstacles to growth-friendly reforms, including conflicts, real or imagined, between economic growth and other policy objectives and also conflicts of interest between the many who gain from reforms and the few who lose. Even so, it now seems clear that to grow or not to grow is in large measure a matter not of technology but of choice.

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GETTING INSTITUTIONS RIGHT

DANI RODRIK*

There is now widespread agreement among economists studying economic growth that institutional quality holds the key to prevailing patterns of prosperity around the world. Rich countries are those where investors feel secure about their property rights, the rule of law prevails, private incentives are aligned with social objectives, monetary and fiscal policies are grounded in solid macroeconomic institutions, idiosyncratic risks are appropriately mediated through social insurance, and citizens have recourse to civil liberties and political representation. Poor countries are those where these arrangements are absent or ill-formed. Of course, high-quality institutions are perhaps as much a result of economic prosperity as they are their cause. But however important the reverse arrow of causality may be, a growing body of empirical research has shown that institutions exert a very strong determining effect on aggregate incomes.[1] Institutions are causal in the sense that a poor country that is able to revise the rules of the game in the direction of strengthening the property rights of entrepreneurs and investors is likely to experience a lasting increase in its productive capacity.

Much less well understood are the implications of this line of reasoning. Indeed, the empirical finding that "institutions rule" has sometimes been interpreted as a form of property-rights reductionism – one that views the formal institutions of property rights protection as the end-all of development policy. In the academic literature, this has led to a tendency to oversimplify the issues at stake – for example by treating institutional development in a mono-causal manner (i.e., linking it exclusively to colonial history) or by identifying "institutions" solely with the formal, legislated rules in existence. In the poli-

cy field, the new focus on institutions has led to an overly ambitious agenda of "governance" reforms aimed at reducing corruption, improving the regulatory apparatus, rendering monetary and fiscal institutions independent, strengthening corporate governance, enhancing the functioning of the judiciary, and so on. Sometimes called "second-generation reforms," these new reforms are meant to overcome the apparent inefficacy of the earlier wave of reforms relying heavily on liberalization, stabilization, and privatization. Simple policy changes are ineffective, the argument now goes, unless they are grounded strongly in institutional reforms.

In this article, I elaborate on these and some other issues. My own perspective is that the empirical literature on institutions and growth has pointed us in the right direction, but that much more needs to be done before it can be operationalized in any meaningful way. Many of the policy implications drawn from this literature are at best irrelevant and at worst misleading.

An instrument does not a theory make

The empirical work on what one may call "macro-institutions" received a big boost with Acemoglu, Johnson, and Robinson's (2001; AJR) important paper called "The Colonial Origins of Comparative Development." This mis-titled (see below) paper came up with an ingenious solution to a dilemma that had long stymied serious empirical work in this arena.

The difficulty with the empirical analysis of institutional development has been that institutional quality is as endogenous to income levels as anything can possibly be. Our ability to disentangle the web of causality between prosperity and institutions is seriously limited. AJR proposed using colonial history to achieve econometric identification. Parts of the world that confronted would-be colonizers with greater health hazards, they argued, were less likely to be permanently settled by Europeans, who as a consequence were less likely to build institutions protecting property rights, limiting their efforts to pure extraction. Settler mortality rates three centuries ago could help identify which countries acquired good institutions and which did not, and plausibly help account which countries grew rich and which remained poor. This encounter of ecology with history could be used to test for the causal

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[1] See in particular Hall and Jones (1999), Acemoglu, Johnson, and Robinson (2001), Easterly and Levine (2003), Rodrik, Subramanian, and Trebbi (forthcoming).

impact of institutional quality on levels of development. Moreover, the fact that natives had immunity to the diseases to which settlers succumbed helped support the point that settler mortality (the instrumental variable) was not necessarily a stand-in for the local health environment. Using this strategy, AJR were able to show that a substantial part of the variation in today's income levels among former colonies can be explained by differences in investors' perceptions with regard to the likelihood of expropriation.

What AJR seemed to suggest with their title was that they had identified differing encounters with colonialism as the root of the variance in income levels around the world. But this is a problematic interpretation. The variation in average income levels among countries that have never been colonized is almost as large as that in the colonized sample (Rodrik, Subramanian, and Trebbi, forthcoming; RST). If the roots of underdevelopment lie in contrasting encounters with colonizers, how can we explain the fact that countries that have never been colonized by Europeans are among both the poorest and richest of today's economies? Consider for example countries such as Ethiopia and Afghanistan at one end of the spectrum and Japan at the other end, with middle-income countries such as Turkey and Thailand lying somewhere in between.

The correct interpretation of AJR, in my view, is that colonial experience – as captured by the settler mortality variable – simply provides a convenient "instrumental variable," without in itself holding much explanatory power for patterns of global inequality. Finding an appropriate econometric instrument is not the same as providing an adequate explanation – a distinction that is somewhat blurred in AJR. One should therefore not read too much into AJR with regard to the role played by colonialism in shaping today's contours of wealth and poverty.

Geography-based instrumental variables do not imply geography-based explanations

Settler mortality was obviously a function of ecological conditions, and this raises the question of whether AJR unwittingly gave a starring role to geography. Indeed, since few things other than geography are exogenous in economics, most instruments for institutional quality are likely to have a significant geographical component (resource endowments, latitude, and so on). Indeed, there is a long and distinguished list of scholars who have pointed to the importance of geography. Jeffrey Sachs has forcefully argued that geography exerts a strong independent effect through its impact on the public health environment and on transport costs (Sachs 2003; Gallup, Sachs, and Mellinger 1998). Jared Diamond (1997) has shown how apparently innocuous accidents of geography (such as the alignment of continents) can have long-lasting effects on patterns of technological development and diffusion. So can these studies still effectively parse out the respective roles of geography and institutions in determining income levels?

The answer is yes. To see how this can be possible, consider a different, but analogous, exercise. Suppose we were interested in explaining differences in income levels among German länder lying on both sides of the Berlin wall prior to 1989. Suppose also that our hypothesis was that these differences were due primarily to differences in the degree of protection of private property rights. Cognizant of reverse causality, we might want to look for an instrumental variable – something that is correlated with institutions, but is not a determinant of income levels through another channel. Longitude provides such a variable, because länder in the eastern part of the country were much more likely to fall under Soviet occupation and acquire communist institutions. We might then use longitude as an instrument for the system of property rights and rightly conclude that the protection of private property rights is a superior means for generating wealth. The correct inference here would not be that geography (longitude) is the cause of income differences: geography, in interaction with history, simply provides a convenient source of exogenous variation to identify the role played by institutions.

Of course, geography variables have to be given a fair chance to compete against institutions as ultimate explanators of income differences. In RST, we tried a large number of geography variables and found their direct impact on income to be either insignificant or non-robust. That led us to conclude that "institutions rule." Similar results were also reported in AJR and Easterly and Levine (2003). However, there are other studies that find a role for geographical determinants such as malaria ecology (Sachs 2003) or climate, lati-

tude and East-West orientation (Hibbs and Olsson 2004) even after controlling for institutional quality. It would be fair to say that scholarly opinion remains divided on the significance of geography as a direct determinant of income levels.

But the centrality of institutions does not preclude an important indirect role for geography

At the same time, there is wider agreement on the indirect role played by geography. In particular, when one endogenizes institutional formation, one often finds geographical determinants to be an important part of the story. For example, Engerman and Sokoloff (1994) have linked the contrasting patterns of institutional development in North and South America to the differences in resource endowments: large-scale plantation agriculture is much more conducive, compared to smallholding, to the emergence of inequality and of autocratic institutions that repress non-elites. Sala-i-Martin and Subramanian (2003) have provided systematic evidence that shows abundance of natural resources and rents to be damaging to the quality of institutions. RST find that distance from equator is a significant (positive) contributor to institutional quality. This line of work suggests that even if geography and endowments do not exert an important independent impact on incomes, contra Sachs (2003), they may have a significant indirect impact through institutions.

The challenge for the empirical literature on institutions is to explore these patterns without falling into the trap of reductionism or of historical and geographical determinism. For as we shall see, the process through which countries acquire "good" institutions is typically quite idiosyncratic and context-specific. Luck plays an important role, as does human agency.

Institutional quality, as it is typically measured, remains a nebulous concept

The manner in which institutional quality is measured in the empirical literature discussed above leaves a lot of questions unanswered. The most commonly-used indices of institutional quality are based on surveys of foreign and domestic investors, in which the respondents in a particular country are asked whether they consider their investments safe or how they rate the "rule of law" (see for

example Kaufmann et al., 2002). So these indices capture investors' perceptions, rather than any of the formal aspects of the institutional setting. They measure how well the rules of the game with regard to property rights are perceived to operate, and not what those rules are. This in turn raises two difficulties, one more serious than the other.

The first difficulty is that these perceptions are likely to be shaped not just by the actual operation of the institutional environment, but also by many other aspects of the economic environment. Most importantly, investors are likely to rate institutional quality high when the economy is doing well, regardless of whether causality goes one way or another. But this is just another instance of endogeneity and reverse causation. If the researcher has a valid instrumentation strategy, it ought to take care of this problem too. So the fact that our measure of institutional quality is perception-based does not invalidate inferences drawn from its use (subject to the caveat below) as long as proper care is taken in econometric identification.

The more serious issue is that, even if causality is properly established, the results do not tell us what specific rules, legislation, or institutional design is actually responsible for the institutional outcome being measured. All that we can infer is that performance is superior when investors feel their property rights are protected (or the rule of law is upheld). The results are silent on what it is that makes investors feel that way.

To appreciate the significance of this, compare Russia and China. In Russia, an investor has in principle the full protection of a private property-rights regime enforced by an independent judiciary. In China, there is no such protection, since private property has not been (until very recently) legally recognized and the court system is certainly not independent. Yet during the mid- to late-1990s, investors consistently gave China higher marks on the rule of law than they did Russia. They evidently felt better protected in China than they did in Russia. This is perhaps no big surprise to anyone who has observed the evolution of the Russian legal system over the last decade. But the important point from the current perspective is the apparent disconnect between the perception of the rules and the actual rules.

Consequently, the empirical finding that effective property rights are critical yields very little opera-

tional guidance as to how they are established. As the Russia-China comparison nicely illustrates, it does not even imply that a legal system based on private property rights dominates one where property rights are held collectively! What matters is that investors feel safe, regardless of how that safety is achieved. The empirical literature does not tell us how that safety is attained, only that it matters a lot.

Institutional functions do not map into unique institutional forms

So how is it that Chinese investors could feel more secure than Russian investors despite the absence of formal private property rights legislation in China? We do not know, but here is a plausible story.

To be effective, a formal legal regime protecting investors' rights requires a non-corrupt, independent judiciary with enforcement power. Let us posit, without doing great injustice to reality, that setting up such a judiciary is hard at low levels of income and takes time. So enhancing property rights by simply rewriting domestic legislation – changing the formal aspects of the institutional environment – is naturally of uncertain efficacy. That seems to have been the trap in which the Russian transition was caught up for some time.

How did China evade this trap? The largest boom in "private" investment in China took place (at least until the mid-1990s) in Township and Village Enterprises (TVEs). These were firms in which ownership was typically held by local governments. Private entrepreneurs were effectively partners with the government. In a system where courts cannot be relied upon to protect property rights, letting the government hold residual rights in the enterprise may have been a second-best mechanism for avoiding expropriation. In such circumstances, the expectation of future profits can exert a stronger discipline on the public authority than fear of legal sanction. Private entrepreneurs felt secure not because the government was prevented from expropriating them, but because, sharing in the profits, it had no interest to expropriate them.

This is a specific illustration of a broader point, namely that there is no unique, non-context specific way of achieving desirable institutional outcomes. China was able to provide a semblance of effective property rights despite the absence of private property rights. The Russian experience strongly suggests that the obvious alternative of legal reform would not have been nearly as effective. We can multiply the examples. For instance, China provided market incentives through two-track reform rather than across-the-board liberalization, which would have been the standard advice. Hence, in agriculture and industry, price efficiency was achieved not by abolishing quotas and planned allocations, but by allowing producers to trade at market prices at the margin. In international trade, openness was achieved not by reducing import protection, but by creating special economic zones with different rules than those that applied for domestic production.

The important point is that effective institutional outcomes do not map into unique institutional designs. And since there is no unique mapping from function to form, it is futile to look for uncontingent empirical regularities that link specific legal rules to economic outcomes. What works will depend on local constraints and opportunities. The best that we can do as analysts is to come up with contingent correlations – institutional prescriptions that are contingent on the prevailing characteristics of the local economy. At the moment we are very far from being able to do this for any but a few institutional areas.[2]

In the short-run, large-scale institutional reform is rarely necessary to accelerate growth

The bad news, as the foregoing discussion indicates, is that the literature on the institutional determinants of economic prosperity has yet to yield solid policy prescriptions. The good news is that everything that we know about economic growth suggests large-scale institutional transformation is hardly ever a prerequisite for getting growth going. It is true that sustained economic convergence eventually requires acquiring high-quality institutions. That is the whole point of the empirical literature I have discussed above. But the initial spurt in growth can be achieved with minimal changes in institutional arrangements. In other words, we need to distinguish

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[2] One example where a fair amount of work has been done relates to the choice of an exchange-rate regime. The optimum currency area literature can be interpreted as the search for prescriptions that are sensitive to the structural characteristics of an economy.

between stimulating economic growth and sustaining it. Solid institutions are much more important for the latter than for the former (Rodrik 2003). Once growth is set into motion, it becomes easier to maintain a virtuous cycle with high growth and institutional transformation feeding on each other.

Ricardo Hausmann, Lant Pritchett and I recently examined growth accelerations in the period since about 1950 (Hausmann et al. 2004). We identified more than 80 such episodes, in which a country increased its growth rate by 2 percentage points or more for a period of at least seven years. The surprise was not only that there were so many cases of growth accelerations,[3] but that the vast majority of them seemed unrelated to major economic reforms of the conventional type – i.e., economic liberalization and opening up. To the extent that we can identify triggers for growth, they seem to be related to the relaxation of specific constraints that were holding back private economic activity.

Even in the better known cases, institutional changes at the outset of growth accelerations have been typically modest. I have already mentioned some of the gradual, experimental steps towards liberalization that China undertook in the late 1970s without recourse to system-wide transformation. South Korea's experience in the early 1960s was similar. The military government led by Park Chung Hee that took power in 1961 moved in a trial-and-error fashion, experimenting at first with various public investment projects. The hallmark reforms associated with the Korean miracle, the devaluation of the currency and the rise in interest rates, came in 1964 and fell far short of full liberalization of currency and financial markets. As these instances illustrate, an attitudinal change on the part of the top political leadership towards a more market-oriented, private-sector-friendly policy framework often plays as large a role as the scope of policy reform itself. Such an attitudinal change appears to have had a particularly important effect in one of the important growth miracles of the last quarter century – India since the early 1980s (Rodrik and Subramanian 2004).

This is good news because it suggests countries do not need an extensive set of institutional reforms in order to start growing. Instigating growth is a lot easier in practice than the standard Washington recipe, with its long list of institutional and governance reforms, would lead us to believe. This should not be surprising from a growth theory standpoint. When a country is so far below its potential steady-state level of income, even moderate movements in the right direction can produce a big growth payoff. This is encouraging to policy makers, who are often overwhelmed and paralyzed by the apparent need to undertake ambitious reforms on a wide and ever-expanding front.

The trick is to be able to identify the binding constraint on economic growth at the relevant moment in time. In the South Korea of 1961, the major constraint probably was the large gap between the social and private return to investment. In the China of 1978, the constraint was obviously the absence of market-oriented incentives. In the India of 1980, it was a government that was perceived to be too hostile to the private sector. In the Chile of 1983, it was an overvalued exchange rate. Of course, it is much easier to determine these things ex post than it is to do it ex ante. A major task for growth economists in the years ahead is to develop a framework of "growth diagnostics," to enable the identification of areas with the biggest bang for the reform buck.

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[3] Our filter almost certainly understates the true number of growth accelerations. We excluded very small countries, countries with less than two decades of data, cases where the pickup of growth represented a recovery from a crisis, and instances where growth stood at below 3.5 percent per annum even after the acceleration.

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FAST-MOVING AND SLOW-MOVING INSTITUTIONS

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Understanding the conditions for successful economic growth and development is becoming an increasingly central question in economics. Why has the growth performance of Russia been so dismal in its first decade of transition, whereas China has been growing at over eight percent per year throughout its two decades of transition? Why has the Argentine economy, one of the richest in the world in the early twentieth century, more or less collapsed? Why have the "Asian tigers" experienced a successful economic takeoff, whereas the economies of most African countries have been decimated by misery, war and disease? The same question is also central in economic history and transition economics. Why the early success of Britain? Why the failure of Spain to take off when Britain was industrializing? How can one explain the success of some of the latecomers to industrialization (Gerschenkron 1962) and the "modernization failures" in Egypt and large parts of the former Ottoman empire?

The mainstream view now is that differences in institutions are the main explanatory variable following the institutionalist school in economics (North 1990; Williamson 1975, 1985; and others). A recent very influential paper by Acemoglu, Johnson and Robinson (2002) has provided econometric evidence of the causal link between institutions and growth.

However, the word "institutions" tends to be used like a mantra these days. What are the relevant institutions for successful development? Is there one "first-best" set of institutions or is the optimal-ity of institutional systems country-specific? How can a country improve its institutions? All of these questions are fundamental, and few have yet received convincing answers.

In the following I propose a classification of institutions to provide a basis for understanding the interaction between institutions and institutional change. This classification is based on the capacity of institutions to change rapidly or slowly, and whether or not that change is continuous.

Fast-moving and slow-moving institutions

I distinguish between slow-moving and fast-moving institutions. The former generally change slowly, incrementally and continuously, whereas the latter are more given to rapid, discontinuous change in large steps. Political institutions, for example, have the potential for centralized decisional changes in large steps. In this sense, they can be fast-moving institutions, which change almost overnight when there are revolutionary moments. In contrast, social norms are more often an example of slow-moving institutions. While some social norms and values can change very rapidly in historical terms (e.g., a society's tolerance for cigarettes), in general, social norms and values change slowly. Even individual social norms, such as attitudes toward the death penalty or acceptance of corruption, tend to change rather slowly, possibly because many norms are rooted in religions whose basic precepts have changed remarkably little for centuries and even millennia. The major world religions have shaped and continue to shape the basic values and preferences of individuals, what they consider important in life, and how they expect other people to behave toward them. One can always find examples to the contrary, but values and social norms, seen as a whole, tend to change slowly. An important reason why social norms or values change slowly is that they cannot change by authoritative decision. Legal systems tend to for that reason be faster-moving institutions than social norms but slower-moving than political institutions. A given

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law can be changed overnight, but legal systems are rarely changed as rapidly as political institutions, such as electoral rules. On the other hand, the effectiveness of the legal system and the enforcement of laws depend on their acceptance and legitimacy in society and on the expectations of many actors. The legal system is in that sense closer to social norms.

Slow-moving institutions are by definition good candidates to influence fast-moving institutions, since the former may change little at a time when the latter is changing dramatically. On the other hand, for this perspective to make any sense, slow-moving institutions must also change continuously, so as to produce inconsistencies with fast-moving institutions and thereby create pressures for change. An appropriate analogy is an earthquake: pressures along fault lines build up continuously but slowly, then suddenly provoke an earthquake that abruptly changes the topography of a given area. Slow-moving institutions are the equivalent of these tectonic pressures; fast-moving institutions are the equivalent of the topography.

Culture, understood in terms of social norms and underlying values – as basic slow-moving institutions influencing human behavior generally but also as affecting fast-moving institutions in the longer run – is thus hypothesized to affect long run economic growth. Just as we are familiar with analyzing technological innovation and its role in economic growth, we should also look at cultural innovations and analyze their broad social and economic effects. Different societies have throughout history exhibited different attitudes toward manual labor and work in general, toward thrift and usury (and even toward the use of interest rates), toward respect of private property and of creativity, and toward the participation of women in different economic activities. Obviously, these cultural differences have had a profound impact on economic development and growth.

It is in a way strange that most economists have shied away from incorporating cultural differences and cultural innovations in economic analysis. The process of economic growth tends currently to be seen by economists as a combination of technology and institutions. I propose to view institutional change as the interaction between slow-moving institutions, culture in particular, and fast-moving institutions such as political and legal institutions.

It is this interaction that drives institutional change, and it is the interaction between institutional change and technology that drives economic growth.

While it would be wrong to exclude the role of economic interests from discussions of institutional change, interests are not sufficient either to explain why institutional change takes place or to elucidate the direction of change. The institutional changes that took place in Western Europe in the eighteenth and nineteenth centuries would be difficult to imagine without the intellectual turmoil created by the Renaissance and the ideas of the Enlightenment, which were spread by communication technology such as the printing press. Ideas of equality and human rights led to enormous changes in forms of government and to the long transition from absolutism to democracy. This contrasts sharply with China, where Confucianism and related ideas were miles away from the Renaissance and Enlightenment ideas. China has experienced time and again large rebellions of peasants (larger than in ancient Rome or feudal Europe), some of which even managed to overthrow the empire. However, given the ideological background of these revolts, most only led to a change of emperor or of dynasty, because the purpose of the rebellion was to replace the emperor with a "more just" one. The October Revolution in Russian is probably a good example of the powerful role of our broad notion of culture: organized elites with a certain world-view managed to seize power in a situation of semi-anarchy after a military defeat. There is thus an important role for culture, worldviews and ideological commitment in explaining institutional change.

It is necessary to understand how the interaction of slow- and fast-moving institutions creates pressures for institutional configurations that may be growth-enhancing or growth-inhibiting. This interaction is not one-sided: slow-moving institutions exercise causal pressures on fast-moving institutions, and, by the same token, the latter have a life their own and can influence the path of slow-moving institutions. Moreover, different slow- and fast-moving institutions may have different effects on economic growth in their own right, while the form of existing fast-moving institutions may promote or, alternatively, may inhibit further institutional change, with positive or negative implications for economic growth.

These issues demand major research. Some hypotheses nevertheless follow quite directly from the framework I sketched.

The failure of institutional transplantation

A first hypothesis is that transplanting institutions is likely to be unsuccessful. Support for this hypothesis is provided by the fact that the transplantation of European institutions did not work well outside the settler colonies. Colonial settlers transplanted European institutions, fast-moving by definition, into a setting to which they brought their stock of knowledge, technology and culture. The countries that grew from these settler colonies are now counted among the rich, advanced economies of the world. Contrast this economic outcome with post-colonial India, where British institutions were transplanted into a different cultural context, including a deeply rooted caste system. An even stronger contrast is Africa, where conscious attempts to introduce the Western-style institutions of the democratic, modern European nation-states pathetically failed to produce economic growth. Transplantation often does not work well precisely because institutions are characterized by the complex interaction between slow-moving and fast-moving institutions, and the former change slowly and are largely autonomous. Trying to impose Western fast-moving institutions adapted to the West's own slow-moving institutions in countries with a very different history and culture is not likely to meet the same economic success.

The interaction between slow-moving and fast-moving institutions thus provides an explanation for why the transplantation of "best-practice" institutions does not work. It provides content to the idea that different countries have different "local conditions", which arise from each country's slow-moving institutions. It also provides a rationale for why reforms in a given country must build on these local conditions. In other words, countries with different cultural and historical paths must find within their existing slow-moving institutions the roots for changes in their fast-moving institutions.

The European "head start"

Another hypothesis stems from a "Jared Diamond" (1998) vision of the world, which proposes to explain the unequal development of civilization by the differences in the initial conditions facing early humans. Focusing on domesticable plants and animals and the (latitudinal or longitudinal) shapes of the continents, Diamond argues that the best conditions for developing civilizations were met in Eurasia, and within Eurasia, mostly in the Middle East and the Mediterranean. Favorable initial conditions led to population growth, which led in turn to higher production of surplus via division of labor. The latter led in turn to a higher production of knowledge, both scientific and cultural.

Let us take as a starting point the stock of knowledge dating from antiquity in the Mediterranean. This higher stock of knowledge does not refer only to scientific knowledge; the study of mathematics in Ancient Greece was more developed than anywhere else in the world, but the region's cultural diversity was also quite impressive, as evidenced by the number of competing religions in the Mediterranean at that time. Institutional innovation was also thriving: the variety of political systems in the region was much greater than elsewhere. Most of the forms of government known throughout history were invented in the Mediterranean and in the Old World (Finer 2001).

The evolution of knowledge and culture may be linked to political institutions; the vigorous development of technologies suggests the parallel development of ideas concerning political innovations. Indeed, it is reasonable to think that innovation should apply not only to technology but also to the political and social sphere. Since knowledge and culture accumulate slowly, geographic areas with environmental conditions that promoted the interaction of diverse cultures, and hence large stocks of accumulated knowledge may have had greater potential for fast-moving institutional change. It may, therefore, be no coincidence that Europe, historically diverse and geographically favorable to interaction between cultures, was the location of most of the political innovations throughout history. How can we explain Western Europe's economic dominance over much of the rest of the world in the last several centuries? One hypothesis is that the initial conditions proposed by Diamond favored a cross-cultural exchange of ideas and that this exchange permitted an accumulation of knowledge that gave Europe an institutional "head start" that still continues to have powerful effects in today's world.

Long term stocks of knowledge

Europe, of course, did not experience an uninterrupted accumulation of knowledge but also went through centuries of dark ages after the collapse of the Roman empire. Countries with accumulated knowledge may witness historical setbacks for prolonged periods due to war or internal institutional failures. However, to the extent that stocks of knowledge and cultural capital remain preserved, countries with an accumulated stock of knowledge may be positioned for a more solid growth path once they are on a favorable track as far as their fast-moving institutions are concerned. Flanders, for example, experienced a cultural flowering during the Middle Ages and early Renaissance, when it was one of the richest areas in the world, and even recovered (albeit centuries later) from the massive losses inflicted by the Spanish Inquisition.

Consider also the case of China: the twentieth century was certainly one of the worst in all of Chinese history, but until the seventeenth or eighteenth century, China had the most advanced economy in the world. While Europe, despite its earlier superiority in terms of the development of knowledge, was mired for centuries in bloody wars, China developed its economy through centuries of relative peace and remarkable institutional stability equaled only by ancient Egypt. Since then, China has undergone more than two centuries of relative decline. However, considering the success of Chinese transition, with an average growth rate of over 8 percent per year, it is difficult not to think that there is some kind of "reversion to the mean" and that the accumulated knowledge and culture from the country's past have helped in this process. Sachs and Woo (1992) present almost the opposite perspective, attributing China's recent high growth rates to the country's "backwardness" in the immediately preceding period. Seen in a long-term historical perspective, however, China has been anything but backward. For example, Chinese agriculture, which was the initial engine of growth early in the transition, has in a historical perspective been among the most productive in the world. I therefore suggest that one of the clues to the success of China's transition is not its "backwardness" at the onset of the transition but the inherited high level of knowledge and culture relative to its economic performance.

Based on its existing stock of cultural knowledge (which differs strongly from that in the West),

China, like other Asian countries, has developed unique fast-moving institutions in achieving its recent growth trajectory. Thus, China is experimenting with its own institutions for the market economy instead of importing Western institutions. Whether Asian capitalist institutions are more efficient is not the right question to ask here. A more appropriate question relates to the one posed earlier about institutional transplantation: what would have happened if Western-style institutions had been directly imported into a cultural context that exhibits fundamental differences from those of the West?

Concentration of power affects institutional change

The form of fast-moving political institutions may greatly affect the manner in which institutional change occurs, with important consequences for economic development and growth. In particular, this subsection focuses on the implications of the relative (de)centralization of political power for the dynamics of institutional change.

Although much work remains to be done, recent research suggests that decentralization through federalist democracies encourages experimentation. American federalism is often considered a "laboratory of the states", where some states initiate and experiment with innovative institutions. Other states may imitate the successful results (see the framework of Qian, Roland and Xu 1999 on flexibility and organizational forms). At the other extreme, totalitarian regimes are likely to prevent not only technological and cultural but also political innovations, resulting in pronounced institutional uniformity and rigidity. Even in centralized democratic states, such as France and Japan, major changes in government programs, such as education and banking reforms, require initiation by the responsible ministries and coordination by the central government.

The degree of centralization and power concentration has important implications not only for institutional experimentation but also for the nature and speed of political change. Political institutions that concentrate power in the hands of a few tend toward patterns of infrequent and abrupt change because, relative to institutions in which power is more dispersed, institutions with concentrated power leave more room for discretionary behavior and abuse of power by those holding office. As a

corollary, the high economic stakes of political power in centralized regimes tend to translate into a more pronounced temptation to resort to coercive methods to retain power.

Many historical examples illustrate this phenomenon. One is the well-known comparison between the evolution of the British Crown and that of absolute monarchy in France. The English monarchy was historically relatively weak, and in consequence the king had to share powers with feudal lords. Frequent attempts to strengthen the power of the king were largely defeated. Although the episode of the Glorious Revolution of 1688 and the subsequent separation of powers between the monarch and the House of Lords – one of history's most important political innovations – has been documented at length (e.g., North and Weingast 1989), previous episodes, such as the drafting of the Magna Carta in 1215, reveal a constant check on the king by the feudal lords in medieval England. Importantly, the English political system is probably also the prime example of an evolutionary political system that has adjusted in a flexible way throughout the last centuries.

Consider, by contrast, the consequences of centralized power in France: ironically, the French king began much weaker relative to noble lords than the English monarch and remained so for centuries. It was only much later, in a Europe divided by religious wars, that the power of the French monarchy began to strengthen until it achieved its absolutist status under Louis XIV. It took the French Revolution, centuries later, to trigger abrupt political change. Unlike the flexible and evolutionary political system that arose due to the separation of powers in medieval England, then, the centralization of power in France under an absolutist monarch made political change particularly discontinuous.

Another example comes from the comparison of the Ottoman Empire and feudal Europe. Machiavelli noted in The Prince that it was much easier to conquer feudal France than the Ottoman Empire, but it was much more difficult to occupy the former than the latter. In France, prior to the concentration of power by an absolutist monarch, feudal lords were relatively independent and did not rely much on the king. Therefore, they were not very loyal to the latter and would change allegiance whenever it best suited their interests. They

could therefore be easily bribed by a would-be conqueror into betraying the French king. By the same token, however, feudal lords could also betray any occupying power. By contrast, the governors of the Ottoman empire had no property of their own and depended for their resources on the emperor, who threatened to have them executed if they lost territory to an enemy. Therefore, they would fight to the death against any occupant. On the other hand, once successfully invaded, Ottoman territory was easily occupied because the Ottoman institutions collapsed like a house of cards. More centralization in the Ottoman Empire therefore meant that change through successful invasions was less frequent and more abrupt when it came, whereas greater dispersion of power in pre-absolutist France allowed for more frequent foreign influence and institutional change.

Some policy implications

The interaction between slow-moving and fast-moving institutions implies that different cultural paths (slow-moving institutions) may affect the appropriate choices of fast-moving institutions. This discussion carries a number of possible policy implications.

First, one should take a skeptical attitude toward transplantation of institutions, because the different dynamics of slow-moving institutions may make some fast-moving institutions inadequate in some countries. Thus reforms of fast-moving institutions in a given country must in part build on existing slow-moving institutions that have arisen in countries with different cultural and historical pasts. Ignoring these pasts in designing institutional reforms is likely a recipe for failure. The interaction of slow- and fast-moving institutions therefore provides an important cautionary to any development specialist seeking to export "best-practice" institutions.

Second, our current relative ignorance about the interaction between fast-moving institutions and the slow-moving institutions of different countries provides a strong rationale for certain kinds of experimentation and gradualism and, conversely, a strong reason for opposing the imposition of irreversible institutional change in a given country (Dewatripont and Roland 1995; Roland 2000). This gradualist approach has been followed in the Chinese success story of transition from socialism to capitalism. The

transition process started with de-collectivization in agriculture, which itself was preceded by experiments of de-collectivization in different provinces. The experimental approach was later used again and again, whether with the special economic zones or with privatization (see Naughton 1995; Qian 2002). The territorial organization of the Chinese government, which follows the M-form pattern of organization (Chandler 1962; Williamson 1975) in contrast to the functional organization of the Soviet government (more along the lines of the U-form organization) has provided a more flexible framework for setting up reform experiments (see Qian and Xu 1993; Qian, Roland and Xu 1999). The dual-track approach to reform has also provided a clever way of gradually reforming while respecting the complementarity of reforms. Thus with dual-track price liberalization, the planned production obligations and planned delivery rights of enterprises under the plan were frozen at a preexisting level, and enterprises had continuing obligations and rights under the plan track. On the other hand, enterprises were given freedom to set prices, contract and retain profits from transactions on the new market track. The dual-track system therefore allowed for the introduction of liberalization across all markets – which avoids the distortions that arise from liberalization only in some markets – while avoiding the disruption of output collapse by maintaining a frozen plan track (Roland and Verdier 2000). Moreover, price liberalization at the margin has the same efficiency properties as full liberalization (Lau et al. 1997) and the dual-track has the attractive property of being Pareto-improving – that is, hurting no-one while improving the welfare of others (Lau et al. 2000). Notice also that the dual-track approach reduces reversal costs, which makes adopting it even more attractive.

A third implication of this discussion is, therefore, that policy dialogue may be needed more than trying to impose "one-size-fits-all" solutions for different countries. Policy dialogue has been viewed with suspicion in the past on the grounds that a doctor does not dialogue with his patient about making a health diagnosis. This suspicion was based on the doubly erroneous view that technocrats in international financial institutions possess superior knowledge about economic development and that local elites either have mostly "wrong" views about solutions for their countries or lack the incentives to do something about it. As the preceding discussion has suggested, however, while slow-moving institutions may hamper the proper functioning of implanted fast-

moving institutions, local knowledge about a country's slow-moving institutions is not part of the problem but part of the solution. Therefore, only dialogue can help formulate adequate development policies. This does not mean that there are no local elites with vested interests in maintaining inefficient institutions. Yet those are not the local elites with which a fruitful dialogue can be established; rather, one should enter into a dialogue with elites who have an interest in development. Such elites are not necessarily represented in governments but are very active in civil society. Policy dialogue therefore entails not just a dialogue with governments but also with different components of civil society at large.

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Employment Opportunities for Older Workers: A Comparison of Selected OECD Countries

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Low employment amongst older persons: not an ineluctable fate

In the face of, firstly, a rapidly ageing population and, secondly, the long-term trend towards early exit of older workers from the labour market in a number of countries, there is a need to promote better employment opportunities as well as incentives to work for persons aged 55 to 64 (inclusive).[1] Several European countries, in particular, have to raise employment rates significantly for older people in order to increase future economic growth and to reduce the future risk of labour shortages.

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[1] In common with most comparative studies, this article defines older workers as all workers aged 55 to 64. It will be mentioned explicitly if statistics refer to a different age group.

According to the report by the Employment Taskforce chaired by Wim Kok, the employment situation amongst older workers is a major cause for concern in the European Union: "Only four member states – Sweden, Denmark, Portugal and the United Kingdom – currently exceed the 50 percent target for the employment of 55-to-64 year olds. At the other end of the scale Belgium, Italy, France, Luxembourg and Austria have employment rates for older workers of less than 33 percent" (Employment Taskforce 2003, 15).

The need for action is also particularly urgent in Germany, as it, too, has a low employment-to-population ratio of older workers. Only 38.4 percent of inhabitants between the ages of 55 and 64 were still in employment in 2002, compared with nearly 50 percent some 30 years ago (Table 1). Germany will serve as the exemplar for those countries that have a rather low success in employing older workers. This article's comparison with countries that have a better record in this area will focus mainly on specific case studies of countries analysed more thoroughly in two related studies (IW and IAAEG 2003; Funk 2004). Developments abroad prove that it is possible to achieve a higher rate of employment amongst older workers. This is shown not only by countries such as Sweden, Switzerland, the US, Denmark and the UK that are, by international comparison, enduring "success stories". Other countries, such as The Netherlands, Finland and

Table 1

Employment-to-population ratios of persons aged 55 to 64 in selected highly industrialised countries (in percentages)

	1970	1975	1980	1985	1990	1995	2000	2002	Percentage change since 1990
Successful countries									
Sweden	63.7	64.6	65.7	65.0	69.4	61.9	65.1	68.3	–1.1
Switzerland	–	–	–	–	63.1[d]	62.0	63.3	64.8	+1.7
US	60.1	54.6	53.8	51.8	54.0	55.1	57.7	59.5	+5.5
Denmark	–	–	50.6 [c]	50.1	53.6	49.3	54.6	57.3	+3.7
United Kingdom	–	–	–	47.0	49.2	47.5	50.5	53.3	+4.1
Catch-up countries									
Ireland	51.9 [a]	48.1	44.8 [b]	40.9	38.6	39.4	45.2	48.0	+9.4
Finland	56.8	51.6	47.1	45.4	42.8	34.4	42.3	47.8	+5.0 (since 1995: +13.4)
Netherlands	45.3 [a]	40.4	36.3	27.3	29.7	29.4	37.9	41.8	+12.1
Base country									
Germany	49.6	41.6	42.2	35.5	36.8	37.4	38.6	38.4	+1.6

[a] 1971. – [b] 1981. – [c] 1983. – [d] 1991.
The employment-to-population ratio is defined as number of persons between the ages of 55 and 64 (inclusive) in work divided by the number of inhabitants of the same age.

Source: Funk (2004) based on OECD (2003d) and OECD-LMS (2003).

Ireland, have also been able to demonstrate that higher levels of employment amongst this age group are possible, despite the fact that previous employment rates for older persons amongst these countries were low. Indeed, at the beginning of the reform process, these countries had employment rates that were, in some cases, roughly comparable to Germany's low rate or even lower; however, in just a few years they have been able to increase the employment rate amongst older workers considerably (Table 1). In comparison to these other countries, Germany appears to be a laggard, as it neither has a high employment rate amongst older persons nor has it been able to increase this rate, to any significant degree, since 1990.

Based mainly on an analysis of the experiences of successful countries, this article identifies the fundamental conditions for a high employment-to-population ratio of older workers that could be applied in those economies that have a worse record in this area. Given the fact that all highly industrialised countries face more or less similar external circumstances in terms of structural changes (de Koning et al. 2004, 31), internal factors must be responsible for the good performance of role model countries and the relatively bad performance of Germany. Therefore, the general lessons that can be drawn from those countries with higher employment rates amongst older persons refer not only to this particular laggard but even more to countries with still lower employment rates of this age group.

According to the diagnosis put forward in this article, it is institutional frameworks – that is, employment legislation, wage bargaining legislation and social as well as qualification policies – that are detrimental to the labour market integration of older workers in laggard countries. In other words, the older workers' plight of low employment is the result of institutional policies that, due to increased international competition and the attendant structural changes within the economy, have attempted, first and foremost, to reduce emerging labour-market problems in a supposedly socially acceptable way by filtering older workers out of the workforce by implementing *(de facto)* early-retirement programmes. Hence, any reasonable therapy will have to address these institutional frameworks, as the lessons learnt from the existing successes of other countries show that it is these frameworks that are of fundamental importance.

The problem of which indicator to use

The employment-to-population ratio, which is used in Table 1, measures the number of employees – both the self-employed and those employed by someone else (though not the unemployed) – as a ratio of those of employable age amongst the whole population or amongst a certain age group. The reasons why it is a particularly informative indicator for comparing the labour-market performance of different countries are twofold.

- On the one hand, it is an especially appropriate indicator because those in gainful employment earn their own income, and, by paying taxes and social-security contributions, finance the outgoings of different social-security programmes. The greater the number of people with a job, firstly, the lower taxes and social-security contributions can be to provide a certain amount of social security, secondly, the better the correct incentives on the demand and supply sides of the labour market can function, and, finally, the lower and the more employment-friendly wages and non-wage labour costs can be.
- On the other hand, the indicator that is often used in these sorts of international comparisons – the unemployment rate amongst older persons – is flawed.[2] This is because alternative ways of non-employment that play an important role amongst older age groups distort the usefulness of the unemployment statistic as a measure of employment. While in Germany a lengthy spell of unemployment often characterises the start of a withdrawal from the labour market into retirement for older persons, this particular exit path is officially not available within public programmes in other countries; this means that other ways of retiring early are relied upon more heavily, even though the fundamental problems are contingent upon the labour market. Therefore, whether or not persons who are in a similar position in different countries are classified – and, hence, counted – in the statistics as someone who has taken early retirement or as someone who is (long-term) unemployed depends on the country in which he or she lives.[3]

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[2] Roughly the same applies to the labour force participation rate as the unemployment rate is a component of the former indicator.
[3] A comparison of 28 OECD countries shows that a reduction in the employment of people over 50 leads almost exactly to an increase in the inactivity of these persons (OECD 2003d, 82–83). The ways out of the labour market are, however, very different from one another and depend on the specific incentive structures.

To sum up, the various state regulations that govern the way individuals can withdraw from employment before they reach the legal age of retirement mean that the unemployment rate of older persons is, if considered by itself, a problematic statistic because its rate also depends upon the forms of different ways of retiring early. The use of the employment-to-population ratio avoids this problem. It is, in this respect, an indicator particularly suited to international comparisons.[4]

A simple analytical framework to analyse the causes of low employment amongst older persons

In general, a company's decision to hire is based on the profitability of having additional employees. Real labour costs, on the one hand, and the individual productivity of an additional employee, on the other, determine at a given point in time the extent of employment in companies. Age becomes a factor in this decision when it adversely affects either labour costs or the employee's productivity in carrying out the necessary tasks involved in doing the job. Therefore, employers' willingness to hire older workers depends on a number of factors such as the direct wages and additional labour costs they have to pay for older workers relative to younger ones, as well as on their perception of the productivity and adaptability of older people. Different institutional settings for older workers – in terms of the welfare systems, employment protection legislation and labour law – may also affect employers' decisions.

Additionally, the level of employment or the employment-to-population rates of those aged between 55 and 64 is influenced by the interaction between

"push" factors, which have a detrimental effect on the demand-side labour-market opportunities of older persons, and "pull" factors, which lead to a reduction in the incentives for this age group to find employment. For instance, supply-side factors, such as possibilities to take early retirement or "paths" – unemployment, perhaps – that can lead to early retirement can influence older workers' willingness to seek gainful employment. Table 2 lists important influential factors. The interactions between push and pull factors can be interpreted as important causal mechanisms behind the low levels of employment amongst older workers in the laggard countries.

On a graph, the pull factors move the labour-supply curve towards the origin; the push factors shift the labour-demand curve towards the left (Figure 1). Either one leads, if other conditions remain the same, to a deterioration in the employment situation of those aged between 55 and 64 (arrow 1 or arrow 2). In their interaction, the push and pull incentives mutually reinforce one another (overall effect is a leftwards shift by arrow 1 and arrow 2). This is characteristic of countries with low employment rates amongst older age groups; it is especially evident in Germany as well.

On the one hand, older workers often act as preferred reserves of "flexibility" and adaptability at the

[4] A better indicator, arguably, would be employment-to-population rates adjusted for hours worked. However, appropriate data concerning labour supply are usually not available in terms of hours worked (Burniaux, Duval and Jaumotte 2003, 3). According to a new study that contains employment-to-population rates for persons aged 50 to 64 after adjustment for hours worked in the year 2000, all countries analysed in the current article apart from The Netherlands have a superior performance in this respect than Germany (OECD 2004a, 45).

Table 2

Important push and pull factors that tend to reduce employment amongst older persons

Push Factors that tend to reduce the labour demand for those aged 55 to 64 by "pushing" them out of employment	Pull Factors that tend to reduce the supply of labour amongst those aged 55 to 64 by "pulling" them into unemployment or non-employment
• Employment protection legislation or regulations that have been expanded in collective agreements in order to support older workers	• Longer periods for which unemployment benefits can be claimed for older workers
• Social-plan requirements and redundancy payouts that are determined either legally or by collective agreements in order to favour older workers	• Easier withdrawal from labour market for older workers due to alternative pathways into early retirement programmes
• Wage rates based on the principle of seniority that are determined in collective agreements and social security payments linked to the labour contract by law	• Relaxed eligibility in disability schemes
• Increased qualifications needed to meet current demands of work, above all, due to skill-biased technical change and globalisation	• Implicit tax rates on continued work embedded in early retirement and in old-age pension schemes
• Less adaptable workers due to an ageing workforce	• Decrease of labour supply due to demographic changes

Source: Funk (2004).

Figure 1

PUSH AND PULL FACTORS IN THE LABOUR MARKET

Source: Own composition.

work in countries where such pull factors are important.

Additionally, one has to take also into account the feedback effects on human-capital formation caused by institutionalised incentives for an early exit from the labour market. Such policies and the evolving practices influence the expectations of employees as well as employers. As a result of anticipated early exit from the labour market, investments in human capital decrease long before the actual transition into retirement: the time horizons of both sides are reduced because of the institutional framework in which they operate, and they, therefore, cannot reckon on the market-based amortisation of such investments. Inadequate qualification of older workers due to the gradual erosion of skills that are not permanently freshened up shifts, however, the labour demand for this age group to the left and leads to a less elastic labour demand schedule.

firm level, despite – better precisely because of – the existing barriers that result from labour-market regulations, which are supposed to have a protective function for workers (for example, employment protection or redundancy payouts). However, from an employer's point of view, these regulations raise the cost of older workers compared to younger ones at similar qualification levels. In problem situations, such as a sector-specific structural crisis, rationalisation pressures, decreases in product demand because of cyclical factors, and product and process innovations, all of which act as push factors, firms often react by "releasing" older workers. The reason is that at a given real wage, such push factors decrease the profitability of employing older workers compared to younger ones, even if their productivity is similar. Seniority wages can aggravate the employment problems of older workers. Steep wage increases beyond a certain age may explain why certain firms encourage older workers to enter an early retirement pathway.

On the other hand, older workers can often claim more generous unemployment benefits (either higher payouts and/or for a longer length of time; Werner and Winkler 2004) and/or have the possibility to enter into *de facto* early retirement programmes; both of these make continued employment unattractive because of the implicit taxes that would be "levied" if an older worker either remains in employment or, if he or she has recently been made redundant, were to seek new employment. In other words, due to the fact that pension levels of such factual early retirees are often not reduced accordingly, older people often have few incentives to remain in

According to the approach suggested here, an important consequence of strong push and pull effects in the direction of a low employment of older workers is an economic performance that lags, on average, behind countries that avoid such problems. This is caused by the inefficient use of existing human resources; this inefficient use is, in the final analysis, the result of institutional distortions. The push and pull mechanisms are either directly or indirectly related to institutional regulations that promote poor developments at the level of the economy as a whole. To be sure, a flawless separation between factors that are caused by the structural change in the economy and those that are caused by institutional push factors is not possible; however, institutional influences would obviously appear to outweigh those related to structural changes in the economy.

• For instance, as a result of insufficient human capital formation amongst older workers, demand for such workers is lowered. Both of these developments can be traced back to disincentives caused by the institutional framework in which employers and employees operate. This problem is not, however, the inevitable consequence of structural changes in the economy, as is sometimes claimed. Rather this is the result of an insufficient institu-

tional adaptation to a new environment; such an adaptation is, in principle, possible as the more successful role models demonstrate.

• Similarly, demographic changes do not necessarily cause the (aggregate) labour demand curve to shift to the origin as a result of missing skills due to ageing if older workers become more adaptable and update their qualifications. Instead, the leftward move in this curve that runs parallel to demographic changes relates much more to the institutional connections between the social security systems and labour contracts. Mainly due to this fact, the rising social security costs of an ageing society increase non-wage labour costs and, as a result, decrease labour demand and employment in general. If real wages are above the market-clearing rates, for example at w_1 in Figure 1 (now symbolising the macroeconomic labour market), then the gap between labour demand and labour supply symbolises unemployment (line b-e). To be sure, a reduction in the supply of labour, for instance by decreasing the length of working lives or by demographic changes (arrow 1: S_1 to S_2) lowers unemployment in the short term at the level of the economy as a whole (line b-c). However, the increases in social-security payments (and, possibly, real wages if unions demand higher wages to compensate for these increased deductions that are made on gross wages) associated with such a measure also reduce the demand for labour (arrow 2: D_1 to D_2). These increases, therefore, cause a new gap to emerge between labour supply and labour demand, for example at w_1 (line a-c) or, possibly, at a higher real wage. If the fact that, in many cases, qualified older workers cannot be replaced by younger workers without considerable search and training costs being incurred by firms is also taken into consideration, unemployment can, as a result, be even higher than it was. This problem will probably increase in salience in the future if no countermeasures are adopted. Moreover, the resulting cost increases in the factor labour strengthen the incentive to substitute labour for capital, as more far reaching rationalisations can, at least to a certain extent, compensate for, or reduce, the rises in unit costs. This leads to a further diminution in the level of employment (Funk et al. 2004, 203; Lesch 2004, 104–05).

The current structural changes do not inevitably go hand in hand with lower levels of employment. This has already been shown by the fact that many countries comparable to Germany have higher employment rates (Table 1). Rather, policies of the government, the social partners and the companies can counteract, in principle, unwanted push and pull effects caused by disincentives for the employment of older workers. Moreover, as the next, empirical section that compares different countries will illustrate, higher employment levels amongst older persons do not, by any means, necessarily disadvantage younger workers.

Do higher employment levels amongst older workers disadvantage younger employees?

The majority of suggestions advocating an early exit for older persons from the labour market in order to reduce unemployment assume that the total volume of work within an economy is fixed and is either technologically or economically limited by an inelastic demand for labour (the "lump of labour" approach, which is the main alternative approach to the theory suggested here; see for an evaluation also de Koning et al. 2004, 3–6). That the labour market is in no way characterised by a given volume of work can be shown, however, by an international comparison. Indeed, such a comparison of countries with high and low rates of employment amongst older persons illustrates that the labour market can absorb both older and younger workers at the same time (Figure 2).

The still widespread belief in the "lump of labour" approach which posits that an increase in the employment rate of older workers can only occur at the expense of younger workers is not borne out by the empirical facts. Indeed, it is the opposite that appears to be the case: there is a positive correlation between the employment levels of older persons with those of people aged between 15 and 24 as is shown in Figure 2. In short, those countries that have successful employment policies tend to have high levels of employment across both age groups.

In contrast to the comparison of averages shown in Figure 2, the longitudinal data for Germany shown in Figure 3 exhibit no significant inverse association between the employment levels of older and younger persons. The arrow drawn on Figure 3 demonstrates, however, that, between 1980 and 2002, the employment-to-population ratio of 15-to-24 year olds as well as that for 55-to-64 year olds has decreased considerably. Therefore, in

Figure 2

EMPLOYMENT-TO-POPULATION RATIOS OF WORKERS AGED 55 TO 64
AND 15 TO 24 IN DIFFERENT OECD COUNTRIES, 2002

Employment-to-population ratios for persons aged 15 to 24

Employment-to-population ratios for persons aged 55 to 64

Source: Own composition based on OECD-LMS (2003) and OECD (2003d); (R^2 = 0,325).
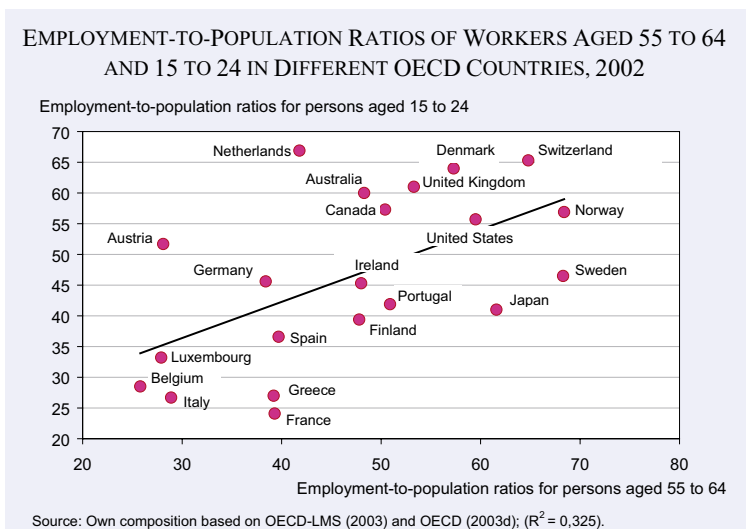
Germany, as in other countries, older workers do not, over the long term, take jobs away from younger persons. Rather the employment rate of both age groups has fallen considerably between 1980 and 2002 in the country used as the basis of many comparisons in this paper.

These results indicate that empirical developments cannot be interpreted in accordance with the lump of labour theory. They are, however, in line with the institutional approach suggested in this article.

Lessons from selected role model countries

The higher levels of employment amongst older workers in those successful and catching-up countries that are considered here result, above all, from more ade-

quate labour costs of older workers, greater labour-market flexibilities, pensions systems that are structured to provide more appropriate incentives, and relatively continuous and high investments in qualifications including those of older workers. It should, of course, be noted that the details of the mixture of institutional forms differ from country to country; however, on balance, there are greater incentives for those aged between 55 and 64 to remain in employment in the role model countries than there are in those countries that have difficulties in this area.

Labour costs and labour-market flexibility

Appropriate labour costs and a relatively low level of labour-market regulation obviously play an important role in explaining a satisfactory employment record for older persons in most countries.[5] Wages and salaries as well as supplementary labour costs that are sufficiently flexible and regulations which have a relatively low level of intensity are important factors conducive to a high employment rate, in general, and high employment amongst older persons, in particular.

Relative wages of older workers are of decisive importance for their employment opportunities.[6] If wages rise in line with seniority rather than with increases in productivity, wages of older workers can be too high given their mar-

Figure 3

EMPLOYMENT-TO-POPULATION RATIOS OF WORKERS AGED 55 TO 64
AND 15 TO 24 IN GERMANY BETWEEN 1980 AND 2002

Employment-to-population ratios for persons aged 15 to 24

Employment-to-population ratios for persons aged 55 to 64

Source: Own composition based on OECD-LMS (2003).
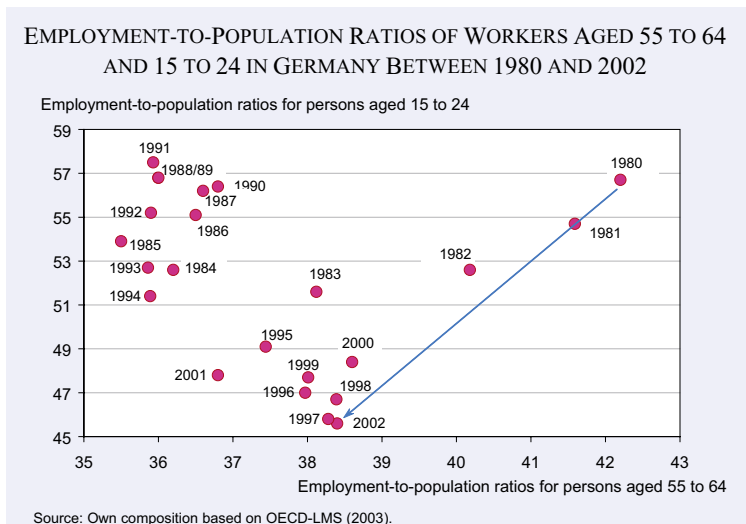
[5] Isolated de-regulations in product markets will not be discussed at any length here. Product market reforms have, in the medium term, a positive effect or neutral effect on employment when labour market regulation is kept constant (HM Treasury 2004, 55).

[6] One has to keep in mind that age-earnings profiles do not give the whole picture of relative costs of older workers. Other large components of labour costs in most countries are social-security contributions and specific labour-market regulations directly linked to age. If the social-security contribution rate is a fixed percentage of an employee's salary (which is the case for most countries), the absolute gap in labour costs between older and younger workers will be higher than the gap in wage costs alone. However, the relative gap will be the same. Therefore, this issue is not discussed here (OECD 2004b, 88-89). See for the age-related specific regulations for older workers IW and IAAEG (2003).

Table 3
Relative wages of older male workers aged 60 to 64

Seniority wages of men*	Countries
High	Germany, Switzerland
Medium	Finland, Netherlands, Sweden, US
Low	United Kingdom

* Relative wages of older workers aged 60 to 64 compared to earnings of workers aged 25–29 (=100) in most recent years available;
High = earnings larger than 130 per cent, medium = earnings between 110 and 130 per cent, low = earnings lower than 110 per cent. In general, relative wages of female workers are characterised by rather similar patterns at a lower level. No information is available for Denmark and Ireland.

Source: European Commission (1999); OECD (2003b, 2003c, 2004a, 2004b).

ginal productivity. The share of older workers in those countries in which seniority wages play an important role should be negatively affected if overall labour costs rise as a result of these higher relative wages of older workers. Unfortunately, empirical information on seniority wages is scarce. The available studies are either rather old (European Commission 1999) or they do not include all countries analysed in this article. However, based on limited observations in 15 OECD countries, recent cross-country regressions demonstrate a significant negative relationship between relative wages for older workers and the effective retirement age (OECD 2004b, 86–87): countries with high relative wages for persons aged 55 to 59 tend to have lower effective retirement ages than countries with less prominent seniority wage systems. As the employment rates of workers aged 55 to 64 and the average exit rates from the labour market in the countries of the European Union are strongly correlated (European Commission 2003a, 166), one may assume that a higher importance of seniority wages leads, on average, to a lower rate of employment amongst older workers.

Table 3 shows some evidence regarding the country sample in this article (albeit no information is available for Denmark and Ireland). As expected, (male) seniority wages ap-

pear to be rather important in Germany (European Commission 2003b, 94) and play hardly any role in the United Kingdom, where at the ages of 60 to 64 salaries are almost the same as for the age group 25 to 29 (OECD 2003c, 80). Finland, The Netherlands, Sweden and the United States occupy a medium position (European Commission 1999, 121; OECD 2003b, 75–80; OECD 2003c, 80; OECD 2004a, 83–85). Unexpectedly, however, in Switzerland older workers are more costly to employers as wages have a comparatively large seniority component, suggesting that wage differentials between the old and the young may not fully reflect productivity differentials. However, Switzerland appears to be able to compensate this disadvantage for the employment chances of older workers with one of the lowest levels of employment protection in Europe.

With regard to labour market flexibility, a clear association between a low level of labour-market regulation of 1.5 or less and a high level of employment both overall and amongst older workers is clearly discernible in the countries examined here (Table 4). Three of the five countries with relatively low levels of labour-market regulation exhibit an above-average record in the integration of older workers in the labour market. Britain, which also has a low level of regulation, has a record in this regard that is roughly comparable to the average. On the other hand, three of the countries that have a highly regulated labour market have records on the integration of older workers into the workforce

Table 4
Labour market regulation and employment performance

	Employment protection legislation*	Employment-to-population ratio in per cent (persons aged 15 to 64) ∅ = 70,9	Employment-to-population ratio in per cent (persons aged 55 to 64) ∅ = 49,6	Percentage point gap in the employment-to-population ratios ∅ = 21,3
US	0.7	73.9	57.7	16.2
United Kingdom	0.9	71.7	49.4	22.3
Ireland	1.1	62.5	43.8	18.7
Switzerland	1.5	78.4	64.7	13.7
Denmark	1.5	76.5	54.2	22.3
Finland	2.1	66.0	39.2	26.8
Netherlands	2.2	71.3	35.3	36.0
Sweden	2.6	72.9	64.0	8.9
Germany	2.6	65.2	38.0	27.2

* The scale of the OECD indicator of employment protection legislation is 0 to 6, from least to most restrictive.

Source: Funk (2004) based on OECD (1999, 2003d).

market that are well below average. In two of these three countries the overall level of employment is also well below average. The outlier amongst the group of countries with low levels of labour-market regulation is Ireland, which is in the process of catching up with other countries (employment growth between 1985 and 2002 was 55.9 percent), and, as a result, lags behind other countries in its group both in terms of overall employment and employment amongst older workers. Nevertheless, the difference between the employment-to-population ratio of those aged between 15 and 64 and that for those between 55 and 64 is only slightly below average, and it is not higher than the figures for Denmark and Britain. Furthermore, it is considerably lower than the average for those countries that are relatively highly regulated.

Amongst this latter group of countries, Sweden does not conform to type, as it has an above-average level of employment overall as well as amongst older persons. However, it should be noted that Swedish policies are based, inter alia, on a level of taxation that requires workers to remain in employment (i.e. supply labour) until the legal retirement age if they wish to achieve a certain level of income.[7] The Netherlands demonstrates that just because a country has an employment level slightly above average for 15-to-64 year olds does not automatically mean that it will have a similarly good record for older persons. The Netherlands has the greatest difference between the total employment-to-population ratio and the employment-to-population ratio for older workers; the figure for The Netherlands is 36 percentage points compared to an average of 21.3 percentage points.

This comparison shows that policies which mainly focus on the overall development of employment do not necessarily solve the problems of older workers. This is also a potential explanation of why The Netherlands cannot attain the higher employment-to-population ratios of "good practice" countries such as Sweden, Switzerland, the US and Denmark. Although a liberalisation of labour markets to such an extent as seen, for example, in

Britain and the US, is by no means a necessary condition for the successful integration of older workers in the labour market, more flexible labour markets, nevertheless, still appear to be a prerequisite or at least a functional equivalent to other political measures that would enable laggards like Germany with a low employment rate of older workers to follow in the footsteps of those successful countries.

To sum up, on the one hand, labour costs that are responsive to the possibly lower productivity of older workers are important factors in increasing employment amongst older persons, because, if they do not, the amount of work that firms demand from this section of the labour market will decrease. On the other hand, strict employment-protection policies seem to be an important barrier to the employment of older workers as is also shown in the simple model presented above.

Pension schemes and social transfer

For the actual decision to enter retirement, as is assumed in the theoretical push and pull model, the provisions of the pensions system including the possibilities to retire or "quasi-retire" early are, similarly, of importance. The lower the barriers are for an early exit from the labour market, the lower, on average, the actual age of retirement. Economic policies that aim to reform this area include measures to reduce, across the board, the future level of benefits from old-age pension schemes and quasi-schemes paid to those who retire early; these measures also include steps to strengthen the principle of equivalence as well as efforts to improve the compatibility of individual incentives of actuarial deductions, in the case of early retirement, from old-age pension schemes and quasi-pension schemes. In addition, incentives to take out privately funded pensions have been increased in order, firstly, to decrease, over the long term, state benefits that are financed on a pay-as-you-go basis, and, secondly, to reduce the negative side-effects of these pay-as-you-go systems (see for more thorough surveys of these issues also Council of the European Union 2003 and Duval et al. 2003).

In this respect, the experience of the successful and catching-up countries provides a clear reform agenda. Measures implemented in Switzerland and the US have not only led to higher levels of actuarial equivalence in the entitlements of individuals

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[7] Between 1996 and 2000, Sweden, compared to other countries, imposed, by far and away, the highest total burden on the production factor labour (wage and income tax plus taxes on consumption) of 77 percent, whereas the figure for western Germany was 50 percent (Nickell 2003, 23). High combined rates of income and consumption taxes similar to those in Sweden could not be implemented at the moment in other countries, including Germany, for political economy reasons; moreover, such high rates have considerable adverse effects (Henreckson 2001).

to pension benefits, but have also promoted the length of the working lifetime by changing the characteristics of pension schemes – in the US, the legal age of retirement is also slowly being increased to reach 67 in 2027. Great Britain is characterised, amongst other things, by the restriction of the state pension to minimum levels and a very restrictive interpretation and application both of the opportunities to retire early and of the possibilities to use alternative systems, such as disability pension schemes, for the purposes of, for all intents and purposes, retiring early. The latter is also a characteristic of systems in Switzerland and the US. Both of these countries have strengthened, as Ireland has also done, the capitally funded parts of their pension systems, and both countries have, in part at least, changed their systems from defined benefits (that usually relates to the last wage or employment history) to defined-contribution schemes in which the pension benefits depend directly on the amount of money paid in and the rate of return on this investment.

The Danes and the Dutch have successfully increased employment levels amongst older workers, by introducing tax reductions if early retirement, which is in principle possible, is delayed. They have also introduced measures to strengthen the principle of equivalence by implementing stricter rules governing pensions paid to those retiring early. Moreover, in The Netherlands the benefits from a state pension, which for a long time were very generous, have been reduced. The inclusion in calculations of pension entitlements of contribution-free periods for spells of unemployment either does not happen (Sweden, Switzerland, the US) or is applied very restrictively (Denmark, Great Britain).

A particularly interesting innovation that deserves highlighting here is the "notional defined contribution" system that has recently been introduced in Sweden. The basic principle behind this system is to replicate the modus operandi of pension schemes funded with private capital within a pay-as-you-go system (Bräuninger 2003, 17). The basic rule is a strict equivalence of contributions and payments. Moreover, this rule is very transparent. Basically, the amount an individual receives as a pension depends only on the annual contributions that have been made by that individual. These contributions are then re-evaluated according to a formula that is the same for every individual and that

depends upon the effective age of retirement and developments in life expectancies. The advantages of such a system are obvious: there are no incentives to retire early in this public pension scheme. Moreover, the pension-policy holders can easily recognise the negative consequences of shortened working lives for their pensions. Furthermore, strengthened property rights promote the acceptance of the system and make political interventions more difficult (Bräuninger 2003, 18).

In those countries with low or very low employment rates amongst 55-to-64 year olds, the exposed flanks in the problem area of pensions are twofold: in particular, still rather extensive possibilities to enter into quasi-early-retirement schemes at an age below the regular retirement age, as well as insufficient deductions in the pensions of those who retire early to offset the fact that these individuals receive the pensions for a longer period of time. These actuarial deductions are often insufficient to persuade people to carry on working. Moreover, the increases (which are too low) in the pensions of those who continue working past the legal retirement age – that is those who extend their working lives beyond the age of 65 (in most cases) – should also be taken into consideration. In the countries considered here, it is, according to a recent study (Fenge et al. 2003, 46–48), only in Switzerland and the US[8] – as well as to a somewhat lesser degree, in the future, in Finland – that the annual reductions in pensions for those who retire early are compatible with incentives to continue to work. The pensions are reduced by a magnitude of seven percent for each year of early retirement. Such a figure could, more or less, represent a very rough rule-of-thumb for other countries to aim at. This is also true for Great Britain and Sweden where increases and reductions in pensions are, in the vicinity of the legal retirement age, approximately of this magnitude.

Better qualifications for older workers

The incentives to invest in human-capital formation amongst older workers are, finally, also of cardinal importance. With the approach of retirement, investments in labour market-relevant qualifications decrease continuously, because the time peri-

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[8] In the United States (at ages 65 and 67), the incentives in the pension system even provide implicit subsidies to continued work at high ages, that is, the incentives are above actuarial neutrality (Casey et al. 2003, 16).

Table 5

Incidence of training by age and type in selected European countries, 2001*
– Percentage of population –

	Age 25–49				Age 50–64			
	Class-room	Work and work/class-room combined	Other	Total	Class-room	Work and work/class-room combined	Other	Total
Denmark	17.9	3.6	0.6	22.1	8.6	2.5	0.4	11.5
Finland	13.1	8.6	1.8	23.4	4.7	5.6	0.6	10.9
Germany	4.7	2.8	0.4	7.9	0.7	0.9	0.1	1.7
Ireland	4.0	3.5	1.7	9.2	1.4	1.4	1.1	3.8
Netherlands	1.6	9.0	2.2	12.8	0.2	3.4	0.6	4.2
Sweden	11.9	6.1	3.1	21.1	3.7	5.2	3.0	11.8
United Kingdom	7.7	8.5	2.8	18.9	3.2	5.0	1.3	9.5

* The question on training was "Have you received some education or training in the past 4 weeks?"

Source: OECD (2003a) based on European Labour Force Statistics.

od in which the resultant increases in productivity can be exhausted shrinks. Therefore, it is not surprising that the likelihood of participating in further education or training programmes decreases as age increases. Prolonging the remaining time horizon of older workers by better incentives to stay in the labour market and specific training programmes designed to improve the competitiveness of older workers in the labour market attempt to reverse this development. Such measures increase both labour demand and employment, in principle.

Countries with problems in this area, in particular Germany, have a long way to catch up. For instance, in Germany, only 1.7 percent of those workers above the age of fifty answered yes when asked if they had received training in the last four weeks. In Sweden, on the other hand, 11.8 percent responded with a yes; in Denmark, the figure was 11.5 percent, and in Finland, it was 10.9 percent. Moreover, even before this age is reached, Germany's problems in keeping human capital up to date to the same extent as comparable countries are already manifest. All of the successful countries, on the other hand, excel in setting incentives in such a way that the participation of older workers in training schemes is higher than it is in Germany (Table 5; see for additional evidence IW and IAAEG 2003, 43-44).

A constant improvement in qualifications is a factor of central importance in ensuring success, because, in the new world of work, it is no longer possible to rely on static "knowledge reservoirs." In Switzerland older workers appear to have the same opportunities to embark on further training

that is paid for by employers as younger workers, even if problems persist. Great Britain illustrates that state-promoted investments in the employment skills and in the productivity of older workers needed in the labour market can result in a high participation rate amongst 55-to-64 year olds on both general and more job-oriented training courses. Further evidence suggests that efforts to improve lifelong learning amongst older workers (as is the case in Finland) and attempts to promote further training by providing state subsidies for "learning accounts" (as in The Netherlands) are possible and can be successful. Sweden is also characterised by relatively high participation rates of those aged between 55 and 64 on general and career-specific training programmes; however, this additional training takes place, to a rather strong extent, within the bounds of active labour-market policies and masks not least, therefore, open unemployment.

Conclusions

In order to overcome economic growth problems and to counter future demographic changes, it is imperative, precisely in those countries with low employment levels amongst older persons, that the employment potential and experiences of this age group are, once again, relied more heavily upon. An analysis of the factors that have led to success in employment levels for older workers in the countries that are paragons as well as for those that are catching up provides the following lessons for laggards, such as Germany and several other countries particularly in western Europe, that are expe-

riencing problems in this area: a reversal in the trend in the employment-to-population ratio of older persons is – in contrast to what, for a long time, has been maintained in the political debate – quite possible. However, to achieve this, important changes in the incentive structure are needed. It should be noted that, to a certain degree, different alternatives within the "policy mix" to re-integrate older workers back into the labour market exist. However, if market-based policies are to be pursued to increase the employment-to-population ratio amongst older persons, three strategic starting points have always been of central importance, despite all of the country-specific differences:

- a lower level of labour-market regulation is conducive to higher employment-to-population ratios for all; this is especially true for older workers even if such a strategy alone will not necessarily suffice (in terms of Figure 1 a shift in the labour-demand curve outwards and a movement on that curve towards the market-clearing wage rate);
- pension systems and other de facto early retirement programmes need to be changed to make early retirement more difficult and financially less attractive for both employees and employers; increasing the regular retirement age can improve inclusion of older workers further (a shift in the labour-supply curve outwards), and
- higher investments in existing human capital, including investments for those workers especially over the age of forty-five, make a considerable contribution to avoiding the erosion of skills and improving the employability of (future) older workers. Moreover, companies may reorganise working hours and facilitate job rotation to enhance the retention prospects of older workers and their ability to adapt to change. (Such investments shift and rotate the labour-demand curve, which in countries with problems in this area tends to be inelastic for older workers, to the right.)

Additional lessons can be learnt, especially from those countries that are catching up. For instance, in countries that started off with low levels of employment amongst older persons, integrated reform packages that re-structure all of the problem areas noted above in a more employment-friendly way lead to success in the medium term. In contrast, isolated individual measures that are not really integrated with one another and that offer too low a "dosage" tend to result in stagnation rather than movement towards higher employment levels amongst older persons. In particular, if the employment level amongst older people is very low and it can be shown that deficits exist in all of the areas discussed above, a policy mix that addresses all of these problem areas may well lead most rapidly to the desired increase in employment amongst older persons. In composing such a policy mix, it is of cardinal importance that individual measures mutually reinforce one another in their effects (OECD 2003a, 105-106). At the same time, however, it should be noted that the greater use of one instrument can (at least in part) compensate for the lesser use of another in the effects on employment amongst older persons. That is to say, to a certain extent, instruments are interchangeable and represent functional equivalents.

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Bankruptcy Policy Reform and the Productivity Dynamics of Failing Firms: Micro-evidence on Korea

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Introduction

In the unfolding process of the Korean financial crisis in 1997, an inefficient corporate bankruptcy system played a damaging role in the Korean economy.[1] Prior to the crisis, in 1996 and the first three-quarters of 1997, numerous large firms faced with bankruptcy actively sought shelter under the court-administered rehabilitation procedures. Yet, the poor bankruptcy system failed to select the right targeted firms to undergo the rehabilitation procedure among the increasingly large number of financially distressed firms. Meanwhile, the uncertainty and delay in dealing with failing firms clearly added to the distortion in the resource allocation process of the economy before the crisis broke out.

In other words, the exit barriers for large firms seemed to have deteriorated the efficiency of resource allocation before the onset of the crisis. Prior to the crisis, the Korean corporate bankruptcy system had a tendency to work as a de facto exit barrier. For example, before the reform, the producers with persistently declining productivity were much more likely to be accepted in some rehabilitation procedures if they were regarded as having "high social value", such as a large output or employment share in the economy.

It is then natural for post-crisis Korea to launch a sweeping reform of the corporate bankruptcy system. As is the case with other structural reforms in the corporate sector, the reform of bankruptcy policy was pushed forward based on the belief that they were essential for preventing recurrent economic crises plaguing the economy. Yet, the past experience of crisis-hit countries suggests that there is a strong possibility that incomeplete or poor reforms will often lead to recurrent crises afterwards. Despite this, to the best of our knowledge, there are few empirical studies to examine how reforms of bankruptcy policy in post-crisis Korea affect the efficiency of resource re-allocation.

Against this backdrop, the present paper aims to address the issue of evaluating the effect of bankruptcy policy reform on the efficiency of resource re-allocation. By employing the firm-level panel data, the paper will examine how the post-crisis reform of bankruptcy policy affects the productivity dynamics of failing firms. In the analysis, we will focus on the bankruptcy procedures administered by the courts. This can be justified as follows. Faced with bankruptcies, failing firms would resort to in-court settlements only if trying all the possibilities of out-of-court settlements did not work. Keeping discipline in the in-court bankruptcy system would have far-reaching consequences on the out-of-court bankruptcy system, because the discipline in the in-court settlements would work as an effective and credible threat to failing firms in other stages.

We examine whether the firms accepted by the court-administered rehabilitation procedures after the reform, would have less persistent problems in their pre-bankruptcy total factor productivity (TFP) performance than those before the reform. We expect that, if the reform of the in-court bankruptcy procedures is successful, only the unfortunate firms will be accepted by the rehabilitation programs, whereas failing firms with persistently declining productivity will be rejected. Successful reforms of the corporate bankruptcy system would imply an improvement in the efficiency of resource re-allocation.

The outline of this paper is as follows. In section 2, we explain the corporate bankruptcy system in Korea prior to the economic crisis. In section 3, we discuss the key elements of the post-crisis bankruptcy reforms. In section 4, we examine the effect of the post-crisis bankruptcy policy reform in Korea on the resource re-allocation process using the firm-level data. In section 5, we conclude this paper.

Corporate bankruptcy system prior to the economic crisis

Exit barriers for large firms

In Korea, economic growth in the past had been possible through the growth or restructuring of

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[1] This paper is based on section 2 of Lim and Hahn (2003).

existing firms rather than through the dynamic process of entry and exit. In the developmental era when profitable new markets were rapidly emerging, the poor corporate bankruptcy system did not significantly distort the resource allocation of the economy. This was because resources could be easily reallocated from declining sectors to emerging profitable sectors. Under these circumstances, through rationalisation programs, the government played an active role in reallocating resources from failing firms to other existing firms. During the developmental era, most failing firms did not use the bankruptcy procedures overseen by the courts.[2]

In particular, most small- and medium-sized bankrupt firms were effectively liquidated on a nonjudicial basis. The debt of bankrupt firms was usually collected on an individual basis under the Civil Procedure Act. Most assets of the bankrupt firms were already subject to mortgage or to security and little were left for unsecured creditors. Additional procedures for the collection of debt were not needed.

For large firms, however, the "too big to fail" argument played a role in exit barriers in the sense that inefficient firms were often allowed to operate with some explicit or hidden subsidies from the government. Some large bankrupt firms were periodically bailed out by the government through various rationalisation measures that were undertaken, for example, in the mid-1980s. These measures also undercut the use of formal bankruptcy procedures.

Since the early 1990s, however, the poor corporate bankruptcy system began to distort the resource allocation of the economy. The distortion grew increasingly until the outbreak of the financial crisis in 1997. Some failing firms began to use the court-administered bankruptcy procedures, but the court-administered bankruptcy system was often abused by the controlling shareholders of failing firms.

By enacting the Rule on Corporate Reorganisation Procedure in 1992, the Supreme Court began to

move in the direction of improving judicial bankruptcy procedures. Among other things, the new rule established the conditions for the initiation of corporate reorganisation proceedings. These included high social value, financial distress and possibility of rehabilitation; interestingly, economic efficiency was not a requirement for corporate reorganisation. This new rule helped the in-court corporate bankruptcy settlements to work as a de facto exit barrier for large firms. For example, the producers with persistently declining productivity were much more likely to be accepted in some of the rehabilitation procedures if they were regarded as having "high social value" such as a large output or employment share in the economy.

Exit barriers from the controlling shareholders of failing firms

Prior to the economic crisis, the controlling shareholders of failing large firms often sought to take shelter under court-administered rehabilitation procedures. Yet, an inefficient bankruptcy system failed to keep discipline in selecting right target firms for rehabilitation procedures among an increasingly large number of financially distressed firms.

Some notorious episodes of abuse of the corporate reorganisation procedure by the controlling shareholders of failing firms led the court to amend the system in 1996. In particular, the court argued that the shares of controlling shareholders responsible for a firm's failure should be wiped out. This revision produced an unanticipated outcome: the owners of failing firms looked for other possibilities that would allow them to maintain their control. They found such an alternative in the composition procedure. The composition procedure was originally designed for small and medium-sized firms with simple capital structures, but there was no explicit limit on firm size until the law was later revised. What made the composition procedure popular was the fact that the existing management maintained control.

As shown in Table 1, filings for composition exploded from nine cases in 1996 to 322 cases in 1997 and to 728 cases in 1998. In the first three quarters of 1997, before the onset of the crisis, many large firms facing bankruptcy sought to file for the composition procedure. Among these firms, the case of Kia Motors deserves special mention since it played an important role in the unfolding

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[2] One technical hurdle to the use of judicial bankruptcy procedures was the Act on Special Measures for Unpaid Loans of Financial Institutions. The Act gave the Korea Asset Management Corporation (KAMCO) the authority to hold auctions of the assets of bankrupt firms before court procedures began. It stopped the Corporate Reorganization Act from operating in practice since the auction of assets by KAMCO effectively preempted the corporate reorganization process. In 1990, the Constitutional Court declared this provision unconstitutional, paving the way for the wider use of judicial bankruptcy procedures.

Table 1

Bankruptcy filings before and after the crisis
– Number of cases, % –

Bankrupcy procedure	1995	1996	1997	1998	1999	2000	2001	2002[a]
Reorganisation	79 (76.0)	52 (65.8)	132 (26.8)	148 (14.9)	37 (9.1)	32 (13.2)	31 (12.3)	19 (15.3)
Composition	13 (12.5)	9 (11.4)	322 (65.5)	728 (73.3)	140 (34.4)	78 (32.2)	51 (20.2)	23 (18.6)
Liquidation	12 (11.5)	18 (22.8)	38 (7.7)	117 (11.8)	230 (56.5)	132 (54.6)	170 (67.5)	82 (66.1)
Total	104 (100)	79 (100)	492 (100)	993 (100)	407 (100)	242 (100)	252 (100)	124 (100)

Note: [a] From January to October. - Numbers in parentheses denote the percentage.

Source: Supreme Court of Korea.

of the crisis in mid-1997. The debtor and the creditors initially wanted to apply for different procedures: Kia initially filed for composition, but shortly thereafter creditors chose to file for corporate reorganisation. When both procedures are filed in this way, the filing for corporate reorganisation overrides the one for composition. In the end, the court accepted Kia Motors into corporate reorganisation, but the uncertainty and delay in dealing with large failing firms such as Kia clearly added to the uncertainty in the economy before the crisis broke out.

Post-crisis bankruptcy policy reforms

The economic crisis of 1997 put the existing corporate bankruptcy system, both judicial and non-judicial, under great strain. The number and scale of bankruptcies soared. Table 1 shows that the filings for judicial bankruptcy procedures rose dramatically in 1997. This internal pressure on the system was a driving force for the changes in laws and procedures, although the IMF and the IBRD also demanded improvement in the corporate bankruptcy system as a condition for the bailout package.

After the economic crisis, the Korean government made reform efforts to remove exit barriers along two separate lines: one is the court-administered bankruptcy procedure, and the other, the pre-bankruptcy informal arrangements for corporate restructuring. Whereas the workout procedure played an important role in dealing with the largest failing firms, the court-administered bankruptcy system had an impact on the way the medium-sized failing firms are restructured.

In this paper we focus on the policy reform in the court-administered bankruptcy system. Except for the small-sized firms with simple capital structure, the court-administered bankruptcy procedures are usually the last stages for failing firms to resort to if the interested parties cannot agree on the pre-bankruptcy informal arrangements for corporate restructuring. For the pre-bankruptcy informal arrangements, one of the most effective disciplines should come from the discipline of the court-administered bankruptcy procedures. In this sense, the court-administered bankruptcy system plays a crucial role in the whole bankruptcy system. In out-of-court administered settlements, the interested parties' incentives would be directly affected by the structure of court-administered bankruptcy settlements.

Bankruptcy policy reform in 1998: Economic efficiency criterion and the removal of the exit barriers for large firms

The most important element in the post-crisis court-administered bankruptcy system is the following. The court established an economic efficiency criterion to qualify for judicial bankruptcy procedures and implemented it tightly. Instead of economic efficiency, the old system was based on high social value and prospects for rehabilitation. A comparison of the value of a distressed firm as a going-concern with its liquidation value is now required for the initiation of all judicial bankruptcy proceedings.

This new criterion contributed much to removing the de facto exit barrier for large firms that had

existed in the in-court bankruptcy system prior to the crisis. Remember that, in the system prior to the crisis, the producers with persistently declining productivity were much more likely to be accepted into a rehabilitation procedure if they were regarded as having "high social value", such as a large output or employment share in the economy.

The 1998 revision represented the most substantial change in the system since the enactment of the corporate bankruptcy laws in 1962. But pressed for time in the wake of crisis, the government did not succeed in initiating a fully comprehensive revision, which accounts for the second round of reform in 1999. Through these two revisions, the role of the courts in the corporate bankruptcy process increased significantly; if it were not for the workout procedure introduced as an out-of-court settlement process in 1998, the role of the courts would have even been larger.

Besides the economic efficiency criterion, the 1998 revision tried to speed up proceedings. Time limits were introduced for the critical steps in the proceedings such as the decision on stay, the report of debts and equities, the approval of reorganisation plan, and other steps. Other important changes in the 1998 revision include the following. First, to induce a more active role for the creditors, the reform also established a creditors' conference. Second, to enhance the capacity of the court to deal with bankruptcy cases, the court receivership committee was introduced as a special advisor on the critical steps in the proceedings. Third, the process of wiping out the shares of controlling shareholders was also strengthened and made more transparent. Fourth, to prevent the abuse of the composition procedure, some critical changes were also made to the Composition Act. Large firms with complicated capital structures were not allowed to enter composition. Table 1 shows the impact of this change: the number of composition filings decreased sharply from 728 in 1998 to 140 in 1999.

Bankruptcy policy reform in 1999: Mandatory liquidation system

Despite these changes, the 1998 revision left room for further reform. To some extent, in fact, the 1999 revision filled the gap between initial reform proposals and what was finally passed in the 1998 revision. In the 1999 revision process there was initially debate on the inclusion of an automatic stay in the new law. Under an automatic stay, the debtors'

assets are automatically protected on filing from the creditors' rush to secure their claims. The pros and cons of the automatic stay were both strong. The final compromise was to speed up the initiation of the proceedings to within one month of the filing.

An automatic stay can contribute to the rehabilitation of failing firms after bankruptcy. On the other hand, the debtor might use the court to avoid a formal default and thereby evade criminal punishment under the Illegal Check Control Act. According to the Illegal Check Control Act, the managers or owners of failing firms who issued bad checks are criminally liable. This was developed to overcome the informational asymmetry between the debtor and the creditors. Dealing with highly unreliable accounting information, creditors would be much less willing to lend money to debtors without such recourse. The debtors are in effect forced to make a credible commitment to repayment by risking incarceration in case of default.

The new revision also facilitated an efficient transition between corporate reorganisation and liquidation. After the initiation decision, the court must compare the going-concern value of the firm with its liquidation value. If the liquidation value turns out to be larger than the going-concern value, the court must declare the liquidation of the firm. Donga Construction was the first large firm to go down this path; the company was liquidated in early 2001. This change could be regarded as one that contributes to an efficient working of the market mechanism.

However, the system of mandatory liquidation for the failing firms produced an unintended outcome. Failing firms do not want to use the judicial rehabilitation procedures since they feared the possibility of forced liquidation. Resolving this problem remains as one of the major future tasks in the Korean judicial bankruptcy system.

Bankruptcy policy reform and the productivity dynamics of bankruptcy cohorts

From the perspective of designing a corporate bankruptcy system, one of the important issues is how to tell (or to elicit information on) whether the financial distress of the insolvent firm is temporary or persistent. One way to resolve this issue empirically is to analyze the productivity of insolvent firms. We construct total factor productivity

measures for the firms in our data set and analyze them to evaluate the performance of the corporate bankruptcy system in place after the economic crisis. We also analyze the time series of failing firm's productivity before and after bankruptcy.

For the firm-level panel data, we use detailed financial information on the firms that have external audit reports. According to the Act on External Audit of Joint-Stock Corporations, a firm with assets of 7 billion won or more must issue audited financial statements. The data thus include all the firms with assets of 7 billion won or more. For this data, firm productivity is estimated using the chained-multilateral index number approach. In addition, the information on corporate bankruptcy was gathered from such sources as the Courts, Financial Supervisory Service and the Bank of Korea.

Remember that one of the important changes in the 1998 revision was the introduction of the economic efficiency criterion. Now, the court com-

pares the going-concern value of the firm with its liquidation value for the initiation of judicial bankruptcy proceedings. A preliminary check shows that the 1998 to 2000 bankruptcy cohorts suffered less from persistent difficulties than the 1997 cohort. For the 1997 cohort, several years before they went bankrupt and were accepted into one of the rehabilitation programs, their productivity was lower than solvent firms. Rehabilitation mechanisms applied to such firms are most likely doomed to failure from the start. Rehabilitation must target firms that go bankrupt because of temporary bad luck but that have high potential for recovery. In contrast, for the 1998 to 2000 cohorts, this is not the case. The introduction of the economic efficiency criterion, introduced in the 1998, appears to have affected the choices of target firms. Note that the 1998 reform was made at the beginning of that year.

These hypotheses can be tested statistically as follows. Table 2 shows regressions of productivity on a set of the dummy variables referring to the spe-

Table 2

Productivity dynamics of bankruptcy cohorts before and after bankruptcy policy reform
– Firms undergoing corporate reorganisation or composition –

Independent variables: Dummy variable denoting a specific cohort interacted with year and industry dummy	Dependent variable: productivity				
	(1) For the 1996 cohort	(2) For the 1997 cohort	(3) For the 1998 cohort	(4) For the 1999 cohort	(5) For the 2000 cohort
1993	−0.0687115 (0.1739958)	−0.0820866 (0.0596231)	−0.0069199 (0.035766)	0.0251072 (0.0527104)	0.0092007 (0.0795996)
1994	−0.0629782 (0.1739847)	−0.0815479 (0.0602887)	−0.0366698 (0.0347451)	−0.0219148 (0.0500552)	−0.0277665 (0.0750421)
1995	−0.0588727 (0.1739736)	−0.1367584** (0.0588782)	−0.0390412 (0.0339194)	0.0127083 (0.0474052)	−0.0821738 (0.0711893)
1996	−0.3647536 (0.2245488)	−0.1347013** (0.0595412)	0.0070321 (0.0334223)	0.0317036 (0.0470457)	−0.0124563 (0.0700231)
1997	−0.2869542 (0.2245442)	−0.2780865** (0.063298)	−0.0574577 (0.0356012)	−0.0368554 (0.0460487)	0.0304901 (0.0689116)
1998	−0.1409918 (0.1739603)	−0.2565868** (0.0650112)	−0.3211885** (0.0447192)	−0.1993039** (0.0648769)	−0.0003248 (0.0711459)
1999	−0.1321559 (0.2245506)	−0.1544865** (0.0700572)	−0.1599611** (0.0466198)	−0.1475066** (0.0722738)	−0.2036022** (0.091783)
2000	−0.1572699 (0.2245766)	−0.1793303** (0.0765336)	−0.1627449** (0.0488477)	−0.2222749** (0.0778949)	−0.3875751** (0.1376069)
Year dummies included	Yes	Yes	Yes	Yes	Yes
Industry dummies included	Yes	Yes	Yes	Yes	Yes
Number of observations	40,205	40,476	41,025	40,588	40,373

Notes: Numbers in the parenthesis are standard errors. –
* Significant at the 10% significance level. – ** Significant at the 5% significance level.

cific year bankruptcy cohort interacted with the year dummy. Only the particular cohort and the group of solvent firms are included in each regression. The reported coefficients mean the productivity differential between the specific bankruptcy cohort and the group of solvent firms.

Table 2 shows that for the 1997 (corporate reorganisation or composition) bankruptcy cohort, the coefficients reported are negative from 1993 to 2000, and significant from 1995 to 2000. The 1996 bankruptcy cohort shows a similar pattern, but standard errors are large due to the small number of the 1996 cohort. On the other hand, for the pre-exit years of the 1998 to 2000 bankruptcy cohorts, the coefficients are small and significantly negative only around the time of bankruptcy.

Concluding remarks

As discussed in the third section, the most important element in the post-crisis court-administered bankruptcy system was the implementation of an economic efficiency criterion. The court established an economic efficiency criterion to qualify for judicial bankruptcy procedures and implemented it tightly: A comparison of the value of a distressed firm as a going-concern with its liquidation value is now required for the initiation of all judicial bankruptcy proceedings.

Instead of economic efficiency, the old system was based on high social value and prospects for rehabilitation. Note that the prospects for rehabilitation could vary depending on the amount of subsidies from the creditors and the government. Compared with the old system, the new system removed the possibilities for interested parties (for example, controlling shareholders, labour union, or local/central governments) to resist the exit of the firms without economic value. In other words, the new system contributed much to removing the de facto exit barrier for large firms that had existed in the in-court bankruptcy system prior to the crisis. Under the new system, the producers with persistently declining productivity were less likely to be accepted into a rehabilitation procedure, although they were regarded as having "high social value", such as a large output or employment share in the economy.

This paper has found that the failing firms, accepted in the court-administered rehabilitation procedures after the bankruptcy reform had less persistent problems in pre-bankruptcy TFP performance than those before the reform. We interpreted this finding as lending support to the argument that bankruptcy policy reform improved the efficiency of resource reallocation after the crisis in the sense that efforts to rehabilitate firms with persistently low productivity are likely to lead to inefficient outcomes.

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The Influence of Labour Market Institutions on the Disemployment Effects of the Minimum Wage

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The effect of the minimum wage on labour markets has long been of interest to both economists and policymakers. Debates about whether to enact a minimum wage and whether to raise its level repeatedly surface in political discussions throughout the industrialised world, and economic experts are often asked for their views on the potential effects of proposed legislation in this area.

For many years, however, empirical research on this topic was limited largely to the United States and relied primarily on time-series variation to identify the employment effects of an increase in the minimum wage. After a number of US states in the late 1980s raised their minimum wage levels above the national minimum, researchers – recognising the limitations of relying exclusively on time-series evidence – began to examine the employment differences associated with this regional variation in wage floors. Interestingly, this new strain of research led to a substantially wider range of estimated employment effects than was reported in the time-series literature, leading some economists to question the consensus view that minimum wages reduce employment among lower-skilled workers.

Following on the results for the United States, researchers have also exhibited a renewed interest in reassessing the effects of minimum wages on employment in European countries. To some extent, this interest probably was stimulated by the renewed debate over the size and direction of such effects in the United States. In addition, however,

the increasing integration of European labour markets associated with the expansion of the European Community and the creation of the European Monetary Union has drawn attention to the potential impact of differing degrees of labour market rigidities across countries – the minimum wage being one possible source of such rigidities – in the context of greater labour and capital mobility and a unified monetary policy.

Although minimum wages appeared, on average, to reduce youth employment in industrialised countries[1], the estimated magnitude of job loss often differed considerably across individual countries. This suggests the possibility that the effects of minimum wages on employment might be influenced by other aspects of the labour market that differ across countries. Most obviously, other provisions of the minimum wage laws themselves might influence the disemployment effects associated with an increase in the level of the minimum wage. But it is not difficult to think of other labour market policies or institutions that might strengthen or weaken minimum wage effects, including those not formally related to the minimum wage.

Recent theoretical research also points to the possibility that seemingly disparate labour market policies could interact in affecting employment. For example, Coe and Snower (1997) show that the effects of enacting a policy that reduces employment on average could be magnified or reduced depending on the restrictiveness of the existing labour market environment. In the context of minimum wages, their model predicts that the existence of stricter job security measures, more generous unemployment benefits and greater bargaining strength among incumbent workers will tend to exacerbate the negative employment effects of an increase in the minimum wage, while policies designed to increase rates of job creation will tend to mitigate those effects.

On the empirical front, there has been a growing body of literature that uses cross-country comparisons to investigate the effects of labour market policies. Among these are studies that examine the effects of job security regulations on employment and unemployment (Lazear 1990; OECD 1999; Di Tella and MacCulloch, forthcoming), broader studies of labour market rigidities and unemployment

[1] See, for example, OECD (1998).

Table 1

Minimum wages and other characteristics of minimum wage systems in selected countries

Country	Ratio of minimum wage to average wage		Other characteristics of minimum wage systems (1993)		
	1976	2000	Method for setting	Level	Youth subminimum
Italy (1991)	0.78	0.71	Negotiated	Industry	Some
Norway (1994)	–	0.64	Negotiated	Industry	No
France	0.58	0.62	Statute	National	Limited, <18
Australia	0.65[a]	0.58	Statute	National	<21
Germany (1994)	0.60	0.58	Negotiated	Industry	Some
Ireland	–	0.56	Labour Committees	Industry	<18
Denmark (1994)	0.59	0.54	Negotiated	Industry	<18
Finland (1993)	–	0.52	Negotiated	Industry, region	No
Greece	0.69	0.51	Negotiated	National	No
Sweden (1992)	0.52	0.51	Negotiated	Industry	<24
Belgium	0.58	0.49	Negotiated	National	<21
Luxembourg	0.41	0.49	Statute	National	<18
Netherlands	0.64	0.47	Statute	National	<23
New Zealand	0.57	0.46	Statute	National	<20
Canada	0.52	0.43	Statute	National, provincial	No
United Kingdom	0.43	0.42	Wages Councils	Industry	<21
Portugal	0.48	0.38	Statute	National	<18
United States	0.47	0.36	Statute	National, State	Limited
Japan	0.29	0.33	Statute	Prefecture	No
Spain	0.48	0.32	Statute	National	<18

Notes: Minimum wage ratios are from the OECD minimum wage database and Dolado et al. (1996). The OECD uses a median wage to calculate the ratios, while Dolado et al. use a mean wage. Other information is taken from Table 2.1 in OECD (1998), Table 1 in Dolado et al., and from reports by the European Commission (1998) and the United Kingdom Low Pay Commission (2001). Figures in parentheses refer to the year for which information on minimum wages was available for countries for which we did not have data for 2000.

[a] Figure refers to 1985.

(Nickell 1997; Siebert 1997; Blanchard and Wolfers 2000), and studies of potential interactions among labour market institutions (Belot and Van Ours 2001).[2] Up until now, however, there has been little research focusing specifically on interactions of the minimum wage with other provisions of minimum wage laws or with other labour market policies more generally. Here, we review our recent research on such interactions (Neumark and Wascher 2004) and point to some implications of that research for youth labour market policies.

A comparison of minimum wage laws across countries

Table 1 shows some of the characteristics of minimum wage laws in 20 major industrialised countries. Data are taken from the OECD for countries in which a national minimum wage is set by statute or by national collective bargaining agreement. For countries in which no national minimum wage

exists, but in which industry- or occupation-specific minimums are set by legislation or collective bargaining, the estimates are from Dolado et al. (1996). The first column displays the ratio of the minimum wage to the average wage for each country in 1976, while the second column shows this ratio in 2000; the columns are ordered by the relative value of the wage floor in 2000.[3] This ratio is one of the standard indicators used to gauge the "bite" of the minimum wage and is intended to measure the extent to which the minimum cuts into the wage distribution.

As can be seen in the second column, there is substantial variation in the bite of the minimum wage across countries, with the level of the minimum wage ranging from 71 percent of the average wage in Italy to only 32 percent in Spain. As is often noted, the higher minimum wage levels are almost universally found in continental Europe; in fact, Australia is the only non-European country with a minimum wage ratio above 50 percent. In contrast, the other Anglo

[2] See also the recent summaries in the CESifo DICE Report by Kahn (2003), Belot and Van Ours (2003) and Nickell (2003).

[3] Where information was not available for 2000, we have indicated in parentheses the year for which we report this ratio.

countries and Japan are toward the bottom of the distribution, with minimum wage ratios typically at about 45 percent or below in 2000.

A comparison of the first and second columns also indicates that some countries saw substantial changes in relative minimum wages between 1976 and 2000. Of the 17 countries for which figures are available in both years, 14 experienced a reduction in the minimum wage ratio, and only Luxembourg saw a meaningful increase. Particularly notable are the declines for The Netherlands, where the government implemented a cut in the nominal minimum wage in 1984 and a freeze for the remainder of the 1980s, and for Greece and Spain, where nominal minimum wage increases significantly lagged behind the overall pace of wage growth. Also, although not shown in the table, the United Kingdom abolished its system of Wages Councils in August 1993 and did not introduce a national minimum wage until April 1999.

The remaining columns of the table summarise some other provisions of the minimum wage systems in each country, which can differ across countries in important ways.[4] We have identified three particular areas for which specific aspects of minimum wage policies might be expected to influence the employment effects of a wage floor. The first of these is the process by which minimum wages are set. In some countries, minimum wage levels are set by statute, while in others, they are the product of a collective bargaining process involving unions, employers and the national government. As can be seen in the third column, except for France and Australia, the countries with relatively high wage ratios are those in which unions take an active role in negotiating minimum wages. In contrast, countries with low minimum wage ratios tend to be those where the wage floor is set by statute. If unions and employers have better information than legislators as to what constitutes a relevant market wage for unskilled labour and use that information in deciding on the appropriate level of the minimum wage, then one might expect the minimum wage to have a smaller distortionary effect on low-wage labour markets when unions actually participate in setting the wage floor. On the other

hand, if the presence of unions in the negotiating process tends to result in a higher minimum wage than would otherwise be set, then countries using a collective bargaining process might see larger disemployment effects than countries where minimum wages are set by legislation.

In addition, there sometimes is significant variation in minimum wages across industries or geographic regions. As indicated in the fourth column, such variation is more likely to be present in countries where the wage floor is determined through a collective bargaining process. If such regional or industry variation is a consequence of a process that better targets minimum wage levels to subgroups of workers in particular industries or geographic regions, any disemployment effects would tend to be smaller. However, if this variation represents a tendency by some regions or industries to establish a high minimum wage without regard to the relative productivity of the applicable subgroup, then the adverse consequences of the minimum wage in that country would be more severe.

Finally, as the last column shows, many countries have lower minimum wage levels that apply to workers who are younger than a specified age level. Given that youths comprise a significant share of the low-wage labour market, such provisions would be expected to reduce the disemployment effects of minimum wages.

The effects of minimum wage laws on employment and unemployment

Table 2 shows the minimum wage ratios for each country in 1986 and 2000, along with the employment rates and unemployment rates for youths (ages 15 to 24) prevailing in each year.[5] At first glance, it is difficult to see an unambiguous pattern in the table. Nevertheless, as indicated in the second to last row, there is a negative correlation across countries between the minimum wage ratio and the youth employment rate in both 1986 and 2000, and a positive correlation between the minimum wage ratio and the youth unemployment rate

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[4] This information was collected from various OECD reports, a report by the European Commission (1998), the UK Low Pay Commission Report (2001), and the Country Reports on Human Rights Practices from the US Department of State. Additional detail on prevailing minimum wage laws in each country is summarised in Neumark and Wascher (2004).

[5] In our study, the employment rate is defined as the percent of the youth population that is employed, while the unemployment rate is the percent of the youth labour force without a job and looking for work. Because it is often difficult to distinguish whether youths are unemployed or out of the labour force altogether, we view our estimates of the effect of minimum wages on youth employment rates as being more relevant than its effect on unemployment rates.

Table 2

Minimum wage levels and youth labour market conditions

Country	Minimum wage ratio		Employment rate		Unemployment rate	
	1986	2000	1986	2000	1986	2000
Italy	0.75	–	29.2	26.1	34.5	29.7
Norway	–	–	62.2	57.7	5.0	10.2
France	0.63	0.62	32.9	23.3	23.4	20.7
Australia	0.63	0.58	59.5	60.5	14.5	12.3
Germany	0.59	–	55.1	48.4	7.8	7.7
Ireland	–	0.56	41.2	48.2	25.7	6.4
Denmark	0.62	–	69.1	67.1	8.1	6.7
Finland	–	–	53.6	39.8	10.1	21.6
Greece	0.59	0.51	29.5	26.9	24.2	29.5
Sweden	0.57	--	61.7	46.1	6.8	11.9
Belgium	0.57	0.49	33.7	30.3	21.1	15.2
Luxembourg	0.46	0.49	54.4	31.8	6.2	6.4
Netherlands	0.56	0.47	39.8	68.4	20.0	6.6
New Zealand	0.47	0.46	67.0	54.7	7.8	13.2
Canada	0.39	0.42	58.9	56.3	14.8	12.6
United Kingdom	0.46	0.42	62.9	61.5	17.9	11.8
Portugal	0.47	0.38	51.3	41.9	18.5	8.6
United States	0.37	0.36	59.5	59.8	13.3	9.3
Japan	0.29	0.33	40.9	42.7	5.2	9.2
Spain	0.37	0.32	31.2	35.9	42.8	25.5
Correlation with minimum wage	–	–	–0.20	–0.21	0.20	0.08
Correlation with the change in the minimum wage	–	–	–	–0.46*	–	0.50**

Notes: The employment rate is the percent of the youth population that is employed. The unemployment rate is the percent of the youth labour force that is unemployed. Both rates refer to youths ages 15 to 24 (14–24 in Italy and 16–24 in the US, the UK, Sweden and Norway).
** Indicates statistical significance at the 5% level.
 * Indicates significance at the 10% level.

in both years. Moreover, as shown by the correlations in the last row and in Figures 1 and 2, changes in the minimum wage are clearly negatively correlated with changes in employment and positively correlated with changes in unemployment for the countries in the sample.

The result that higher minimum wages contribute to lower employment rates among youths is confirmed in more formal analyses that use time-series data for each country from 1976 to 2000 and that control for other factors likely to affect youth employment, including business cycles, demographic changes and persistent country-specific factors independent of aggregate labour market conditions. As described in Neumark and Wascher (2004), these analyses suggest that, on average, a ten percent increase in the minimum wage is associated

with roughly a one percent to three percent decline in the youth employment rate. This estimate is strikingly similar to the magnitude of minimum wage effects often reported for the United States.

However, our results also suggest that the size of the disemployment effects associated with the min-
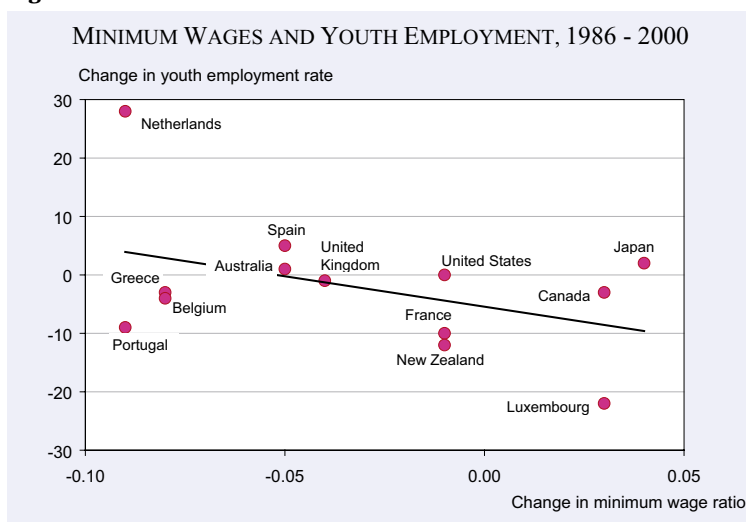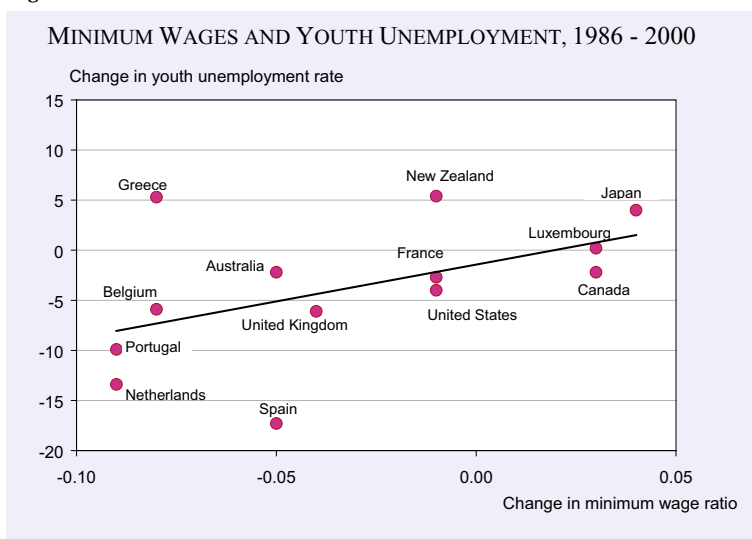
Figure 1

MINIMUM WAGES AND YOUTH EMPLOYMENT, 1986 - 2000

Figure 2

MINIMUM WAGES AND YOUTH UNEMPLOYMENT, 1986 - 2000

Change in youth unemployment rate

tortionary effects on labour markets. In this regard, we examined whether the estimated employment losses associated with raising the minimum wage differ according to the particular types of labour market policies or institutions present in each country.

Table 3 presents information on the types of policies and institutions considered in our analysis. In general, these institutional features of labour markets span a range of factors often thought to influence labour market flexibility, including job security legislation, unemployment benefits, job creation policies and workers' bargaining power.

The first column shows an index of labour standards, which is constructed from the OECD's characterisation of the strictness of legislated rules covering working time, flexible employment contracts and workers' representation rights. A high value of this index – as in Sweden – indicates the presence of substantial labour market rigidities in these areas, whereas low values – as in the United States – are suggestive of more flexibility. The second column shows an index of the strictness of employment protection regulations. This index, which is also constructed from information collected by the OECD, ranks countries according to the procedures and severance pay requirements associated with the dismissal of an employee. As in the first column, a high value of the index indicates that the country has a high degree of employment protection, while a low value indicates relative ease in dismissing employees.

The third column of the table summarises the extent to which governments in each country use active labour market policies to assist unemployed workers in obtaining a job; such policies could include job search assistance, training programs, employment subsidies for private job creation or public job creation programs. The figures in the table refer to the level of public expenditures on such programs in 1995 as a percentage of that country's GDP, so that a higher value indicates greater use of active policies in a particular coun-

imum wage can be influenced by other characteristics of minimum wage systems. In particular, countries in which the minimum wage is determined through a collective bargaining process tend to exhibit a smaller negative impact of an increase in the minimum wage, perhaps because this process helps to target a level of the minimum wage more appropriate to prevailing labour market conditions. In contrast, the presence of industry- or geographic-specific wage floors appears to increase the employment losses associated with a higher minimum wage, which might suggest that such variation is primarily used to raise the minimum wage to levels where disemployment effects set in, rather than to target minimum wages to relative productivity levels in particular industries or to living costs in particular locations. Finally, countries with a youth subminimum wage consistently show that youths experience smaller job losses from the minimum wage than do countries without such provisions, perhaps because the subminimum leads employers to substitute lower-cost youths for low-skilled adult workers who are subject to the full minimum wage.

The sensitivity of minimum wage effects to other labour market institutions

As noted in the introduction, economic theory predicts that the economic effects of minimum wages may also be influenced by the presence of other labour market institutions that are not directly related to the minimum wage, but that interact with it in ways that mitigate or exacerbate its dis-

Table 3

Other labour market policies and institutions

Country	Labour standards	Employment protection	Active policies	Union coverage	Unemployment insurance
Italy	3	14.25	0.93	43.0	7.3
Norway	4	9.75	1.35	54.9	34.3
France	4	9.50	1.17	13.6	33.9
Australia	3	3.26	0.73	44.2	25.0
Germany	4	12.00	1.33	32.0	32.0
Ireland	2	2.75	1.48	54.0	28.9
Denmark	2	3.25	2.32	77.0	57.1
Finland	3	10.50	1.55	72.6	33.5
Greece	4	11.00	0.36	28.6	13.5
Sweden	5	8.50	3.00	83.6	27.4
Belgium	2	10.50	1.39	52.4	42.3
Luxembourg	–	–	0.26	–	–
Netherlands	4	7.25	1.06	27.9	49.0
New Zealand	3	0.72	0.69	33.6	29.2
Canada	1	1.65	0.56	36.7	28.3
United Kingdom	0	2.25	0.53	46.0	20.2
Portugal	2	12.50	0.73	45.3	24.1
United States	0	0.36	0.20	18.3	12.7
Japan	1	3.71	0.11	25.4	9.8
Spain	3	11.25	0.72	13.6	30.1
Influence on minimum wage disemployment effect	Strengthen	Weaken	Weaken	Strengthen	None

Notes: Union coverage refers to the number of total union members as a percent of wage and salary employment and is taken from Nickell and Nunziata (2001). The measure of unemployment insurance shown here is the average gross benefit replacement rate (as a percent of earnings) as defined by the OECD (1994); the figures refer to the mean replacement rate from 1976–97. The labour standards index, which refers to 1993 standards, is taken from OECD (1994) and excludes the contributions of minimum wages and employment protection policies to the index. The employment protection index is taken from OECD (1996) and refers to legislation as of 1989. The active labour market policies index is taken from OECD (1996) and is measured as public expenditures on public employment services, labour market training and subsidised employment programs in fiscal year 1995 as a percent of GDP.

try. The fourth column of the table shows the percentage of wage and salary workers who are members of a union (from Nickell and Nunziata 2001), while the final column of the table presents a measure of the generosity of each country's unemployment insurance system. This latter variable, which is published by the OECD, is defined as the gross level of unemployment benefits as a percent of previous earnings.

The bottom row of the table summarises our estimates of how these institutional features of labour markets influence the disemployment effects of the minimum wage. For each column, we indicate whether the greater presence of a particular policy or institution tends to strengthen the disemployment effect of the minimum wage or weaken it. For example, by themselves, more restrictive labour standards tend to exacerbate the negative consequences of raising the wage floor, which is consistent with the idea that the presence of strict standards on the use of hours and temporary contract workers forces more of the adjustment to a higher minimum wage to take place by way of a reduction in employment.

In contrast, stricter employment protection regulations appear to weaken the disemployment effects of minimum wages, presumably because it is more costly to dismiss workers in countries with such regulations. Similarly, greater use of active labour market policies also reduces the extent of job loss associated with the minimum wage, likely because youths displaced from private-sector jobs by a higher wage floor are absorbed by government employment or training programs. However, we would note in this regard that the consequences of a higher minimum wage may instead appear as an increase in government budget deficits. Finally, greater bargaining power among incumbent workers (as measured by the degree of unionisation) appears to strengthen the negative effects of the minimum wage on youth employment, consistent with the view that unions successfully shift the costs of the minimum wage onto non-union workers, who are more likely to be young. In contrast, the generosity of unemployment insurance benefits appears to have little influence on the size of job losses associated with the minimum wage, despite evidence that they reduce employment levels more generally.

Table 4

Minimum wage effects differentiated by degree of labour market policies and institutions

		Employment protection/active labour market policies	
		High	Low
Labour standards	High	Germany Italy Sweden Spain France *Implied average effect:* 0.09	Netherlands Greece Australia New Zealand *Implied average effect:* 0.19
	Low	Belgium Portugal Denmark *Implied average effect :* 0.11	United States United Kingdom Canada Japan *Implied average effect:* 0.33

Note: Implied average effect refers to the percent change in employment resulting from a one percent increase in the minimum wage.

The substantial variation in labour market institutions or policies across countries, along with our evidence that the economic impact of the minimum wage can be importantly influenced by these other differences in labour markets, suggests that the effects of the minimum wage on youth employment could vary significantly across countries. However, because the policies that characterize a country's labour market may differ from those in other countries along a variety of margins, it is not always straightforward to assess the implications of a particular set of labour market policies for the employment effects of the minimum wage. To illustrate the implications of our results, Table 4 shows the variation in minimum wage effects for groups of countries differentiated by the importance of some of the labour market policies and institutions included in our analysis. In particular, the countries shown in the table are grouped into four distinct categories according to the strictness of their labour standards and the extent of their use of both employment protection laws and active labour market policies. Also shown in each cell is the implied average effect of the minimum wage on youth employment based on the specific values for each policy-related index in the set of countries in that cell and the associated minimum wage effects taken from the analysis described above.

Focusing first on the upper left panel, countries with restrictive labour standards and generous levels of employment protection and active labour market policies – for example, Germany, Italy and France – tend to exhibit a small positive effect of the minimum wage on youth employment (although in a statistical sense, the effect is not significantly different from zero). This occurs because the influence of strict labour market standards on the minimum wage effect is outweighed by the offsetting effects of high values for the employment protection and active labour market policy indexes. Indeed, as indicated in the lower left panel, those countries with less restrictive labour standards, but that also have generous levels of employment protection and use active labour market policies (Belgium, Portugal and Denmark) also show a small positive effect of minimum wages on youth employment (although this effect is again not significantly different from zero).

In contrast, for the panels on the right-hand side of the table, which show sets of countries with low levels of employment protection and less use of active labour market policies, the minimum wage effects are negative. For countries with relatively restrictive labour standards, such as The Netherlands, Greece and Australia, the average implied effect is – 0.19, similar to the average effect we found for the entire set of countries in our sample. For countries that have less restrictive labour standards but that also have low levels of employment protection and active labour market policies, the average minimum wage effect on youth employment is even stronger. One might expect this group of countries to exhibit a smaller negative employment effect, as the results in Table 3 indicate that less restrictive labour standards tend to be associated with weaker minimum wage effects. As it turns out, however, the countries in the lower right panel also have even less stringent employment protection laws and weaker active labour market policies than the countries in the upper right panel, which more than offsets the difference in the labour standards index.

Conclusions

Our results indicate that, on average, minimum wages tend to reduce employment rates among the youth population. However, the evidence also suggests that the impact of the minimum wage can differ noticeably across countries because of other provisions of the minimum wage system or because of the presence of other labour market policies and institutions. Perhaps the most striking implication of our analysis is that the disemployment effects of the minimum wage are most apparent in those countries with the least regulated labour markets – namely the United States, the United Kingdom, Canada and Japan. In contrast, minimum wages seem to have had little effect in countries with either high levels of employment protection or where active labour market policies are used aggressively.

Of course, some care must be taken in interpreting these results. They should not be viewed as necessarily providing reliable estimates of the effect of minimum wages on youth employment in each country, but rather as providing some indication of how other labour market policies and institutions might influence the impact of the minimum wage on low-skilled labour markets. In this regard, our study can be viewed as highlighting the importance of accounting for institutional differences in labour markets when using data for different countries to study the effects of economic policies such as the minimum wage, and from a policy perspective, highlighting the danger of blindly applying the estimated effects of policy changes from one country to other countries with substantially different sets of policies and institutions regulating labour markets.

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Taxing Means of Agricultural Production in Germany: A Relatively High Tax Burden Compared to Other Important EU Competitors

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Introduction

This study[1] examines the taxation of specific means of agricultural production (fertilisers, pesticides, mineral oil products, gas and electricity) in selected EU Member States. The first part highlights the fiscal aspect and describes the legal differences that prevail in the investigated countries. The determination of the tax burden resulting from these different regulations is the second central issue.

The EU Member States exhibit large differences in their tax systems. These discrepancies are not only visible in a different emphasis on both direct and indirect taxes, but also within one tax due to the various definitions of tax bases, tariffs, tax rates etc. These findings also apply to the taxation of agriculture in general and to the taxation of means of agricultural production in particular.

An overview of the tax burden of agricultural inputs in selected EU countries is of particular interest in light of the increasing competition in the agricultural sector following the introduction of the euro. Moreover, the forthcoming EU enlargement and the accession of highly agriculturally oriented countries will lead to further problems.

Therefore, it is necessary to identify the tax distortions occurring in the agricultural sector and to correct them via a political consensus at the EU level. If

such a change does not seem to be plausible or can not be achieved, Germany should, on the one hand, react by adjusting its national tax policies to counteract the effects of the increasing tax competition. On the other hand, pursuing a pan-European solution regarding the taxation of the more problematic agricultural means of production (problematic in the sense of critical from an environmentally-friendly perspective) is advisable for Germany. Additionally, it is also interesting for German agricultural policy to identify the extent to which a reorientation and restructuring of agriculture by tax policy measures can be effectively realised. Some EU countries have already started taxing means of agricultural production more heavily for environmentally-friendly purposes, some time ago. These countries levy taxes on agricultural inputs, which have thus far been tax exempt in Germany. In this context, the question to be addressed is whether these countries achieved the desired goals by tax policy measures, that is, whether employing such instruments can lead to a reorientation of agriculture.

The following taxes and excise duties are the focus of this study

- taxes on fertilisers and pesticides
- vehicle taxes
- mineral oil taxes
- taxes on gas and electricity.

The surveyed countries are Austria, Denmark, France, Italy, Netherlands, Sweden and the United Kingdom.

Similarities and differences in relevant tax rules

The following table (p. 50–51) provides an overview of all taxes and levies on agricultural means of production prevailing in the countries under consideration.

As can be seen, only Denmark and Sweden levy a tax on *fertilisers*. Danish agriculture follows a quota system while Sweden applies the usual national tax rate on fertilisers. Moreover, both countries as well as France also impose a *pesticide* tax. The only country charging taxes on *antibiotics* and growth promoters is Denmark.

Regarding the *vehicle* taxation, all countries in the survey (except Denmark which applies a reduced rate) provide tax exemptions for all types of agricultural businesses.

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[1] This article is based on the study "The Taxatation of Means of Agricultural Production: A Comparative Analysis of Selected EU Countries". The study was conducted by the public finance department of the Ifo Institute for the German Federal Office for Agriculture and Food and completed in November 2003 (Parsche et al. 2003).

The taxation of *fuels* is characterised by large differences among countries. All apply such an excise duty, although agriculture is treated differently at the national level:

- A somewhat complicated system exists in Denmark and Sweden where there are three different kinds of excise duties levied on fuels: energy tax, carbon dioxide tax and sulphur tax.
- German agricultural enterprises do not have to pay any taxes on Diesel oil. Agricultural vehicles apply a constant "Agrardieselsteuersatz".[2]
- France, Italy and the United Kingdom tax mineral oil for agricultural businesses only at a reduced rate. Only Austrian agricultural businesses do not enjoy any tax relief in this category.

The following characteristics apply to the taxation of *fuel for heating purposes:*

- The Danish excise duty on heating oil is subject to the energy tax as well as to a carbon dioxide and a sulphur dioxide tax component. Agricultural businesses are subject to the normal tax rate.
- German and Swedish agricultural enterprises receive a tax relief whereas France, the United Kingdom, Italy, the Netherlands and Austria subject heating oil in the agricultural sector to the normal tax rate.

The taxation of *electricity* displays the following features in the investigated countries.

- Denmark levies an energy tax as well as a carbon dioxide and a sulphur tax on electricity. The agricultural sector is subject to the normal tax rate, as in Italy, France and in the United Kingdom. Similar provisions are in force in Austria, where agricultural entities can apply for an allowance for duties paid.
- The German electricity tax act provides a reduced tax rate for agricultural entities starting from a minimum annual tax burden.
- Swedish farmers can apply for a tax rebate starting from a minimum energy consumption.

Finally, we consider the taxation of *gas*.

- German and British agricultural firms are liable to the national tax rate on gas. However, Germany provides a tax rebate for agricultural

enterprises if they use gas for heating purposes only.
- Denmark refunds 100 percent of the energy tax and 10 percent of the CO_2 tax and similar arrangements apply to Sweden as well.
- French agricultural entities are subject to the normal tax rate, however, as this tax is paid only at an annual consumption of 5 Mio. kWh and above, one can assume that normal agricultural entities with a low gas consumption do not actually have to pay this tax.
- Italian, Austrian and Dutch aricultural firms are liable to the normal tax regime and only marsh gas in Italy is subject to a reduced tax rate.

The environmentally-friendly tax regulations aim at providing incentives for farmers to pursue an increasingly non-polluting behaviour by reducing the use of fertilisers and pesticides. Several surveys on the effects of such regulations show that these taxes would have to be increased to a large extent to attain a further reduction of the employed means of production (Brockmeier et al. 1994, Carpentier and Salanié 1999 and Hoevenagel and Noort 1999).

The revenues from ecological taxes are often earmarked for specific purposes in the examined countries. For instance, Italy and the Netherlands spend part of these revenues on environmental projects. A further fraction is used within the framework of ecological tax reform. To reduce the burden on labour, these tax revenues enable the reduction of employer contributions for social insurance. From a fiscal perspective such appropriations are questionable. The non-affectation principle forbids linking public spending to the revenue from a particular tax. Thus, it calls for independent preferences on the revenue and on the spending side, with regard to the priorities set. This requirement is only emulated by Sweden. In this country, the receipts from the pesticides and fertilisers tax flow into the general budget. Environmental control measures and support programmes are then financed out of the general budget.

Tax burden comparison on the basis of German agricultural model enterprises

The foregoing European-wide survey reveals that these countries tax the employed means of produc-

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[2] Germany has also introduced a sulphur tax starting as of 1 November 2001. As a first step, a sulphur tax of 1.5 cent/l on fuels (petrol and diesel oil) with more than 50 mg sulphur per kg fuel was introduced. The assessment threshold was reduced to 10 mg sulphur per kg, effective 1 January 2003. However, the sulphur tax lost its tax base in both cases since the mineral oil industry reduced the sulphur content of its products accordingly to less than 10 mg/kg.

Tax regulations of agricultural means of production

	Germany	Denmark	France	United Kingdom	Italy	Netherlands	Austria	Sweden
Tax on fertilisers	No	Quota system or exemption	No	No	No	No	Abolished 1994	€ 0.198/kg nitrogen. € 3.291/kg cadmium
Pesticide tax	No	Depending on the substance for pest control	7 categories of noxiousness	No	No	No	No	€ 2.195/kg active constituent
Tax on antibiotics and growth promoters	No	Depending on the employed substance	No	No	No	No	No	No
Vehicle tax	Exemption	Reduced tax rate: € 8.75	Exemption	Exemption	Exemption	Exemption	Exemption	Exemption
Excise duty on diesel oil for agricultural commercial vehicles	For 2002 and 2003: Normal tax rate less tax allowance The remainder is € 255.60 per 1000 l, that is € 0.2556/l	Tax rate for agriculture 2002 and 2003: € 0.0327/l	A reduced tax rate on diesel oil applies to agriculture; this rate amounts to the rate on heating oil: 2002 and 2003: € 0.0566/l	A so-called "red diesel" is employed in agriculture: 2002: € 0.0438/l 2003: € 0.0588/l	General tax rate for 2002 and 2003: € 0.40324/l Agriculture is however liable only for up to 22% of the usual tax rate: € 0.0887/l	2002: € 0.1918/l 2003: € 0.1970/l Light fuel oil (sum of compulsory stock levy, regulatory energy tax, reduced excise duty on mineral oil).	For 2002 and 2003: general tax rates, no tax relief. € 0.282/l	Sum of energy and CO_2-tax, no sulphur tax 2002: € 0.3425/l 2003: € 0.3487/l
Excise duty on light fuel oil used for heating purposes	Normal tax rate 2002 + 2003: 61.35 €/1000 l Allowance*: 2002: 16.36 per 1000 l 2003: 8.18 per 1000 l	Tax rate for agriculture: 2002 and 2003: € 0.2841/l	No tax relief for agriculture. Tax rates 2002 and 2003: € 0.0566/l	No tax relief for agriculture, normal tax rate: 2002: € 0.0382/l 2003: € 0.0521/l	Agriculture is subject to the normal tax rate: 2002 and 2003: € 0.1509/l	2002: € 0.1918/l 2003: € 0.1970/l Light fuel oil (sum of compulsory stock levy, regulatory energy tax, reduced excise duty on mineral oil).	Oil used for heating purposes: € 0.042/l	Light fuel oil for heating purposes is subject to only 25% of the general CO_2-tax. 2002: € 0.0591/l 2003: € 0.0597/l
Electricity tax	Normal tax rate 2002: € 0.0179/kWh 2003: € 0.0205/kWh up to a tax burden of € 511 per calendar year, above reduced tax rate 2002: 20% of the regular tax rate; € 0.00358/kWh 2003: 60% of the regular tax rate; € 0.0123/kWh	Tax rate for agriculture: 2002 and 2003: € 0.0756/kWh	Tax rates on electricity are set locally by the communes and the départements. They are not allowed to exceed 8% for the communes and 4% for the départements. No tax relief for agriculture.	No tax relief for agriculture, normal tax rate: 2002 and 2003: € 0.0060/kWh	There are no exceptions for agriculture: 2002 and 2003: 0.0031 €/kWh Important to notice: There are surcharges levied by municipalities – between € 0.0185 and € 0.02/kWh – and by provinces – € 0.009/kWh Average. amount: € 0.03135/kWh	Electricity is subject only to the regulatory energy tax < 10.000 kWh 2002: € 0.0601/kWh 2003: € 0.0639/kWh 10.000-50.000 kWh 2002: € 0.0200/kWh 2003: € 0.0207/kWh > 50.000 kWh 2002: € 0.0061/kWh 2003: € 0.0063/kWh	General tax rate: € 0.015/kWh Large agricultural enterprises can apply for an allowance for energy taxes paid.	Electricity consumption for normal use: 2002: € 0.0217/kWh 2003: € 0.0249/kWh If electricity is used for agricultural purposes, the tax paid above 1000 SEK (€ 109.7) can be refunded.

Continued

	Germany	Denmark	France	United Kingdom	Italy	Netherlands	Austria	Sweden
Tax on gas used for heating purposes	Normal tax rate	Tax rate for agriculture	Agriculture is subject to the normal taxation:	No tax relief for agriculture;	No special tax relief for agriculture:	Natural gas is subject to both the compulsory stock levy and the regulatory energy tax.	General tax rate for gas:	Reduced rate for agriculture:
• Natural gas	2002: € 0.0035/ kWh 2003: € 0.0055/ kWh Allowance*: 2002: € 0.0013/kWh 2003: € 0.0015/kWh	2002 and 2003: Natural gas € 0.0021/kWh Liquified petroleum gas: € 0.0026/kWh 100% refund of the energy tax and 10% refund of the CO$_2$ tax.	2002 and 2003: Natural gas € 0.0012/kWh Tax is levied only starting from an annual consumption above 5 Mio. kWh. Liquified petroleum gas € 0.0/kWh	Normal tax rate: 2002 and 2003: Natural gas € 0.0021/kWh Liquified petroleum gas € 0.00096/kWh	2002 and 2003: Marsh gas € 0.00096/kWh Liquified petroleum gas € 0.01357/kWh	5,000-170,000 m³ 2002: € 0.0053/kWh 2003: € 0.0055/kWh 170.000-1 million. m³ 2002: € 0.0016/kWh 2003: € 0.0017/kWh	2002 und 2003: Natural gas € 0.00335/kWh Liquified petroleum gas € 0.00307/kWh Large agricultural enterprises can apply for an allowance for energy taxes paid	2002 (2003): Natural gas € 0.0034 (0.0034)/kWh Liquified petroleum gas € 0.0044 (0.0045)/kWh Refund possibilities (see energy tax) 100% of the E-tax and 25% of the CO$_2$ tax.
• Liquid petroleum gas	Normal tax rate 2002:€ 38.34/1000 kg 2003:€ 60.60/1000 kg Allowance*: 2002: € 10.22/1000 kg 2003: € 14.02/1000 kg							

Allowance: There is no tax rebate for the tax on mineral oil if the allowance for light heating oil, natural gas and liquid gas does not exceed a threshold of € 205,00,

Source: Mennel and Förster (2002); OECD; Eco-Tax Database; European Commission (2002); ECOTEC Research and Consulting (2001); Inventar der Steuern (2000); for country sources see the ones specified under country-specific references.

tion, however there are major differences in the tax base in general, in the tax exemptions in particular and in the de facto applied tax rates.

A simple examination of the general body of tax rules (including the benefitial individual regulations) is not a proper method of assessing the actual tax burdens prevailing in the considered countries. Such a method does not permit international comparisons, and thus we undertook several computations on the basis of well-defined model cases.

In defining these model examples it is important to address the question of the exact scope of the analysis, since tax burden comparisons can be carried out from different perspectives. Accordingly, one can build model enterprises for each particular country and determine the respective national tax burden. Such an analysis would show how typical German farms are taxed, compared to typical French or Italian farms, whereas the purpose of this study is to show what kind of a tax burden a German farm would face in each of the surveyed countries. Such a comparison does not give any insight into how exactly a typical French or Italian farm is taxed. It identifies, however, which tax burden would arise for German farms if they applied the foreign tax laws. This type of analysis is particularly important in the light of the increasing demand to adopt foreign regulations into German tax law. An adequate evaluation requires both a thorough assessment of individual advantageous regulations as well as of the tax burden as a whole (Parsche et al 2001).

In connection with the model calculations it is meaningful to use profits of enterprises as the benchmark, especially for a comparison of income taxes in the EU (Parsche and Steinherr 1995). The examination of production taxes should rather involve the use of the so-called size range of economic entities (ESU = European Size Units).[3] Two main reasons support such a classification of agricultural enterprises. The first is the professional context: For a comparative study of national production taxes one should draw on enterprises of equal capacity or with the same volume of production. The second important reason relates to statistical data which usually employ the ESU for classifications.
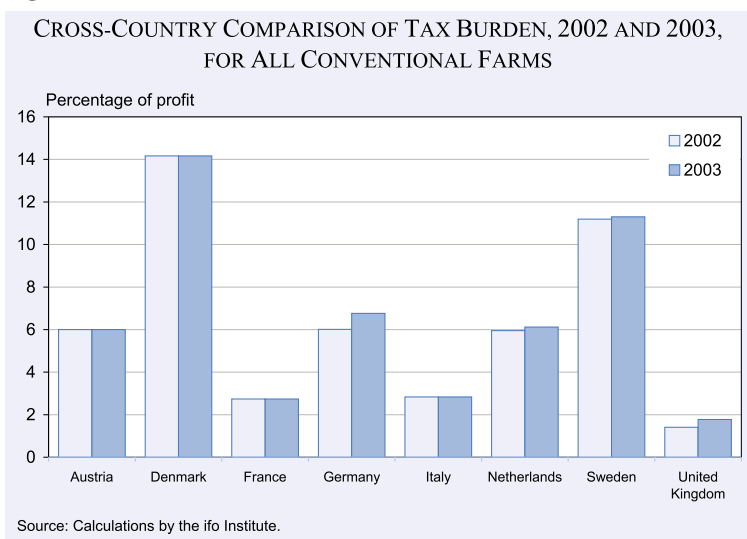
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[3] European Size Units (ESU's) are a measure of farm business size where 1 ESU is equal to 1,200 ECU (Euro) of Standard Gross Margin.

The following comparison serves as an indicator for both the magnitude and the composition of the tax burden on agricultural entities. A proper comparability is ensured by taking the production circumstances of German agricultural firms of different production profiles and size as a starting point.[4] Accordingly, the replication of these enterprises using the available data is the calculation basis for the cross-country tax burden comparison. Thus we investigated the taxation of the selected production means in the three different types of agricultural production: farming, milk production and processing entities as well as the production means of all agricultural entities, including those with other production specifics. The data base is derived from the Nutrition and Agricultural Policy Report by the Federal Ministry of Consumer Protection, Food and Agriculture 2003.[5]

A further comparison examines the taxation of conventional versus ecological agricultural entities. Figure 1 shows the results of the analysis of model agricultural enterprises and reveals a clear increase in the tax burden of German farms between 2002 and 2003. Only the Danish and Swedish tax regulations lead to a high burden on profits of agricultural companies of 14.2 percent and 11.2 percent respectively. This is basically the result of the high taxation on heating oil, natural gas and electricity in these countries. The tax rates applied in Germany, the Netherlands and Austria lead to a tax burden on profits that is slightly below average (6.3 percent). British tax regulations pose the lowest burden, although the year- to-year increase of approx. 25 percent is quite remarkable. Apart from the extremely high tax burdens in Denmark and Sweden, German

Figure 1

CROSS-COUNTRY COMPARISON OF TAX BURDEN, 2002 AND 2003, FOR ALL CONVENTIONAL FARMS

Source: Calculations by the ifo Institute.

tax regulations result in a relatively high taxation particularly in comparison to important competitors in the agricultural sector such as France, Great Britain and Italy.

A detailed examination of farming, milk production and processing entities delivers essentially similar results. The tax burden in farming (Figure 2) is consistently above the level of the model companies taken altogether. The high Swedish tax burden can be attributed to the rather high taxation of fertilisers and pesticides.

The counterpart to farming is dairy farming. They are subject to the lowest tax burden of all examined sectors (Figure 3). This is particularly because the analysed means of production are only used to a limited extent. Fuel oil, gas and electricity play a subor-

Figure 2

CROSS-COUNTRY COMPARISON OF TAX BURDEN, 2002 AND 2003 CONVENTIONAL FARMING

Source: Calculations by the ifo Institute.

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[4] This paper investigates only entities with different production profiles. The study mentioned in footnote 1 also features the effects on enterprises of different size.
[5] See http://www3.verbraucherministerium. de/index0002559 CCADA1EC8AAD56520C0A8E066.html.

dinate role in milk production and only diesel fuel is employed in extensive amounts. This situation results in a lower tax burden on profits of Danish dairy farms compared to other agricultural entities since diesel fuel is subject to a much lower tax rate than the other means of production.

A cross-country comparison of farm processing entities leads to a relatively homogeneous picture if one does not take Denmark into account (Figure 4). It is precisely the Danish tax burden which deviates from those of the other countries. This is a result of the extensive use of fuel oil, natural gas and electricity as sources of energy, all of which are subject to heavy taxation. Such a tax treatment clearly raises the average tax burden of processing farms.

With regard to the tax-burden comparison of ecological and conventional farms a rather surprising result for Germany is observed at first glance. The ecological model farms face a much higher burden of taxation on profits than comparable conventional ones (Figure 5). This is mainly the consequence of the high taxation of diesel oil in Germany. Thus, this is a very important factor for German ecological farms since their cultivated areas are about one third larger than those of conventional farms. Similar results apply, albeit on a smaller scale, with respect to Austrian tax regulations. In all the other surveyed countries ecological farms face a lower or equal tax burden than conventional farms.

Conclusion

The purpose of this study is to give an overview of the diversity of tax burdens on the examined agricultural entities. This investigation enables us to identify possible distortive effects of taxation on a country's competitiveness. An overview of the tax burden of agricultural inputs in selected EU countries is of particular interest in the light of the
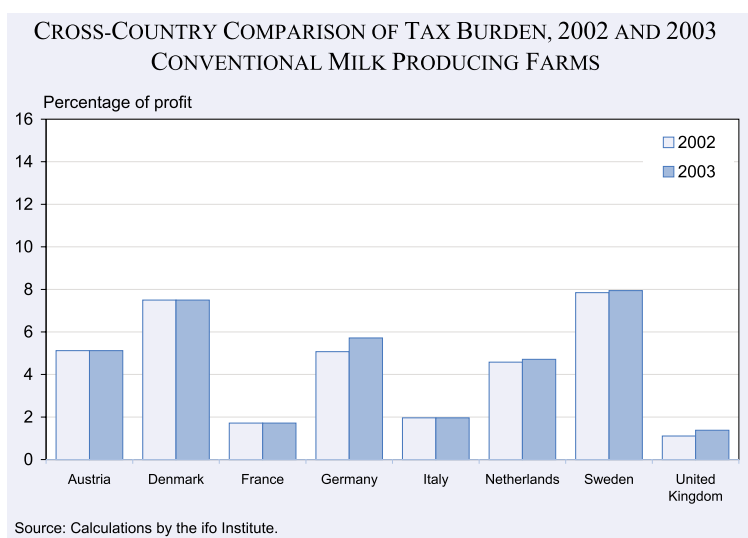
increasing competition in the agricultural sector following the introduction of the euro. Moreover, the forthcoming EU enlargement and the accession of countries with a high agricultural orientation will lead to further problems.

The determination of the tax burden resulting from the different regulations and related to the profit of a model agricultural entity is thus a central issue. The analysis shows, for instance, that German tax regulations lead to a high tax burden on the employed production factors compared to important competitors in the agricultural sector such as France or Italy.

Moreover, this study provides a solid foundation for the present discussion regarding the effects of taxes as steering devices towards the restructuring

Figure 3

CROSS-COUNTRY COMPARISON OF TAX BURDEN, 2002 AND 2003
CONVENTIONAL MILK PRODUCING FARMS

Source: Calculations by the ifo Institute.

Figure 4

CROSS-COUNTRY COMPARISON OF TAX BURDEN, 2002 AND 2003
CONVENTIONAL PROCESSING AGRICULTURAL ENTITIES

Source: Calculations by the ifo Institute.
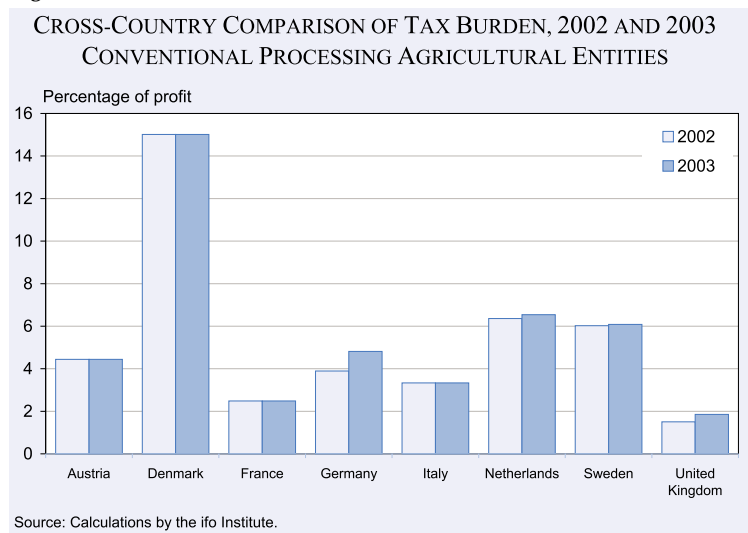
of the agricultural sector. We therefore show which countries employ ecological taxes and what kind of instruments tend to be primarily used. In general, the findings suggest that the tax regulations on agricultural means of production do result in clear differences in the tax burdens. The German, Swedish and Danish regulations lead to rather high burdens. Surprisingly, it appears that environmentally-friendly agricultural entities are more heavily taxed than conventional ones in Germany. Moreover, it is shown that applying ecological taxes on agricultural inputs did not achieve the desired results. However, it can be asserted that without such taxes and excise duties, the burden on cultivated fields derived from fertilisers and pesticides would be above the present levels.

Figure 5

CROSS-COUNTRY COMPARISON OF TAX BURDEN, 2002
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Source: Calculations by the ifo Institute.

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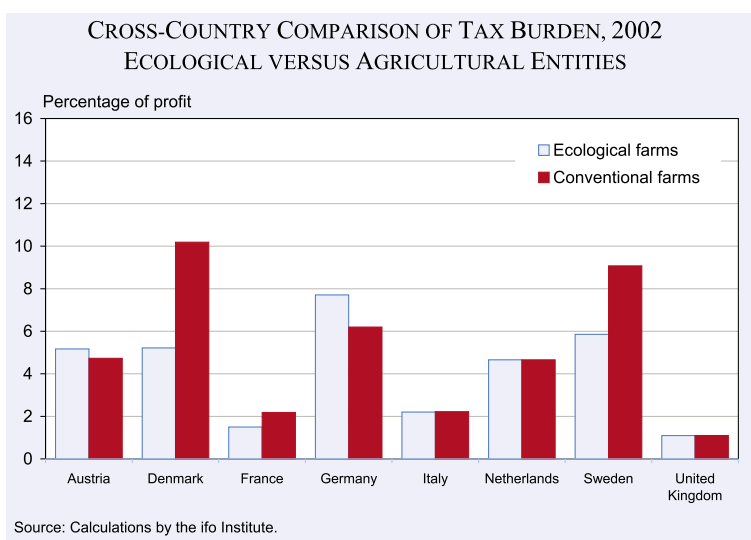
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Assessing Old-age Pension Benefits: The Rules Applied in Different Countries

Martin Werding*

A fundamental set of institutional rules that governs the current stance and future course of public pension finances relates to the assessment of individual pension benefits accruing as regular old-age pensions. Other entitlements, e.g. for disability pensions and survivor benefits, are often derived from these standard procedures. The following survey may thus provide useful materials for comparing important features of pension systems across countries or investigating their financial viability through in-depth analyses. It covers qualifying conditions and pension formulae in the countries of the former EU-15, plus Switzerland and the US. In addition, special rules applying to early retirement, the treatment of spells of unemployment and child-rearing, as well as the indexation of benefits are included in the survey. Unless otherwise stated, the legal framework taken into consideration is that of 2002.[1]

Qualifying conditions, statutory retirement age and early retirement

Entitlements to receive old-age pensions are usually tied to fulfilling certain qualifying conditions, notably having worked or having paid contributions for some minimum time span. In countries with universal pension schemes that are meant to provide some basic amount of pension benefits to the entire population, similar rules exist regarding the period of residence. Longer periods of labour force participation, in which contributions are being paid, or longer periods of stay are required for entitlements to receive a "full" amount of ben-

efits based on the standard pension formula, i.e., earnings-related benefits without any reduction or a maximum basic amount. Once, these qualifying conditions are met, withdrawing benefits is usually possible starting from a specified age, the statutory retirement age. Earlier receipt of old-age pensions is often possible, but may be subject to reductions of annual benefits that go beyond the pure effect of shorter work biographies. Table 1 summarises the main qualifying conditions for public pension schemes operated in the countries covered here.

The figure shows the statutory retirement age for both males and females and compares it with the effective age at withdrawal from the labour market observed in the same set of countries. In some countries, there is no statutory retirement age in the strict sense of the word; there – e.g., in the US – we use information regarding the age threshold from which old-age pensions can be received without any reduction due to early retirement. Changes in statutory retirement ages are under way, or are already scheduled for a more remote future, in several cases. For instance, in the US the threshold embodied in social security legislation is currently being increased and will reach 67 for males as well as females in 2027. In Denmark, on the other hand, the statutory retirement age is being reduced from 67 to 65 for both sexes starting from 2004. Lower thresholds applying to women are, or will be, abolished in Austria (between 2024 and 2033), Belgium (in 2009), Germany (until 2005), Greece (for those entering insurance 1993 or later), the UK (between 2010 and 2020); in Switzerland, the threshold for women will be increased to age 64 in 2005.

Building on the current legislation, the statutory, or legally-defined, retirement age is thus basically 65 throughout the countries considered here at some point in time in the future. The main exceptions are the US and France, where it will continue to be at age 60 for males and females. Only in Italy and Switzerland, will there be a lower statutory retirement age (60 and 64, respectively) for females. Nevertheless, the figure also demonstrates that the statutory retirement age is not a good predictor for actual retirement decisions. Figures regarding the effective age at withdrawal from the labour market given there are taken from Scherer (2002). They include exits that do not immediately lead to old-age pension take-up but, according to national laws

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[1] The materials collected here are taken from a comparative survey prepared by researchers based at Ifo's departments for Social Policy and Labour Markets and for Public Finance (R. Fenge et al. 2003). The Ifo Institute was commissioned with this study by the German Federal Department of Finance. Information provided in this survey is based on various sources, above all on the MISSOC_online database set up by the EU Commission (2001) and the reports on "Social Security Programs Throughout the World" collected by the U.S. Social Security Administration (2002-03), augmented and validated by extensive research in the Internet platforms of national pension administrations.

Table 1

Qualifying conditions for regular old-age pensions[a]

	Minimum qualification periods	Entitlements to receive full benefits[b]
A	15 years of contributions, or 25 years of insurance, or 15 years of insurance within the last 30 years	40 years of insurance
B	None	45 years in employment (women: 43 years; increased to 45 until 2009)
CH	1 year of contributions	44 years of contributions (women: 40 years)
D	60 months of contributions	Reaching the statutory retirement age
DK	Basic pension (Folkepension): 3 years of residence starting from age 15 (foreigners: 10 years, 5 of which immediately preceding retirement) Supplementary pension (ATP): none Premium pension (SP): none	40 years of residence starting from age 15 Non-fragmented record of contributions Not defined
E	15 years of contributions, 2 of which within the 15 years immediately preceding retirement	35 years of contributions
F	1 quarter of insurance	159 quarters of insurance (160 starting from 2003)
GR	4,500 work days of contributions	35 years of contributions (if membership started before 1993: 10,500 work days)
I	20 years of contributions	37 years of contributions (35 years starting from age 57)
IRL	24 weeks of contributions per year on average (10 for Old-Age [Contributory] Pensions); 260 weeks of contributions in total (520 starting from April 2012); coverage starting at least 10 years before retirement	48 weeks of contributions per year on average
LUX	10 years of insurance (contributions are rebated if condition is not met)	40 years of insurance
NL	None	Residence from age 15 to 65
P	15 years of contributions or other pensionable periods	40 years of contributions
S	None	Not defined
SF	Basic pension (Kansaneläke): 3 years of residence starting from age 16 Supplementary pension (Työeläke): 1 year of contributions on annual wages exceeding € 690.97 (2002); self-employed and farmers: none	40 years of residence starting from age 16; no earnings-related benefits or foreign pensions 40 years in employment
UK	Basic pension: 10 years of contributions Supplementary pension (SERPS[c]): passing once the income limit of 3,415 £ or 5,285 € p.a. (2002)	44 years of contributions (women: 39 years) Not defined
USA	At least 1 quarter of insurance per year starting from age 21	Not defined

[a] For benefit entitlements before reaching the statutory retirement age: see Table 2. – [b] I.e., earnings-related benefits without any reduction or a maximum basic amount. – [c] In 2002–03: replaced by the State Second Pension ("S2P").

and habits in this area, may imply a period of formal unemployment or disability, with other categories of benefits being received. Results are based on contingent exit probabilities and calculated in a similar fashion as life expectancies, given the relevant mortality rates.[2]

Effective ages at withdrawal show much more variation across countries than legally-defined retirement ages would imply. In more than half of the countries, the former is substantially lower than the latter; only Portuguese men as well as Austrian and British women appear to work even longer than required by pension law. In spite of different levels, the ranking of countries is almost identical for males and females, with Luxembourg and Italy having very low effective retirement ages in both cases, and Portugal and the US having rather high ones. Finland and France appear to be particular in that both sexes effectively retire at similar ages there.

The case of France also illustrates that statutory retirement ages are not the only rules affecting

[2] Here, we use the latest "static estimates" available that Scherer (2002) prepared using cross-section data referring to 1999 or earlier years. For Belgium the latest relevant observations were from 1976.

STATUTORY RETIREMENT AGE (2002) AND EFFECTIVE AGE AT
WITHDRAWAL (1999)

Males

Age (by years)

	LUX	F	I	SF	NL	E	D	GR	UK	A	DK	IRL	S	CH	USA	P	B
	58.4	59.4	59.4	59.8	60.3	61.0	61.1	61.9	62.7	62.8	62.8	63.4	64.0	64.6	65.0	65.5	n.a

Females

Age (by years)

	LUX	I	E	NL	GR	F	D	SF	A	IRL	DK	CH	UK	P	S	USA	B
	55.4	55.7	56.3	56.7	57.4	58.8	59.0	59.9	60.1	60.1	60.4	60.6	61.0	61.9	62.0	63.1	n.a

☐ Statutory retirement age (old-age pensions, 2002)
▣ Effective age at withdrawal (1999)

Data for Germany relate to West-Germany only; results indicated for Germany, Greece, the Netherlands and Sweden are based on 1998 data, those for Ireland and Luxembourg on 1995 data.

Source (effective age at withdrawal): Scherer (2002).

effective retirement ages is larger. Exceptions are Finland and the Netherlands, where it is access to unemployment benefits and disability pensions, respectively, which creates the huge gaps. In both cases, the relevant laws can be seen as creating alternative channels towards early retirement for older workers with poor prospects for re-employment.

In most countries, drawing on old-age pensions before reaching the legally-defined retirement age is possible, though often under additional conditions regarding individual work biographies only. Also, benefits are usually reduced against the amount of old-age pensions that would accrue given the same work biography if the statutory retirement age were reached. On the other hand, reductions are often smaller than would be required for actuarial fairness, considering the shorter period where contributions are made and the extended period of retirement.[3] Table 2 summarises the rules regarding early retirement with (reduced) entitlements to receive old-age pensions.[4] Note that the reduction rates given there are meant to reduce current pension benefits over what the effect of a shorter work record, or a smaller number of years with contributions, would be in pension schemes with benefits related to earnings or contributions.

Pension formulae and indexation of benefits

Upon retirement, old-age pension benefits are assessed using the (standard) pension formula applied in each country. In most cases, it establishes a functional relation between average covered earnings received during the insurance period – usually indexed to how wages have grown over time – and

actual retirement decisions. In addition, opportunities to retire early (see Table 2) as well as the rules governing disability pensions and unemployment benefits are potentially important here. The fact that there are no early-retirement options in France may thus explain that the effective age at withdrawal of French males is in a similar range as those in Luxembourg, Italy and Finland. More generous rules regarding early retirement usually imply that the difference between statutory and

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[3] For more detailed analyses see, for instance, Blöndal und Scarpetta (1999). Calculating reductions that are actuarially fair requires specific information regarding contribution rates, future benefit levels, life expectancies and potential peculiarities of the standard benefit formula. Results are also contingent on the discount rate assumed for calculating present values, or on how it relates to the rate used for indexing benefits. Furthermore, actuarially fair reductions are not linear in the number of years of early pension take-up and thus cannot be represented by uniform rates. Rough calculations for the case of Germany indicate that fair reductions should be between 7 percent and 9 percent a year in this country. It may not be appropriate to apply the same result to other countries with different pension arrangements, but only in Finland, Greece, Switzerland, Spain, and the US, annual reductions are likely to come close to being actuarially fair.

[4] Special early-retirement programmes that exist, or existed, in countries with severe umemployment problems are not covered here.

Table 2

Conditions for early retirement

	Early take-up of old-age pensions possible...		
	From age...	With annual reductions by...	Additional conditions
A	61.5 (56.5 for women)	(Depending on age and insurance period)	None
B	60	None	28 years in employment (increased to 35 years until 2005)
CH	63 (61 for women)	6.8 % (3.4 % for women born 1942–47)	None
D	63 (60 for unemployed born before 1952 and women) 62 starting from 2012	3.6 %	35 years of insurance (Unemployed: 15 years, 8 of which during the last 10 years; women: 25 years, 10 of which after age 40) 35 years of insurance
DK	Folkepension: 60 ATP (–2004): 65	91% (100%) of unemployment benefits at age 60–62 (62–65) 5 %	25 years of contributions to a private early retirement fund None
E	60	8% (7% in cases of unvoluntary withdrawal)	Entitlements built up before 1967 or in cases of heavy or dangerous work
F	–	–	–
GR	60	6 %	15 years of contributions (membership before 1993: 4,500 work days)
I	57	depending on age	35 years of contributions (40 years: no age threshold)
IRL	–	–	–
LUX	57	–	40 years of insurance
NL	–	–	–
P	55	4.5 % (0 % for unemployed aged 60 or above)	30 years of contributions
S	–	–	–
SF	60	Basic Pension: actuarial reduction Supplementary Pension: 4.8 %	None None
UK	–	–	–
USA	62	6.67 % for the first 3 years (5% for further years)	None

the length of this period on the one hand and monthly or annual benefits at award on the other. Often, the assessment is not based on all the years of insurance but only on a limited number of ("best") years with the highest earnings. In basic pension schemes, benefits are more uniform but never entirely a lump sum. Instead, with shorter insurance periods they are usually reduced pro rata temporis. Table 3 describes in some detail, how pension benefits are being assessed in the different countries. There are some common patterns across countries, mainly relating to the question of whether national pension systems are mainly based on Bismarckian "social insurance" schemes, with earnings-related benefits, or on the Beveridgean model, where flat-rate pensions dominate the picture (cf. Werding 2003 for an extended discussion). But the precise formula

used for assessing pension benefits is nowhere he same.

After award, i.e., during the retirement period, further adjustments in individual amounts of benefits depend on the method of indexation (see Table 4). As a rule, there are annual up-ratings that either correspond to CPI inflation, such that benefits are constant over time on real terms, or follow the growth rate of wages. In the latter case, pensions keep track of increases in the living standard of the active population; at the same time, any growth in productivity or wages does not alleviate financing for current pensions – on a pay-as-you-go basis, as this is mostly done – but leads to higher benefit entitlements which have to be met by current contributions. The countries considered here are about evenly split between these two approaches, additional regulations or discretionary deviations

Table 3

Pension formulae for (standard) old-age pensions at award

	Main determinants	Assessment of monthly benefits
A	Earnings Insurance period Retirement age	Reference income[a] x years of insurance[b] x 2% x 14/12[c] a) Average monthly earnings in the "best" 15 years of insurance (indexed to wages) x 15/17.5 b) Up to a max. of 40 years; minus 1.5 years per year of early take up c) 14 monthly payments per year
B	Earnings Insurance period Marital status Sex (until 2009)	Cumulated reference income[a] x 60%[b] x 1/45[c] / 12 a) For years before 1955: € 10,788; 1955–1980: gross earnings without an upper limit (blue-collar workers, 1955–1957: € 52 per day); starting from 1980: gross earnings below the upper limit b) 75% for beneficiaries with dependent spouses c) For women: 43 (increased to 45 until 2009)
CH	Earnings Insurance period	G1[a] x Minimum pension (MP, 2001: CHF 1,030, € 700.50) + G2[b] x (reference income[c] + child-rearing credit[d]) a) G1 = 0.74 (1.04 if benefit > 36 x MP; 2.00 if benefit > 48 x MP) b) G2 = 13/600 (8/600 if benefit > 36 x MP; 0 if benefit > 48 x MP) c) Average annual earnings (indexed to CPI inflation and wages) d) = 3 x annual MP in the year of award
D	Earnings Insurance period	Individual earnings points[a] x current pension base amount[b] a) Sum of annual earnings points (ratio of individual gross earnings over average gross earnings of those actively insured in each year) x pension award factor (= 1.0 at the statutory retirement age) b) Variable base amount for assessing monthly benefits (adjusted annually); July 2002 to June 2003: € 25.86 (€ 22.70 in East-Germany)
DK	Basic pension (Folkepension): Period of residence Marital status Supplementary pension (ATP): Contributions Premium pension (SP): Contributions	Base amount[a] x years of residence[b]/40 a) Depending on marital status; reduced if beneficiaries continue to work b) At age 15–65, up to a maximum of 40 years Contributions + interest earned (small benefits are paid out as a lump sum) Contributions + interest earned = benefit payments for 10 years
E	Earnings Insurance period	Cumulated reference income[a] x benefit factor[b] a) During the last 15 years (indexed to CPI inflation) / 17.5 b) 50% for the first 15 years of insurance + 3% for each year between 15 and 25 years of insurance + 2% for further years; max. 100%
F	Earnings Insurance period Retirement age	Reference income[a]/12 x t[b] x n[c]/160 a) Average annual earnings in the "best" 20 years of insurance (indexed to wages, 25 years until 2008) b) = 50% at age 65 (50% – 1.25% x no. of quarters missing) c) No. of quarters of insurance (max. 160)
GR	Earnings Insurance period	Reference income[a] x years of insurance x 1.714% / 12 a) Average annual earnings of the last 5 years of insurance (if membership started in 1993 or later)
I	Contributions Retirement age	Cumulated contributions[a] x conversion coefficient[b] /12 a) Indexed to average GDP growth in the last 5 years b) Depending on retirement age (between 57 and 65) (This new formula is applied to contributions paid in 1996 or later.)
IRL	Retirement pension: Average annual contributions Old-age (contributory) pension: Average annual contributions	Average no. of contributions — Pension benefit (2002) 48 or higher — €147.30 x no. of weeks per month 24 – 47 — € 144.40 x no. of weeks per month Average no. of contributions — Pension benefit (2002) 48 or higher — € 147.30 x no. of weeks per month 20 – 47 — € 144.40 x no. of weeks per month 15 – 19 — € 110.50 x no. of weeks per month 10 – 14 — € 73.70 x no. of weeks per month

continued: Table 3

	Main determinants	Assessment of monthly benefits
LUX	Earnings Insurance period	Cumulated reference income[a]/12 x 1.78% x adjustment[b] + CPI x € 36,4716 x years of insurance[c]/40 a) Indexed to CPI inflation b) Standard-of-living adjustment (2002 = 1.257) c) Up to a maximum of 40 years
NL	Period of residence (or employment) Marital status	Base amount[a] x 0.02 x years of residence[b] a) Singles: € 912.69 per month; couples, if dependent spouse reaches age 65 before 2003: € 1,258.22 per month (2002) b) Up to a maximum of 50 years
P	Earnings Insurance period	Reference income[a] x years of insurance[b] x 2% x 14/12[c] a) Average indexed monthly earnings of the "best" 10 out of the last 15 years of insurance (indexed to CPI inflation) b) With at least 120 days covered with earnings c 14 monthly payments per year
S	Income pension (Inkomstpension): Contributions Cohort life expectancy Premium pension: Contributions	Cumulated contributions[a] x life-expectancy coefficient[b] /12 a) Indexed to wages (deduction for administrative costs) b) Based on contingent cohort life expectancy (at age 65) Contributions + interest earned
SF	Basic pension (Kansaneläke): Period of residence Marital status Supplementary benefits Supplementary pension (Työeläke): Earnings Insurance period	Base amount[a] x years of residence/40 a) Between € 390 and € 464 depending on marital status and community of residence; reduced against other pensions (by 50% in the case of Työeläke benefits) Reference income[a] / 12 x (1.5% x years of insurance at age 23–59 + 2.5% x years of insurance at age 60- 65)[b] a) Avearge annual earnings of the last 10 years b) Up to a maximum of 60 percentage points
UK	Basic pension: Insurance period Marital status Supplementary pension (SERPS): Earnings	Full weekly flat rate[a] x pension factor[b] x weeks per month a) Singles: £ 75.50 (€ 124.60); couples: £ 120.70 (€ 199.20; 2002) b) 100% with 44 years of insurance (39 years for women; increased to 44 between 2010 and 2020), 25% with 10 years of insurance, close to linear adjustment with 11–43 (39) years of insurance. Cumulated reference income[a] x 25%[b] / years of contributions a) Earnings above the lower earnings limit (indexed to CPI inflation) b) Linear reduction to 20% between 1998/99 and 2009/10. (Formula redefined for the new "S2P" system starting from 2002/03; accrual factors now vary by earnings brackets)
USA	Earnings Insurance period	Reference income[a] x PIA factor[b] a) Average indexed monthly earnings in the "best" 35 years of insurance (indexed to wages). b) The first $ 592 of averaged indexed earnings are weighted with 90%, between $ 592 and $ 3,567 the weight is 32%, above $ 3,567 the weight is 15% (earnings thresholds: 2002)

sometimes making sure that pensions are subject to standard-of-living, not just cost-of-living, adjustments even where the basic rule is CPI indexation.

What the standard pension formula often does not reveal is that, in addition to periods of labour force participation with contributions being paid to the pension system, some privileged elements of typical work biographies – in particular, spells of unemployment and child-rearing – may be included in one way or another in the assessment of pension benefits. This is where we will turn before concluding.

Treatment of spells of unemployment and non-participation

In virtually all public pension schemes where benefits are tied to the number of years of insurance, or to wages earned or contributions made during this period, benefit formulae are augmented by specific rules on how to treat certain times of non-employment or non-participation. Important examples are given by periods of schooling or other forms of education or formal training, military services, unemployment, sickness or other

Table 4

Indexation of benefits after award

	CPI indexation	Wage indexation	Remarks
A		✓	Net wages
B	✓		Max. 2% + annual standard-of-living increase
CH	✓	✓	Mean
D		✓	Gross wages .\. pension contributions .\. rate of subsidised savings
DK *Basic pension (Folkepension):*		✓	Up to –0.3%, if $\hat{w} > 2.0\%$
Supplementary pension (ATP):			Only if reserves sufficient
E	✓		
F	✓		
GR		✓	
I	✓		100% to 75% of i, depending on the amount of benefits
IRL			Discretionary
LUX	✓		
NL		✓	Bargained wages
P	✓		
S	✓		+ GDP growth – 1.6%
SF *Basic pension (Kansaneläke):*	✓		
Suppl. pension (Työeläke):	✓	✓	Weighted 80 : 20
UK	✓		
USA	✓	✓	The latter if $i > \hat{w}$

forms of incapacity to work, motherhood, or an extended period of time during which parents may take care of small children. In systems where benefits are tied to residence alone, special rules applying in these cases do not make sense. In systems where benefits are basically a flat rate, defining a maximum time frame to be taken into account in each of these cases suffices. But in systems with earnings-related benefits, both the time to be taken into account and the value to be attached to it needs to be defined. Like the pension formulae themselves, national regulations in these areas are very diverse. We therefore confine our attention to roughly indicating whether or not there are special rules applying in the two cases of unemployment and periods of child-rearing, adding a few remarks on the nature of these rules where appropriate.

In the presence of high-level unemployment that many European countries are continuously faced with since the 1970s, rules regarding the inclusion of unemployment spells in the assessment of old-age pensions are obviously important. Where they exist, these rules sometimes limit the maximum period of time to be taken into account (e.g., in Greece) or they are effective only as long as there are entitlements to receive specific types of unemployment benefits (in Austria, Denmark, Germany, or Italy). On the other hand, no such rules exist in some countries even if pension benefits are related to earnings or contributions (in Switzerland, Luxembourg, Sweden, and the US, for instance).

Starting from different levels, there is a uniform trend towards higher female labour force participation across all the countries considered here. Taking into account the changes in the division of labour between men and women within couples and families, pension reforms often aim at establishing models with higher independent, non-derived benefit entitlements for females. As extended periods of child-related non-participation are effectively far more important for the typical biographies of women, rules regarding the treatment of these spells in the assessment of pension benefits are an important element of such models.[5] Where they exist, the relevant rules are often very recent or have been amended during the last few years. Usually, they are neutral in that they can be applied to either parent of a given child (or to both parents for different sub-periods of a parental leave). Again, special rules meant to compensate for benefits foregone are not needed where benefit entitlements are not, or only to a very limited extent, linked to individual earnings

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[5] In unfunded pension schemes, rules of this kind may also be important for another reason: since future benefits derived from these schemes are effectively funded through the human capital embodied in current children, including periods of child-rearing in the definition of benefits – irrespective of the labour force participation of care-taking parents – may be appropriate to internalise a potential externality. See, e.g., Cigno (1993) or Sinn (1997) for a discussion of the economic rationale of such policies.

Table 5

Spells of unemployment or child-rearing in the benefit assessment

	Inclusion of unemployment spells...	Inclusion of child-rearing spells...
A	✓ (For periods with unemployment insurance benefits)	✓ (Up to 48 months per child if insured individual ever paid contributions)
B	✓	✓ (Motherhood leave)
CH	–	✓ (Fictitious supplements to wages earned until children reach age 16)
D	✓ (For periods with unemployment benefits)	✓ (36 months per child are being counted as insurance period, with contributions on 100% of average earnings being paid from the general government budget; with less-than-average earnings: increase in earnings – related entitlements built up during the 7 days that follow; increase in survivor benefits)
DK	*Basic pension (Folkepension): –* *Supplementary pension (ATP): ✓ (for periods with benefits from the labour market re-integration programme, contributions being paid by the responsible benefit administration)* *Premium pension (SP): –*	– ✓ (Motherhood leave, with contributions being paid by the responsible benefit administration) –
E	✓	✓ (First year of parental leave per child under 3 is being counted as insurance period)
F	✓	✓ (8 quarters per child taken care of for nine years or more until age 16 are being added to the insurance period; alternatively, up to three years of parental leave can be accounted for)
GR	✓ (For periods with unemployment insurance benefits for up to 200 days during the last 10 years before entering retirement)	✓ (Between 3 and 6 months of parental leave are being counted as insurance period; for mothers, early retirement is possible starting from age 55)
I	✓ (For periods with unemployment insurance benefits)	✓ (Motherhood leave; up to 6 months of parental leave are being counted as insurance period; for mothers, the statutory retirement age is reduced by up to 12 months; alternatively, mothers can opt for an increased "conversion coefficient" ficticiously extending their work record by up to 2 years)
IRL	✓	✓ (For *Old-Age* (*contributory*) *pensions*, the number of qualifying years is reduced by up to 20 years per year of child-care of children under age 12)
LUX	–	✓ (24 months per child are being counted as insurance period, 48 months if at least two other children are living in the household)
NL	–	–
P	✓	✓ (Up to 2 years of parental leave per child can be accounted for)
S	*Income pension (Inkomstpension): –* *Premium pension (Premiereservsystem): –*	✓ (up to 4 years of parental leave per child can be accounted for, based on the "best" out of three alternative approaches generating different results for different work records before and during the child-care period) –
SF	*Basic pension (Kansaneläke): –* *Supplementary pension (Työeläke): –*	✓ (If parental leave lasts for up to 1 year) –
UK	*Basic pension: ✓ (if individuals are actively seeking employment)* *Supplementary pension (SERPS): –*	✓ (The number of qualifying years is reduced to a minimum of 20 years through child-care for children under age 16 as one out of several "home responsibilities") –
USA	–	–

or contributions. Given that, they are basically absent only in Belgium and the US, as well as in the supplementary pension schemes in Denmark, Finland and the UK.

Table 5 summarises the rules regarding the inclusion of unemployment spells and periods of child-rearing in the assessment of old-age pension benefits in all the countries covered here.

Conclusion

Even with detailed information regarding the definition of old-age pension benefits, assessing the generosity of national pension schemes on a comparative basis is not an easy task. A number of difficulties can, in principle, be dealt with using the kind of information provided here, viz. those arising from differing approaches to redistributing income between individuals or households alongside many dimensions – with respect to life-time earnings, timing and length of the insurance period, spells of unemployment and non-participation, plus some other details not fully covered in this survey. Once a set of comparable households of pensioners is defined – comparable, first of all, in terms of household composition, income levels and work records – one could determine the benefit entitlements that accrue in each of these cases and in each country and relate them to earlier household income or wage earnings (thus obtaining "replacement rates" that are corrected for international differences in income or wage levels) or average household incomes of younger cohorts (obtaining "quasi-replacement rates" which then reflect the relative income position of people in retirement vis-à-vis those who are currently active). Considering the various differences in relevant rules, it is unlikely that comparisons of this kind would offer a very clear-cut picture. For example, the ranking of benefit levels may not be invariant with respect to the levels of covered earnings or the total length (and specific nature) of spells of unemployment and non-participation.

So far, detailed calculations regarding old-age pension benefits that are based on more than just one standard biography of pensioners – usually with a next-to complete record of labour force participation – are however lacking. In existing work (see, e.g., OECD 2001 for the most careful approach to doing such calculations for only nine countries), even the coverage of different countries is rather limited. Yet, what the results derived from comparative studies suggest[6] is that, in terms of "quasi-replacement rates" based on total retirement income, pensioners around the world enjoy a relatively uniform standard of living (at between 85 and 100 per cent of per-capita income of individuals in their active period of life). At the same time, the role of public pensions, or the "public–private mix", within total retirement income of typical pensioners may be very different across the countries considered here. This should be kept in mind as the major source of heterogeneity of national pension systems (see, again, Werding 2003) if the information provided in this survey were used to spell out differences in existing public pension schemes in more detail than it is usually done.

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[6] Another potential source of cross-country comparisons regarding pension benefit levels is Eurostat (2000), for a selection of 13 EU countries. Here, results are not based on simulations but on microdata provided through the European Community Household Panel. Unfortunately, there is no proper distinction between first and second-pillar pensions in this study and, as far as the countries considered overlap, results are not fully in line with those of the OECD project mentioned in the main text. Yet, the general message is about the same.

WELFARE TIME LIMITS IN THE UNITED STATES

CHARLES MICHALOPOULOS*

Introduction

In 1996, the US Congress passed and President Clinton signed welfare legislation that made dramatic changes to the benefits that were provided to poor families. This legislation – the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) – replaced welfare as an entitlement paid for by the federal government with a block grant that provided a fixed amount of funds to states each year to provide welfare benefits, but allowed states a great deal of latitude in designing their welfare systems. The legislation also eliminated federal funding for certain groups of legal immigrants and specified that most families could receive welfare benefits through federal funds for no more than 60 months.

The 60-month time limit on federal welfare benefits was perhaps the most discussed aspect of the legislation. This paper describes the motivation behind time limiting welfare benefits, how states have implemented time limits, and what is known so far about the effects of time limits. In short, time limits were the latest attempt to motivate welfare recipients to look for work and were intended to send a strong message that the welfare system had changed. However, with the responsibility for welfare policy devolved to the states, there are really 51 different time limit policies.[1] Some states have shorter time limits than in the federal legislation and interpret time limits strictly, while other states have no time limit on benefits. The best estimates suggest that the effects of time limits are fairly small, and that other policies such as work requirements and financial incentives have much larger effects on employment, welfare use, income and poverty.

Why time limits?

Time-limiting government benefits for the poor might be considered a draconian policy that could cause widespread harm to vulnerable families.

Proponents of time limits, however, argued that time limits and similar policies were needed because the entitlement system had fostered a "debilitating culture of dependence" (Rector 2001). Time limits and the related policy of sanctions sent a strong signal that welfare benefits were temporary and that welfare recipients had to begin preparing themselves for the world of work. To understand why the federal government thought this message was needed, it helps to know a little of the history of welfare in the US.

As part of Depression-era legislation, the Aid to Families with Dependent Children (AFDC) program was designed in the 1930s as a small program to help needy widows stay home to care for their children. By the late 1960s, however, it had grown into a much larger program serving mostly divorced, separated, or never-married mothers and their children, many of them members of racial and ethnic minorities. The changes in the size and demographics of the AFDC caseload, coupled with changing views about whether mothers of young children should work, made the program increasingly unpopular in the eyes of the general public.

In 1967, Congress responded to this growing unpopularity by requiring parents receiving AFDC who had no preschool-aged children to register for work activities. Because of fiscal constraints and concerns about the ramifications for children's well-being, most states did not begin enforcing work-related requirements until the 1980s, and even then the requirements typically applied to a relatively small proportion of welfare recipients.

The federal Family Support Act of 1988 (FSA) tried to accelerate these efforts by increasing funds to states for employment-related services such as job search assistance, education, and training and by requiring states to ensure that a specified percentage of AFDC parents – including mothers of preschool-aged children – participated in such services. FSA also sought to ease the transition from welfare into work by requiring states to provide one year of child care subsidies and health insurance to recipients who left welfare for work.

Between 1989 and 1994, the national AFDC caseload increased by more than one-third, to more than 5 million families. In the tight budgetary environment that resulted, many states did not have the resources to enforce work-related requirements for AFDC parents aggressively. Welfare reform again moved into the national spotlight, particularly during the 1992 presidential campaign, when candidate Bill Clinton promised to "end welfare as we know it".

The 1996 federal legislation formally abolished AFDC, ended needy families' legal entitlement to cash welfare assistance, and created the TANF block grant (a funding stream that gives states a fixed amount of funds each year but also gives them broad flexibility to design programs for needy families). Congress also barred states from using federal TANF funds to assist most families for more than 60 cumulative months, although states were allowed to exempt 20 percent of the welfare caseload from this time limit. The legislation also required states to ensure that a larger fraction of welfare recipients were working or looking for work than was previously required.

Although time limits have received the most attention among the policy changes implemented in 1996, other changes are likely to have had a bigger effect on behavior and economic outcomes. Most states' TANF policies require welfare recipients to look for work when they begin receiving benefits (or in some cases before they begin receiving benefits), or be sanctioned (and lose benefits) otherwise. Most states have also increased the benefits that welfare recipients can keep when they go to work, a policy that has been found to encourage work, increase income and benefit children (Bloom and Michalopoulos 2001; Morris et al. 2001).

What states have implemented

Because the 1996 legislation gave states substantial leeway in devising their own welfare policies, there is considerable variation from state to state in how time limits were implemented. A total of 43 states (including the District of Columbia) have imposed time limits that can result in the elimination of a family's entire welfare grant (termination time limits). Twenty-six of these states have imposed a 60-month termination limit, while 17 states have imposed limits of fewer than 60 months.

The remaining eight states have not imposed termination time limits, although six of them have set reduction time limits, which entail canceling the adult share of the family's welfare grant while continuing to provide the child share. Two states – Michigan and Vermont – have welfare policies without either termination or reduction time limits. These states may have to use state funds to support children or entire families who reach the 60-month federal time limit after the state's 20 percent cap on exemptions is reached. Nearly half of welfare recipients in the United States live in states that either have no time limit or have a reduction time limit (Pavetti and Bloom 2001).

Even where states have termination time limits, many have introduced new programs to provide a safety net that ensures that families are not without some resources. In Connecticut, for example, a program run by nonprofit organizations helps families who have reached the state's time limit find work and meet basic needs (Bloom et al. 2002). In addition, the state extended the welfare benefits of many families who reached the time limit without earning more than their monthly benefit level. In Philadelphia, state funds are being used to extend benefits indefinitely as long as parents are working or participating in assigned activities for 30 hours or more per week. In addition, recipients' clocks are stopped for up to one year if they work 30 hours per week or work 20 hours or more per week and also attend an education and training program for 10 hours per week. As a result, few families in Philadelphia are expected to have their benefits terminated because of time limits (Michalopoulos et al. 2003).

It is important to remember that time limits, when they are used, apply only to cash welfare payments. A number of other means-tested benefits are available to families indefinitely. These include food stamps (a monthly benefit that can only be used to purchase food), public health insurance, child care subsidies and housing subsidies. For example, families can receive public health insurance through the Medicaid program as long as their income remains below a state-determined level (and children and pregnant mothers are eligible for public health insurance as long as family income is below 133 percent of the federal poverty level, which was $14,824 per year for a single parent with two children in 2003). A single parent with two children but no income could receive food stamps benefits

of $315 per month, which is more than the welfare benefit amount in some states. Likewise, housing subsidies limit a family's monthly rent to 30 percent of its income, although housing subsidies are received by only a small proportion of low-income families because of funding limits and limits on available housing.

Related to time limits is a policy called sanctions, which reduce or eliminate the benefits of families in which the parent fails to comply with required activities, such as looking for work or going to work. Like time limits, sanctions are intended to encourage families to work and reduce or eliminate a family's cash grant for some period of time. According to Pavetti and Bloom (2001), 37 states eliminate the family's entire grant for some period of time if the parent does not comply with work-related requirements. In seven of those states (Delaware, Georgia, Idaho, Mississippi, Nebraska, Pennsylvania and Wisconsin), continued noncompliance can result in a family's grant being permanently eliminated, as it is when a family reaches a lifetime time limit (Goldberg and Schott 2000).

In many states, sanctions affect many more families than do formal time limits. In Philadelphia, for example, in October 2002, more than 2,000 families were being sanctioned for not complying with work-related requirements, but only 68 families had lost TANF benefits forever because of continued noncompliance (Michalopoulos et al. 2003). In fact, as a result of the policies described earlier, few families in Philadelphia are expected to lose benefits because of welfare time limits. In Miami-Dade County, Florida, between October 1998 and June 2002, 960 cases each month lost benefits for some time because of sanctions, while only 65 cases per month lost benefits because of the state's time limit (Brock et al. 2004).

Effects of time limits

This section briefly reviews empirical research on how time limits have affected employment, welfare receipt and income. One point is clear: it is difficult to determine what effects time limits have had because states implemented time limits as part of larger packages that included other policies. Nevertheless it is possible to gain some insights by looking at differences in outcomes across states that have implemented different sets of policies

and by comparing the results of random assignment studies of welfare policies with time limits to other random assignment studies of welfare policies that did not include time limits. It is important to remember, however, that most of the evidence about the effects of time limits comes from a period when the US economy was growing and jobs for low-income workers were relatively plentiful.

Employment and welfare

Placing a time limit on welfare receipt could affect people's behavior in several ways. First, it might discourage people from moving onto welfare in the first place. Second, it might encourage welfare recipients to leave the roles quickly (perhaps for work) in order to conserve the number of months before they reach time limits. Finally, people who remain on the roles despite time limits might at some point have their benefits reduced or canceled, and this might motivate them to go to work to replace their lost income, or it might simply reduce their income. Evidence is available primarily on the second and third questions.

The evidence does not suggest that time limits have induced people to go to work before they reach time limits. In four random assignment studies (in Connecticut, Delaware, Florida and Virginia), welfare recipients were assigned at random to either a program that included termination time limits or to a control group that was subject to the prior AFDC rules.[2] All four programs increased employment during the period before anyone had reached the time limits, but it is impossible to say to what extent these impacts were driven by the time limits as opposed to other program features (such as enhanced earned income disregards and employment services). Moreover, in each case the impact on employment was no larger than the impacts of many earlier programs that did not include time limits. Grogger, Karoly and Klerman (2002) point out that two nonexperimental studies find that anticipating time limits does encourage welfare recipients to work, but they are unwilling to draw strong conclusions from only two studies.

There is stronger evidence that some groups of welfare recipients have left the rolls in order to conserve their welfare eligibility for a later time.

[2] See Bloom et al. (2002) for information on the Connecticut study; Fein and Karweit (1997) for Delaware; Bloom et al. (2000) for Florida; and Gordon and Agodini (1999) for Virginia.

Several nonexperimental studies have noted that families whose youngest child is near adulthood will be ineligible for welfare before they reach time limits because their children will be adults (Grogger and Michalopoulos 2003; Grogger 2000, 2002, forthcoming). By contrast, families with very young children should have the greatest incentive to conserve their months of benefits. Using this logic, the studies found in a number of different data sources that families with younger families left welfare faster than families with older children in response to welfare time limits.[3] Results from a random assignment study in Vermont likewise indicate that people went to work or left welfare in anticipation of a work-trigger time limit (Scrivener et al. 2002).

What happens when families' benefits are terminated at the time limit? Not surprisingly, time limits appear to reduce welfare receipt at that point. However, there is little evidence that reaching the time limit caused a large number of people to go to work. In the random assignment studies in Florida and Connecticut, for example, the programs' effects on employment were similar in the period immediately before families began reaching the time limit and the period immediately after families began reaching the time limit.

Income

When Congress and the states imposed time limits on welfare receipt, there was considerable concern that time limits would cut off the benefits of people who could not replace cash assistance with other income. If this concern were founded, time limits would make families worse off financially and might increase their material hardship.

The best evidence to date implies that time limits do reduce family income, but the amount that income is reduced depends on how time limits are implemented and the other aspects of welfare reform. In the Connecticut study mentioned above, imposing the time limit substantially reduced income for families whose benefits were terminat-

ed, but the average income in the program group was no lower than that in the control group, even after the time limit began to be imposed. This result may reflect the way Connecticut's time limit was implemented. Virtually everyone who reached the time limit but earned less per month than a standard welfare grant for their family size was given a six-month extension of welfare benefits, and families could in principle receive an unlimited number of such extensions. In other words, most people who lost benefits because of the time limit were earning so much that they would not have been eligible for welfare under AFDC rules in any case.

The story is only slightly different in the random assignment study in Florida. Although the Florida program granted few benefit extensions to families that reached its time limit, the policy did not result in significantly lower average income for people in the program than for people in the control group after families began reaching the program's time limit. This is partly because fairly few families reached the program's time limit and partly because many of them were working when they reached the time limit.

Although the results in the Connecticut and Florida studies are similar in many respects, other programs with time limits could generate different results. For example, a program that combined a generous disregard with a more strictly implemented time limit – that is, one in which few extensions were granted – might reduce average income after the time limit. However, nonexperimental analyses have likewise found little evidence that time limits affect income (Grogger, Karoly and Klerman 2002).

Summary

With regard to welfare time limits in the US, three points are worth remembering.

First, there is not one time limit policy, but 51 different time limits, one for each state plus the District of Columbia. Some states eliminate welfare grants for some families after as little as 21 months on the rolls, while other states use state funds to provide benefits indefinitely. Some states provide few extensions to families whose time clocks are used up, while others provide extensions to most families who are making a good-faith effort to comply with welfare rules.

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[3] In the random assignment studies in Connecticut, Delaware, Florida and Virginia, welfare recipients in the time-limited welfare program were generally no more likely than control group members to leave welfare in the period before anyone reached the time limits. However, all four programs included not only time limits but also enhanced earned income disregards (that is, disregards higher than those available under AFDC rules). Results in Grogger and Michalopoulos (2003) imply that the disregards kept some people on welfare longer, and thus masked the effects of time limits on welfare receipt.

Although welfare time limits were intended as a last-resort effort to encourage families to leave welfare for work, other policies have probably had more influence on the behavior of low-income families. Many more families have lost benefits by being sanctioned for not complying with welfare rules than have lost benefits by reaching welfare time limits. The effects of time-limited welfare programs on employment and earnings have been no greater than the effects of similar programs that did not have time limits, and work requirements and expanded financial incentives through the welfare system and the federal tax code appear to have more influence on recipients' behavior. While there is evidence that some families have left welfare to conserve their future eligibility for benefits, these effects are probably small compared to the number of families who have left welfare because of work requirements.

Finally, it is important to remember that cash welfare benefits are only part of the safety net in the United States. Families who reach welfare time limits remain eligible for benefits such as public health insurance and food stamps that together are more valuable than cash benefits for most families. In addition, many states have put into place safety net programs to make sure that families who reach time limits are not left destitute and to ensure that their children are not harmed. In short, states have made sure that the bark of time limits has been much worse than their bite.

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COMPETITIVE TENDERING AND CONTRACTING OF TEMPORARY WORK AGENCIES IN GERMANY

WOLFGANG OCHEL*

Introduction

In the wake of the general trend towards privatisation and deregulation in the last few years, public employment services have also been privatised in various OECD countries. After the OECD promoted privatisation in their "Jobs Study" of 1994 as a means to increase efficiency, Australia, in 1998, replaced its public employment service with a private "Job Network" of approximately 200 firms. Placement contracts were awarded to these companies in a tendering procedure. Performance is remunerated with state premiums based on placements (Lundsgaard 2002, 109; OECD 2001). In 2000 the Netherlands followed Australia's example – to name the two most important countries (de Koning 2004).

In addition to matching job-seekers with vacancies, counceling etc., hiring out of the unemployed can also be a means of procuring a permanent job. In Germany the placement-oriented hiring-out by private firms has been used since 1994, in particular since the implementation of the Hartz Commission' proposals by the federal government in 2003, as an instrument of labour-market policy. In order to ensure efficiency, private hiring-out is regulated and promoted in a way that has not been previously tried anywhere. In addition to a tendering procedure to select temporary work agencies, a degressive lump-sum per case and placement premiums are paid by the government for their services. The question arises as to whether the regulations and incentives selected lead to an efficient placement of the unemployed in regular employment. As initial results are now available, it is possible to make a provisional evaluation.

Private temporary work agencies and the public authorities' interest in placement

Inefficiencies that arise when public authorities hire out the unemployed can be counteracted – aside from internal administrative organisational and structural reforms – by having private temporary work agencies hire out the unemployed in a competitive market. Temporary work agencies endeavour to provide appropriate information with respect to the availability and quality of positions and applicants to those looking for work as well as to (potential) hiring-in firms. They bring together job offers and job seekers and thereby increase the matching efficiency. Competition between agencies contributes to increased efficiency.

The placement results of private temporary work agencies, however, can hardly satisfy the public authorities in times of high unemployment. There are, in particular, three reasons that have induced the labour office to exercise influence on the behaviour of private temporary work agencies in the form of regulations and financial incentives:

- From the point of view of hiring-in firms, the attractiveness of hiring-in depends largely on the fees they have to pay. In Germany experience has shown that temporary work agencies calculate twice the gross salary of their workers. With better-qualified workers the fee is somewhat higher, with less qualified workers somewhat lower. A certain demand for agency work develops with a given level of fees. By providing state subsidies the fees are reduced, the demand for agency work rises and thus the chances for final placement of the unemployed in the hiring-in firms are increased.
- In addition to the hiring fees, it is the quality of the offer that makes hiring-in attractive. As a result of market failure the quality can be quite low. Market failure exists if when placing a worker there is an information gap with respect to the quality of placement between the temporary work agency and the customer. This is likely to happen quite often, as the hiring-in company is only able to determine in the course of the working relationship whether the work agency has chosen and hired out a worker who meets his expectations. But if one market side has an information lead and thus a strategic advantage, the quality of the offer can deteriorate, as was shown by Akerlof, for example, in the used automobile market. A reduction in demand for agency work is the result, and temporary work agencies experience a loss of reputation. Such a

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development can be counteracted on the part of the temporary work agencies by self-regulation and building up a reputation (for example, in the form of quality seals). The state, on the other hand, can contribute to an increase in quality by establishing regulations for professional practice, by requiring licenses for private temporary work agencies or by selecting suitable agencies through tendering (Konle-Seidl 2002).

- In addition to the expansion of agency work, public authorities are particularly interested in final placement of the unemployed in the hiring-in firms. This, however, is not a goal followed by private temporary work agencies. They are not interested in their manpower being hired away. They prefer relatively short working periods in the hiring-in firms and thus hinder permanent placement. They also do not invest sufficiently in handling and qualifying their workers and do not keep up the contact needed for successfully integrating them in the hiring-in firms (Schröder 1997, 299). Furthermore, as they recruit only 30 percent of their employees from the reservoir of registered unemployed in Germany, they only partially fulfil the task of finding regular work for the unemployed (Jahn and Rudolph 2002).

In view of the dissatisfying results of private temporary work agencies, from the viewpoint of the public authorities, their activities have been supplemented since 2003 by so-called Personal Service Agencies (PSA), which are regulated and subsidised by the federal government. According to Art. 37c of the Social Security Code, Third Book (SGB III), all of the 180 local labour offices are obligated to set up at least one PSA. Its task is to hire out workers with a view to integrating them in the hiring-in firms as well as to provide further training for staff in work-free periods. The PSA contracts are tendered for in public competitions. The number and professional make-up of the PSA employees is determined largely by the local labour office and is described in the invitation to tender. The activities of the PSA are subsidised.

The tendering procedure

The tendering procedures involve the discretionary awards of PSA contracts by local labour offices according to the German regulations governing invitations to tender. The procedure involves three stages.

The pre-selection of agencies begins with an invitation to tender published in the Bundesausschreibungsblatt (Federal Register) and in the press. Based on this description, interested parties may submit applications to participate in the competition to the local labour offices. They must prove their reliability. Furthermore, they must also show evidence of their experience in commercial or non-profit hiring-out, private job search assistance or their involvement in active labour market policies. Having carried out such an activity in the last twelve months is sufficient proof. Lastly they must provide evidence of their performance. In general, this requirement is fulfilled if a private temporary work agency has employed at least 30 agency workers in the last twelve months. From the list of applicants the labour office selects suitable candidates, who are then given the opportunity to submit a tender.

The tender must include an offer with a basic fee (see below) as well as a detailed concept for the PSA, which clearly shows the quality of the competing tender. This concept must include specifics concerning the personnel and structure of the planned PSA, the collective agreement to be used, the strategy for acquiring contracts, the expected extent and use of work-free periods, as well as the achievable integration/placement rate, which can be used as a measure of success when deciding on contract extension. The offers are evaluated according to criteria connected with price and quality. It is thus a kind of beauty contest. The tender price is given a weight of 60 percent, the quality of the offer based on the PSA concept 40 percent. The PSA concept is summarily evaluated on a scale between one and ten. The joint evaluation of the tender price and the PSA concept is based on a formula that reflects the tendering price of the firm in question and that of the lowest offer as well as the quality points received for the firm in question and that of the company with the highest quality rating.

After the evaluation has been completed, the labour office negotiates with up to five bidders who have submitted the most economical offers. Finally a contract, which is usually limited to 24 months, is signed with one of the bidding companies.

This awarding procedure has advantages and disadvantages. By setting up a qualifying competition in advance, the number of bids and thus the variety of bids is restricted. Newcomers have a reduced

chance of participating. On the other hand, a restricted invitation to tender increases the success chances of the bidders so that they take greater care in preparing their bids, which in turn increases the quality. Furthermore, restricted tendering involves cost savings for the businesses as well as for the labour offices, as they have fewer bids to prepare or evaluate, respectively.

Different criteria are used for the evaluation of the applicants and the bidders. In the qualifying competition, criteria are used that evaluate the characteristics of the companies (reliability, expertise, performance) and determine their basic suitability as a PSA. The standards for the selection in the tendering procedure are process criteria that characterize the intended behaviour of the PSA as well as the expected placement rate (for more on the criteria, see Dykstra and de Koning 2002). Too little weight is placed on criteria that indicate the success the bidding firms had in the past of finding permanent work for the unemployed.

The evaluation of the applications and the bids is based on criteria that are not always clearly formulated and in some cases are not measurable. Price and quality of the offers are evaluated together, using a formula in a relationship of 60 to 40. Experience so far, especially the bankruptcy of the firm Maatwerk, makes it advisable to place more weight on the quality of the bids. The awarding of points for the quality of the PSA concept is based on the subjective evaluations of the responsible employees in the local labour offices. Thus the bidders do not know what standards are used to evaluate the individual parts of their PSA concept.

Size and make-up of target groups

In the tendering procedure it is the task of the labour offices to determine the number of people to be employed by the future PSA and the characteristics they have. The goal is to ease the decision on the part of the firms to participate in the competition and to provide information they need to calculate their bid. A specific size makes it easier for the Bundesagentur für Arbeit (Federal Employment Agency), which is responsible for the financing of the local labour offices, to estimate the funds needed for the PSA. It also reduces the costs for negotiating and thus the transaction costs for the individual labour offices.

The target groups for the PSA are the unemployed who are fit to work and have skills suitable for agency work. The target groups are selected by the local labour office. Labour offices tend towards a narrow selection of the target groups based on occupations characteristics, following their traditional administrative structure (for example, unemployed in commercial areas) and to vary this selection only on the basis of personal characteristics (old/young, well/poorly qualified). A homogenous group of agency workers in occupational terms will in fact reduce "cherry picking". On the other hand, the PSA will not have the flexibility to react in a suitable manner to differentiated personnel demands. This can lead to more work-free periods for the PSA employees. Temporary work agencies thus argue that the target group should be professionally mixed with an emphasis on the commercial-technical professions that are in high demand. The demand on the part of the PSA to define the target group more loosely is now being met by more and more labour offices. As a result they not only support the temporary work agencies in their work, but they also make it possible for the hiring-in firms – at least in larger labour office districts – to approach a number of PSAs, each with a wider range of personnel, instead of having to deal with only a few specialized PSAs.

The target number of agency workers as agreed between the local labour offices and the PSA is to be achieved within three months. Initially the labour offices pursued this goal energetically, insisting that those who cannot be hired out be trained instead. To reduce the cost burden for the PSA, more and more labour offices have accepted that the unemployed are only hired by the PSA when a contract with a hiring-in firm is available. The future PSA employees are suggested by the labour office. The PSA has the right to reject applicants. The unemployed are hired by the PSA for a limited period of nine to twelve months, during which time they are subject to social insurance contributions. During this period the PSA employee is to be hired out and placed in permanent employment as quickly as possible.

Financial support

Control of the PSA is achieved by subsidies and premium-oriented incentives. This system is based on but not identical to suggestions made by the

Bertelsmann Foundation et al. (2002) and Hartz et al. (2002). It is meant to prompt the PSA to a rapid placement of their employees in the regular labour market.

The PSA receives a monthly lump sum per case from the labour office and a premium for placement in a regular job. The lump sum and the placement premium are based on the basic fee cited in the bid. The bidders have calculated this amount so that the PSA can make a profit but at the same time have good chances of obtaining a contract. The basic fee varies according to occupation and the placement difficulties of the target group as well as the nature of the regional labour market.

To ensure rapid integration into the regular labour market, the lump sum and the placement premium are degressive. The monthly lump sum amounts to 100 percent of the basic fee for the first to third month of PSA employment, 75 percent of the basic fee for the fourth to sixth month of PSA employment and 50 percent of the basic fee for the seventh to ninth month of PSA employment. After nine months the PSA no longer receives a monthly lump sum per case. The monthly lump sum is not paid if the PSA employee is hired in by a previous employer with whom he held a position subject to social insurance contributions for more than three months in the last four years.

The placement premium amounts to 200 percent, 150 percent or 100 percent of the basic fee if the PSA employee takes on employment during the first three months, the fourth to the sixth month or after the sixth month, respectively, with a hiring-in firm or another firm through the efforts of the PSA. The premium is paid in two instalments. The first half is due when a job subject to social insurance contributions for at least three months is begun and the second half after an employment period of six months. It is the task of the PSA to provide documentary proof.

PSA contracts

To document the effectiveness of the PSA as an active instrument of labour market policy, the Bundesagentur für Arbeit (BA) has published a few indicators of PSA activities in their labour market statistics. This information covers the time period from April 2003 to March 2004. In addition the BA

has developed together with the Institut für Arbeitsmarkt- und Berufsforschung (IAB) an evaluation system that reports on the activities of the PSA. In April 2004 this report was not yet accessible to the public. IAB employees have, however, manually evaluated the following information for April to November of 2003 (Jahn and Windsheimer 2004a and 2004b; referred to below as JW).

In March 2004 there were 919 PSAs in Germany with some 40,000 places for the unemployed (BA). In October 2003 there were almost 43,000 PSA places available (JW). With respect to the size of the target groups from April to November 2003 the following situation prevailed: in 455 cases, almost half of all contracts, the number of places to be filled was between 40 and 60. 32 percent of the PSAs had a size of between 20 and 40, and around 15 percent of the PSAs were able to employ between 60 and 80 unemployed. The average size was 45 (JW). For 41 percent of the contracts the basic fee was set at between €1,100 and €1,300. Nearly one-fourth of the PSA contracts stipulated a basic fee of between €900 and €1,100. In 14 percent of the cases there was a basic fee of between €700 and €900, and for 13 percent a basic fee of between €1,300 and €1,500. The average basic fee amounted to €1,099 (JW).

Performance

In March 2004 PSAs employed just under 27,000 jobless (BA). In October 2003 some 1,000 PSAs with about 30,000 agency workers were active in the labour market (JW). It is noticeable that PSA employees are somewhat better qualified than traditional agency workers. Nearly 61 percent of the former had absolved an in-company training programme compared to 54 percent of the later. Also in terms of other socio-economic characteristics PSAs offer those unemployed a position that have "normal" placement difficulties (JW). This choice of personnel runs counter to the goal of the subsidies, namely to promote employment of those with greater placement obstacles.

Of the average number of those employed by the PSA from April to October 2003 (14,091), a good 43 percent were hired out. This number is based on the relationship of actual hiring-out days to the possible hiring-out days without taking account of non-working days, such as illness, holiday, etc. (in nomina-

Rates of integration and placement for PSA employees, in percent

	Exits and entry into regular employment subject to social insurance contributions / all exits			Placement/hired out-agency workers
	April 2003 to March 2004[a]	April 2003 to February 2004[a]	April 2003 to October 2003[b]	April 2003 to October 2003[b]
Employment subject to social insurance contributions				
- in hiring-in firms			11.0	16.3
- in other firms	31.3	40.1		
- placed by PSA			25.1	
- employee's own initiative			11.3	
Denominator, absolute	29,117	19,141	9,005	6,073

Source: [a] Bundesagentur für Arbeit (http://www.pub.arbeitsamt.de/hst/services/statistik/detail/a.html).
[b] Jahn and Windsheimer 2004b; calculations by CESifo.

tor and denominator; JW). Low figures like this would strongly endanger the economic viability of 'normal' temporary work agencies (Ochel 2003). As the bankruptcy of Maatwerk at the beginning of 2004 shows, PSAs can not manage low rates either.

The Bundesagentur für Arbeit does not publish placement rates in hiring-in firms, only the average integration rates. These compare the number of agency workers withdrawing from PSAs and taking on regular employment subject to social insurance contributions and that of all withdrawals from the PSA. The withdrawals and entry into regular employment include positions with the hiring-in firms and other firms. Between April 2003 and March 2004 the integration quota was 31.3 percent; until February 2004, before the bankruptcy of Maatwerk was included in the calculation, the figure was 40.1 percent (Table).

The figures provided by Jahn and Windsheimer are more detailed. They have the disadvantage, however, that only the first six months of the PSAs' activities have been evaluated – a period in which the effectiveness of the PSA had not yet been fully developed. As the Table shows, the integration quota from April 2003 to October 2003 amounted to 47.4 percent. Placement in hiring-in firms was, however, only 11 percent, a figure that is not surprising for the first six months of PSA activities. If placement refers to those hired out and not to withdrawals, then the placement rate rises. At 16.3 percent the rate is, however, considerably lower than the standard 30 percent achieved by private temporary work agencies in Germany (Ochel 2003). It is expected that the placement rate will be considerably higher in the future. The low placement in hiring-in firms was compensated partly by the placement of PSA workers in other firms. 25.1 percent of the exits found regular employment subject to social insurance contributions in this manner. Thus, in the beginning phase the PSA tended to function more as normal placement agencies than as temporary work agencies. In the end quite a few PSA employees found work through their own initiative.[1]

Summary

Since 2003 private temporary work agencies – so-called Personal Service Agencies – have been increasingly used as an instrument of labour market policy. In each of the 180 German labour office districts at least one PSA has been set up. They are regulated and financially supported in a way that is unknown in other countries.

The PSAs are selected by the individual labour offices in a discretionary tendering procedure preceded by an open competition in which candidates are chosen to participate. This is basically a kind of "beauty contest". The bidders have to suggest a basic fee on which the financial support is based and present a concept for the PSA. The labour offices set the number of workers to be employed by each PSA. The average target group size for 2003 was 45. The labour offices also decide on the characteristics of the unemployed who are employed by the PSA. The PSAs receive for each unemployed they employ a degressively declining monthly lump sum and a placement premium. The sum of both amounts is based on the basic fee cited in the bid.

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[1] The 52.6 percent of withdrawals from the PSA for other reasons have been excluded (JW).

Initial results of the PSA activities are now available for a preliminary evaluation. In March 2004 there were 919 PSAs with approximately 27,000 employees. Contrary to performance expectations of subsidised agency work, it was primarily the unemployed with relatively few placement obstacles that were employed by the PSA. This bias could have to do with the pressure to succeed with which the PSA as a new instrument of labour market policy was introduced. Only 43 percent of the average number of agency workers were hired out. The placement rate in hiring-in firms was still quite low in the beginning phase but should rise in the future. The effectiveness of the awarding procedure and the financial support of the PSA have, as yet, not been questioned by the general public in Germany. An exact evaluation is only possible when sufficiently detailed information is available for a longer time period.

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STARTING A BUSINESS

The Doing Business database of the World Bank Group provides indicators of the cost of doing business by identifying specific regulations that enhance or constrain business investment, productivity and growth. The indicators are developed in cooperation with the Lex Mundi Association of law firms, the International Bar Association and Yale University's International Institute for Corporate Governance. The principal data collection methods for the indicators are the study of the existing laws and regulations in each economy; targeted interviews with regulators or private sector professionals in each topic and cooperative arrangements with other departments of the World Bank, other donor agencies, private consulting firms, business and law associations. The initial topics covered include "Starting a Business".

When an entrepreneur draws up a business plan and tries to get it underway, the first hurdle that needs to be overcome is the bureaucratic and legal procedures to incorporate and register the new firm. Economies differ significantly in the way in which they regulate the entry of new businesses. The Starting a Business data are derived from a survey. The survey examined commercial or industrial firms with up to 50 employees and start-up capital of ten times the economy's per-capita GNI (Gross National Income). It counted all procedures (defined as a legal requirement that involves a separate interaction between the firm and an outside entity – officials, notaries, etc.) required to register a firm. Data also include screening procedures by a set of overseeing government entities, tax- and labour-related registration procedures, health and safety procedures, and environment-related procedures.

The database covers the following indicators:

- Number of procedures,
- Average time spent during each procedure,
- Official cost of each procedure and
- Minimum capital required.

The Table shows that the process of starting a business is especially straightforward and affordable in Canada, New Zealand, the United States and Australia. Favourable conditions prevail, moreover, in the Scandinavian countries, Ireland and the United Kingdom. On the other hand, starting a business is more difficult and expensive in the Eastern European and Mediterranean countries.

W. O.

Starting a business - procedures to start a business, 2003				
	Number of procedures	Duration (days)	Cost (% of GNI per capita)	Min. capital (% of GNI per capita)
Austria	9	29	6.6	140.8
Belgium	7	56	11.3	75.1
Denmark	4	4	0.0	52.3
Finland	4	33	3.1	32.0
France	10	53	3.0	32.1
Germany	9	45	5.9	103.8
Greece	16	45	69.6	145.3
Ireland	3	12	10.4	0.0
Italy	9	23	24.1	49.6
Netherlands	7	11	13.7	70.7
Portugal	11	95	12,5	43,4
Spain	11	115	18.7	19.6
Sweden	3	16	0.8	41.4
United Kingdom	6	18	1.0	0.0
Norway	4	24	3.9	33.1
Switzerland	6	20	8.5	33.8
Czech Republic	10	88	11.7	110.0
Hungary	5	65	64.3	220.3
Poland	12	31	20.3	21.4
Slovakia	10	98	10.2	111.8
Australia	2	2	2.0	0.0
Canada	2	3	0.6	0.0
Japan	11	31	10.5	71.3
New Zealand	3	3	0.2	0.0
United States	5	4	0.6	0.0

Note: Doing Business compiles a comprehensive list of entry regulations, by recording all the procedures that are officially required for an entrepreneur to obtain all necessary permits, and to notify and file with all requisite authorities, in order to legally operate a business. The survey divides the process of starting up a company into distinct procedures, and then proceeds to calculate the costs and time necessary for the accomplishment of each procedure under normal circumstances. The assumption is that the required information is readily available and that all government and non-government entities involved in the process function efficiently and without corruption. There are a number of procedures necessary to legally operate industrial or commercial businesses. These include (1) obtaining the necessary permits and licenses, and (2) completing all of the required inscriptions, verifications and notifications to enable the company to start operation. All procedures that are required for establishing a business are recorded, even if they may be avoided in exceptional cases or for exceptional types of business. In general, there are four types of procedures: (1) procedures that are always required; (2) procedures that are generally required but that can be avoided in exceptional cases or for exceptional types of businesses; (3) mandatory procedures that are not generally required (industry-specific and procedures specific to large businesses), and (4) voluntary procedures. The data cover only procedures in the first two categories. The text of the Company Law, the Commercial Code, or specific regulations are used as a source for the costs associated with starting-up a business. The minimum capital requirement reflects the amount that the entrepreneur needs to deposit in a bank account in order to obtain a business registration number. This amount is typically specified in the Commercial Code or the Company Law.

Source: The World Bank Group, Doing Business, 2003.

PORT EFFICIENCY

Artificial barriers for international trade – tariff as well as non-tariff barriers – have been reduced considerably during the past decades, and not only by industrialised, also by developing countries. From the early 1980s until the late 1990s, Asian countries reduced their average tariff levels from 30percent to 14 percent, while Latin American countries lowered it from 31percent to 11percent. The decrease of artificial trade barriers, however, means that the relative weight of the non-artificial part of total translocational costs, namely transport costs proper, gained importance as (one) determinant of international trade. The degree of effective protection (and automatically also the burden of higher import costs and/or lower export earnings) caused by transport costs is for several countries already higher than that provided by artificial trade barriers. Thus, it is worthwhile to have a closer look at transport costs, its determinants and its effects. Clark, Dollar and Micco (see reference) do so in a recent article. They focus on maritime transport costs and on sea port efficiency, the latter being one determining factor of shipping costs.

While distance and its effect on transport costs cannot be changed by countries, port efficiency can be influenced. Insofar as ports are public undertakings, it is the government who must care for cost effective port operations.

Port efficiency depends partly on the capital (e.g. cranes and other equipment for loading and deloading) invested in ports. But of importance is also the efficiency of port activities and services like pilotage, towing, tug assistance or cargo handling. Port efficiency is also effected by customs clearing requirements which often reduce port efficiency and may even influence the timing of port operations. Moreover, port workers providing stevedoring services are in many countries privileged by the requirement of special stevedoring licences that reduces the supply of such type of labour and increases costs.

The port of Singapore is generally regarded as one of the most efficient ports in the world. This is reflected also in the graph where countries are ranked according to a "Port Efficiency Index". However, this index does represent port efficiency only in an indirect way. The authors have taken it

Table 1
Clearance time and container charges in sea ports in selected countries

	Customs clearance time (days)	Container handling charges (US-$ / TEU[*])
Belgium	n.a.	120
Bulgaria	2	n.a.
Canada	2	190
France	3	201
Germany	5	163
Italy	2	228
Japan	n.a.	250
Netherlands	n.a.	156
Poland	3	n.a.
Portugal	8	n.a.
Russia	7	n.a.
Singapore	2	117
Spain	4	200
Sweden	2	n.a.
United Kingdom	4	173
United States	5	259

[*] TEU means "twenty feet equivalent unit" (i.e., a standardised container).

Source: See reference; compilation and selection of countries by the Ifo Institute.

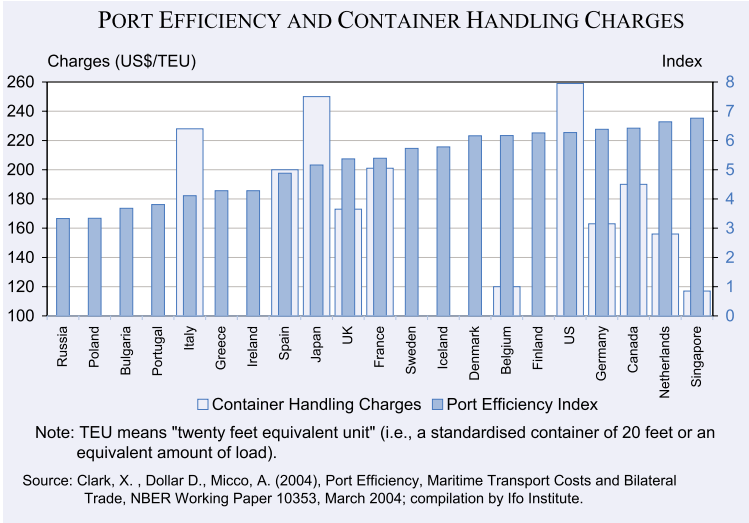as a proxy from the Global Competitiveness Report.

In Singapore also container handling charges (see Table 1) are the lowest, while customs clearance time (2 days) is also on a low level. In Germany and the US, handling charges and clearance days are considerably higher. In Portugal and Russia customs clearance takes even more days.

However, customs clearance is only one parameter influencing total time necessary for shipment completion or total average waiting time per vessel

Table 2
Clearance time and container charges in sea ports, by continent

	Customs clearance time (days)	Container handling charges (US-$ / TEU[*])
East Europe	2.38	n.a.
North America	3.50	261.7
Europe (excl. East)	4.00	166.7
Former Soviet Union	5.42	n.a.
North Africa	5.50	n.a.
East Asia and Pacific	5.57	150.5
Latin America and Caribbean	7.08	251.4
East and South Africa	12.00	n.a.

Source and note: See Table 1.

PORT EFFICIENCY AND CONTAINER HANDLING CHARGES

Note: TEU means "twenty feet equivalent unit" (i.e., a standardised container of 20 feet or an equivalent amount of load).

Source: Clark, X. , Dollar D., Micco, A. (2004), Port Efficiency, Maritime Transport Costs and Bilateral Trade, NBER Working Paper 10353, March 2004; compilation by Ifo Institute.

arrived at a port. Unfortunately, no such figures seem to be available. Casual evidence in several ports in the world on the number of vessels lying in the roads seems to suggest that total waiting time differs much more than the figures in Table 1 (with a selection of countries only) reflect.

Table 2 gives a more comprehensive picture, when countries are grouped by continent (or part of it). Eastern European ports have, interestingly, the lowest customs clearance time, whereas it is highest in East and South Africa (12 days). Information on container handling charges is only sparingly available. But costs in Latin America are almost as high as in North America.

R.O.

Reference

Clark, X., D. Dollar and A. Micco (2004), "Port Efficiency, Maritime Transport Costs and Bilateral Trade", NBER Working Paper 10353, March.

DISMISSAL PROTECTION IN EUROPE

Legal foundation

The legal foundations of dismissal protection range from rather rudimentary "models" (United Kingdom, Denmark) to those with detailed regulations (above all Spain, Portugal). In the last ten years there have been numerous amendments to dismissal protection laws. They have basically led to a moderate liberalisation (Netherlands, Spain, Portugal) and were often connected with an easing in the regulations governing part-time and limited-term employment contracts. Whereas in the majority of the countries studied statutory dismissal protection prevailes, in Denmark collective agreements regulate dismissal protection for workers.

Procedural regulations

It is noticeable that with respect to procedural rules for dismissal protection most countries do not have a threshold level for small businesses. French and Spanish laws are differentiated not by excluding small businesses from dismissal protections but by reducing their obligations with respect to severance pay (France: no obligatory compensation; Spain: reimbursement of severance pay from a fund).

The time limit for filing dismissal lawsuits is three weeks in Germany, three months in the UK, a year in Portugal and five years in Denmark. Austria has an extremely short time limit of only one week. This time limit has a prohibitive effect, i.e. it often results in employees failing to file charges.

Monitoring intensity

The monitoring of dismissals is carried out in all countries by the labour courts, in some cases combined with an inspection by the Labour Office. The intensity of these controls is difficult to evaluate. With this restriction in mind it can be said that the control intensity, especially in cases of (economic) redundancies, goes considerably further in France and Spain than in Germany. There the court investigates more thoroughly the "appropriateness" of economic decisions. In this connection procedural regulations appear, however, to be equally impor-

tant: in the Netherlands, Spain, and to a certain degree also in France and Portugal, the Labour Office exercises a preventive control that involves considerable time and has a considerable impact on the entire process. The same is true for the strong position of the Workers' Council in Austrian dismissal law.

Severance pay/continued employment

In all the (examined) countries severance pay is the cornerstone of dismissal compensation but it is predominantly combined with the possibility of further employment or rehiring, i.e. the employee, in some cases also the employer, has a right to choose. In this context it is noticeable that many of the studied countries, particularly in cases of redundancy due to economic reasons, provide for "obligatory severance pay" which is paid independently of redundancy justification (UK, de facto in the Netherlands, Denmark, Austria, France, Spain, Portugal). This compensation is, however, lower than that paid for justifiable dismissals, which also has a sanctioning effect. An unusual model worthy of attention is the Austrian right to statutory severance pay (Abfertigung) from a private sector fund financed by employers contributions.

It is noticeable that the statutory regulations of many countries have developed a variety of "techniques" for terminating a contract with severance pay as compensation. In the Netherlands an offer of severance pay increases the prospects of receiving permission for dismissal from the local Labour Office. In Austria the statutory compensation, which as explained above is administered by a fund, helps to support the decision on the part of the dismissed employee to give up his job without recourse to a lawsuit. In France both employee and employer can refuse further employment and claim severance pay in cases of individual dismissals. In Spain the settlement quota for severance pay is high because (only) the employer has the right to choose between dismissal pay and further employment. In Portugal it is the employee who has the choice between further employment and severance pay. There, too, practice shows employees tend to choose severance pay.

Nevertheless, it would be short-sighted to reduce the core of dismissal protection in Europe to mere compensation in the form of dismissal pay. Here the

Dismissal protection regulations in selected EU member states

	Germany	United Kingdom	Denmark	The Netherlands	Austria	France	Spain	Portugal
Dismissal protection (DP) regulated by law?	Yes	Yes	Only for salaried employees. In addition regulations through collective agreements	Yes. Corporation must have dismissal approved by labour authorities or go directly to courts.	Yes	Yes	Yes	Yes
Threshold levels for application of dismissal protection	10 employees (temporary rule)	No	According to some collective agreements, 10 or more employees	No	5 or more employees	11 or more employees (but with weakened statutory protection for fewer)	No. With fewer than 25 employees, state funds provide 40% of severance pay.	No
Time limit for filing lawsuit	3 weeks	3 months	–	–	1 week	No	20 working days	1 year
Legal action possible to maintain employment	Yes	In principle yes, but corporation can avoid re-employment by increased severance pay.	No. Exceptions in basic collective agreement	Yes. Work contract is not terminated until permission granted or dismissal approved by court.	Yes	In principle yes, but if court approves dismissal, corporation has the right to appeal.	In principle yes, but if court approves, corp. has the right to decide between severance pay and re-employment.	Yes. In cases of dismissal for bad conduct and due to technological change
Monitoring by labour courts in case of redundancies for economic reasons	Inspection only to see if economic grounds are valid. Inspection of further employment possibilities, social criteria for redundancy. Special procedures for mass dismissals.	Examination of whether company's decision is understandable. Further employment possibilities must be considered, few standards with respect to social criteria.	Minimal monitoring. In collective agreements justification required, independent of reason for dismissal. For employees only investigation of whether decision to dismiss is arbitrary.	Approval procedures: minimal examination. Rejection in only 15% of cases. Legal action: in general the court finds for the corporation; no appeal possible.	Only monitored if redundancy is due to economic reasons. Expert opinion on employment prospects, social criteria required.	Monitoring of corporation's decision, social criteria required also with respect to employment prospects. Special procedures in case of mass dismissals.	Monitoring of corporation's decision (emergency situation required). Special procedures in case of mass dismissals.	Strict regulations. Transfer of employee must be impossible, strict social criteria, special procedures in case of mass dismissals.
Severance pay claims regardless of social justification	No	Yes, decided by courts. Basic severance pay including additional compensation in case of no justification	Yes. For employees after 12 years of employment	No	Yes. Right to settlement in addition to general dismissal protection. Financed via insurance system	Yes. After 2 years of employment. In case of procedural violations additional compensation	Yes. Compensation must be received with notice of dismissal otherwise dismissal is null and void.	Yes in cases of redundancy due to economic reasons

Source: Zachert 2004.

above-mentioned preventive function of dismissal protection laws plays a role. Even if it is difficult to evaluate empirically, there are indications that the laws have an impact on dismissal protection in practice. This is very clear in the requirement of an ex-ante consent for dismissal by the Labour Office (Netherlands, Spain, in weakened form also France and Portugal) or the representation of employees' interests in Austria. Furthermore the length of administrative or legal proceedings also plays a role as well as the uncertain results, including the possibility – from the employers' viewpoint a "risk" – that the dismissed employee must be given further employment or re-employment. Finally high severance pay can also result in the employers' exercising restraint from "ill-considered" dismissals. In Germany severance pay is set at half a month's pay per year of employment, in the Netherlands at a month's salary per year of employment. Austria requires two months' pay per year of employment after three years (present regulation); France requires one tenth of a month's salary per year and at least six month's salary in cases of non-compliance with substantive law. In Spain approximately one and a half months' salary is paid per year of employment and in Portugal one months' salary per year of employment as well as at least three months' compensation as the standard severance pay.

Dismissal protection lawsuits

Only rough estimates can be made about the effect of lawsuits, also in terms of their frequency. Without doubt Germany ranks highest with respect to the number of dismissal protection lawsuits. It is impossible, however, to make any conclusions about the efficiency of the dismissal protection on this basis. One reason is that in Germany, only approximately 11 percent of those dismissed file a lawsuit. Secondly in other countries arbitration supplements legal procedures or even completely replaces them (in the UK and Denmark). In the Netherlands half of cases are decided either by the Labour Office or the courts before dismissal takes place. Furthermore, out-of-court settlements (agreement to annul contract) must be included in the evaluation. In several countries these seem to play an important role (in the UK and the Netherlands, in part with the help of the Labour Office).

W.O.

Reference

Zachert, U. (2002), "Kündigungsschutz, Befristung und Leiharbeit in Europa", WSI-Mitteilungen 3, 132–37.

EXPANSIONARY EFFECTS OF FISCAL CONSOLIDATION?

Fiscal consolidation, i.e. the reduction of a budget deficit, is most often regarded as having contractionary effects on aggregate demand and output and will, thus, tendentially reduce economic growth. If a fiscal multiplier above unity is assumed – the usual textbook assumption –, fiscal consolidation would even have a leverage effect on output. But also from this Keynesian point of view some factors must be (and have been) considered as potentially reducing the fiscal multiplier below one. This is, i.a., the substitution effect between the public and the private sector (crowding-out) and a possible response from interest rates.

That fiscal consolidation might even work in the opposite direction and increase – instead of decrease – the growth path of the economy has first been shown for some consolidation episodes in Denmark and Ireland by Giavazzi and Pagano in a study of 1990. Their analysis has been followed by numerous studies which are assessed and extended by a recent empirical analysis of Gabriele Giudice, Alessandro Turrini and Jan in't Veld (2003).

Why might fiscal consolidation not be contractionary and even expansionary? From the consumer's point of view (consumption channel of analysis) it is finally the Ricardian equivalence which is seen – under different assumptions about rationality and expectations – to be at work and offsets the contractionary effects of reduced budget deficits.

Expansionary budget consolidations in EU countries: Description of episodes

Criteria	Consolidation: Size	Consolidation: Persistence
Number of consolidation episodes	49	74
thereof: number of expansionary episodes	24	43
thereof: number of 'pure' expansionary episodes	11	19
Description of expansionary episodes ('pure' expansionary episodes in bold)		
Austria	n.a.	1995, 1996, 1997
Belgium	1984, 1985	1984, 1985, 1986, 1987
Denmark	1983, 1984	1983, 1984
Finland	1993	1977, 1998
France	n.a.	1995, 1996, 1997
Germany	1982	1982, 1983, 1984
Greece	1982, 1987, 1994, 1996	1994, 1996, 1997, 1998
Ireland	1976, 1987, 1988	1984, 1987, 1988, 1989
Italy	1976, 1977, 1993	1993, 1995
Netherlands	1993	1982, 1983
Portugal	1986	n.a.
Spain	1986	1985, 1986, 1987
Sweden	1983, 1987, 1995, 1998	1982, 1983, 1984, 1987, 1994, 1995, 1997, 1998
United Kingdom	1997	1981, 1982, 1997

Definitions of fiscal 'consolidation':
Size: The primary cyclically adjusted budget balance improves by at least 2 percentage points of GDP at time t or by at least 1.5 points in each of two consecutive years (i.e., t and t-1 or in t and t+1).
Persistence: The primary cyclically adjusted budget balance improves by at least 3 percentage points of GDP over three consecutive years (i.e., between t-2 and t, or between t-1 and t+1 or between t and t+2) and in each year the change in the primary cyclically adjusted budget balance cannot be below -0.5 percentage points of GDP.

Definition of an 'expansionary' fiscal consolidation:
Growth: Average real GDP growth between t and t+2 greater than between t-1 and t-2.

Definition of a 'pure' expansionary consolidation:
An expansionary fiscal consolidation in which the average change in real short run interest rates between t-1 and t+1 is non-negative.

Source: see reference.

But also from the investor's point of view (investment channel of analysis) there may be such an effect when one assumes that a reduced budget deficit might lower the wage pressure, increase the present value of future returns on capital and, thus, stimulate (at least short-run) investment.

Giudice, Turrini and in't Veld have studied the development of the budget balance in 14 EU countries (without Luxembourg) for 33 years. Budget balance is defined net of interest payments (primary balance) and cyclically adjusted. An episode of fiscal consolidation is either a year in which the budget balance improves by at least 2 percent of GDP or a period of two consecutive years in which the improvement is at least 1.5 percent per year and in both years. As an alternative to this "size definition" of consolidation, the authors use also a "persistence definition" of consolidation where consolidation is considered over three years (and also a temporary increase of deficits is allowed). An episode of fiscal consolidation is classified as expansionary when average real growth in the year of adjustment and in the two following years is higher than it has been in the two years before the consolidation.

Part of the results of the study is reproduced in the figure. There have been 49 (size definition) or 74 (persistence definition) consolidation episodes. About half of them (24 and 43, respectively) have been connected with higher growth. Again half of them (11 and 19, respectively) are considered as "pure" growth episodes when growth cannot be attributed to a concomitant monetary policy or devaluations of the exchange rate.

Consolidation plus growth episodes occurred in all countries analysed. If the persistence criterion is used the number of expansionary consolidation episodes is larger than that with the size criterion. The number of such episodes is especially high in Sweden and Greece. When the stricter size criterion is used, episodes of expansionary consolidation do not occur in France and Austria, but they do, when the persistence criterion is applied.

What causes a consolidation episode to become expansionary? The further analysis of the authors comes to the following conclusions. The size of the adjustment and the size of the initial debt (in percent of GDP) do not seem to play a significant role. The composition of fiscal adjustment, by contrast,

is of high importance. Consolidation based on expenditure cuts is more likely to enhance growth than a consolidation based on tax increases.

R.O.

Reference

Giudice, G., A. Turrini and J. in't Veld (2003), "Can Fiscal Consolidations be Expansionary in the EU? Ex-post Evidence and Ex-ante Analysis", Economic Paper of the European Commission No. 195, Directorate-General for Economic and Financial Affairs.

TEACHERS AND THE ADAPTATION OF UPPER SECONDARY EDUCATION TO INFORMATION AND COMMUNICATION TECHNOLOGY

In 1998, countries participating in OECD's Education Indicators Programme initiated an international survey of upper secondary schools (ISUSS). The aim was to compare the different ways in which countries meet the challenges of upper secondary education in the use of information and communication technology (ICT).

Principals were asked to estimate the percentage of teachers who use information and communication technology in the school. On average, principals reported that less than half of teachers use computer applications, about four teachers in ten use the Internet, and about one in five teachers use e-mail at least once a month. The distribution of schools where different proportions of teachers regularly use various forms of ICT is set out in the Figure. It uses an arbitrary threshold of 60 percent to indicate common teacher use of ICT. It shows the percentage of students going to upper secondary schools where that threshold has been reached for various types of technology. Overall, only a minority of upper secondary students attend school where the principal reported that at least 60 percent of the teachers use computers. In the four Nordic countries in the survey, along with Korea, however, use of computers and the internet have become the norm for many teachers, with most students going to schools whose teachers are mainly computer users.

ICT can be used to facilitate a broad range of teaching and learning activities. They can be used in both independent and group learning situations. ICT can also be used to allow students to work at their own individual pace, developing research and analytical skills and gaining additional opportunities for learning by simulation. Teachers can integrate computer-related activities into students' homework. Moreover, information and communication technology opens new possibilities in storing and retrieving information and thus can be used as a resource centre. But how are computers used in practice today? Computers are primarily being used as an information-gathering device. On average, more than two-thirds of students attend school where computers are used "a lot" to obtain information from the Internet. Compared to this, computers are used much less frequently for developing independent learning skills, providing additional instruction and practicing opportunities for students, allowing students to learn/work at their own pace during lessons, interdisciplinary work and creating opportunities for learning by simulation.

Principals were asked to describe the obstacles of reaching their ICT goals. From a list of 22 potential obstacles, they were invited to select the three most serious obstacles. The results are summarised in the Table. Of the 22 listed obstacles, only six appear on the top of the list of at least one country. These, however, are spread across the whole range of problems related to the fundamental technological changes schools have to manage. They include shortage of computers and software, short life-cycle of equipment, maintenance and support problems, difficulties in organising access and integrating new technology in the present education framework, teachers' insufficient knowledge and skills in using and applying ICT, and inflexible working conditions for the increased preparation time required by ICT application.

An insufficient number of computers for student use appears to be one of the three most serious problems in all countries except

PERCENTAGE OF UPPER SECONDARY STUDENTS ATTENDING SCHOOLS WHERE MORE THAN 60 PER CENT OF TEACHERS USE ICT, 2001
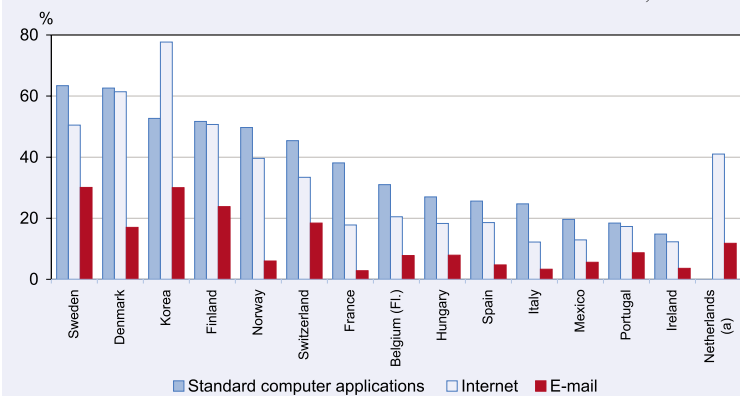
■ Standard computer applications □ Internet ■ E-mail

(a) Country did not meet international sampling requirements. The reported data are unweighted.

Source: OECD ISUSS database, 2003; OECD (2004), p. 89.

The three most serious obstacles to reaching goals related to information technology in upper secondary schools as reported by school principals (2001)

Country	Ratio of students to computers	Ratio of teachers to computers	Hardware and software-related obstacles						Teacher-related obstacles		
			Insufficient number of computers for teachers	Insufficient number of computers for students	Outdated computers (older than 3 years)	Not enough variety of software	Shortage of maintenance and technical support	Insufficient time for teachers to prepare lessons	Difficulties in integrating computers into classroom instruction	Lack of interest/willingness of teachers to use computers	Teachers' lack of knowledge/skills in using computers in instruction
Belgium (Fl.)	7.5	14.7	·				...		·	...	...
Denmark	2.8	2.1	...	...				...			...
Finland	5.0	1.6		·			...				...
France	5.8	8.5		·				...			...
Hungary	10.2	5.5	·	...	...		...				
Ireland	13.1	9.4		...			·		...	·	·
Italy	11.7	14.6		...	...	...					
Korea	6.4	0.8		...	...						
Mexico	16.5	7.2		·							
Norway	3.7	1.7	·	...	...					...	...
Portugal	14.4	9.6	...	·	·				...		·
Spain	15.5	5.9	·	...	·						...
Sweden	3.4	1.3		...	·						...
Switzerland	9.0	3.2		·				...			
Netherlands[a]	13.5	2.3						...		...	·

... = The most serious obstacle.
∴ = The second most serious obstacle.
· = The third most serious obstacle.

[a] Country did not meet international sampling requirements. The reported data are unweighted.

Source: OECD ISUSS database, 2003; OECD (2004), p. 99.

Belgium (Flemish community), Hungary and Korea. Since sufficiency can change with rising demand as usage becomes more extensive, the number of computers available is likely to persist as an issue for some time. Lack of teacher knowledge and skills is typically the second-most serious obstacles perceived by principals. Again, since new technologies in the rapid phase of change and development require constant user strain and effort, there seems to be permanent teacher frustration and a need for further training, which is rarely calculated in teacher work time. An insufficient number of computers for teachers is one of the three most serious obstacles in Denmark, Hungary, Mexico, Norway and Portugal, according to school principals. Since computer literacy can be best developed by actual computer use, unlimited access time for teachers is the best way of supporting the development of teachers ICT skills. Principals in five countries find that the large number of outdated computers is one of the three most serious problems.

W. O.

Reference

OECD (2004), Completing the Foundation for Lifelong Learning, an OECD Survey of Upper Secondary Schools, Paris.

FISCAL RULES

Most OECD countries have since long adopted fiscal rules to safeguard budget sustainability. Well known is the famous "Golden Rule" (in force e.g. in Germany and UK) which states that net public borrowing in a year must not exceed net public investment of that year. But other – and stricter – rules are also used. In some countries the rules have been only recently adopted or reinforced. The table informs about the various regulations and rules in force in a selection of OECD countries.

For some countries the rules apply to the consolidated government budget. Then the question arises how the different – specifically the lower – levels of government are made to behave in a way which conforms to the general rule. Some country comparative information to this question is provided in DICE Report 1/2004 ("Macroeconomic Management of Decentralised Fiscal Decisions").

An explicit limit for public expenditures is defined in some countries. In Finland, e.g., the cap on expenditures extends over a four years period (actually from 2004 till 2007), but some items are excluded from the cap. In Sweden, limits are defined for 27 different expenditure items. Additionally, a two percent budget surplus must be realised over the business cycle.

Some countries observe rules which put an indirect ceiling on public expenditures. In Denmark, e.g., this is realised by a combination of a tax freeze – binding for all levels of government – and the rule of a structurally (i.e., cyclically adjusted) balanced budget.

In this context, also the rules of the Maastricht Treaty (1992, extended in 1997) are of relevance which apply to the EU countries: General government net borrowing is limited to 3 percent of GDP; over the cycle the budget must be close to balance or in surplus; and the government's gross debt must conform to the norm of not exceeding 60 per-

Fiscal rules in selected OECD countries		
Country/ region	Year of implementation	Summary
Austria	2000	**Domestic Stability Pact Law** • Negotiated floors on the budget balance for each government level (a surplus of 0.74 percent of GDP for the Länder, zero for municipalities and the federal government balance should be such that the Stability Programme target is met). Outcomes are assessed by an independent auditor. The law embodies financial sanctions in case of non-compliance.
Belgium	1999	**Cooperation agreement** • Permissible deficits are established for the federal government plus Social Security on the one hand, and for the regions and the local government on the other.
Denmark	2001	**A medium-term fiscal strategy for the period until 2010** • Structural general government surpluses of around 2 percent of GDP. • A "tax freeze" covering both central and subnational government (introduced in 2002).
Finland	2004	**Medium-term objectives** • Balanced central government finances in structural terms by 2007. • Central government expenditure (excluding interest payments, unemployment benefits and a few other items) is subject to a cap over the period 2004 to 2007.
Germany	2002	**Domestic Stability Pact** • Golden rule: the budgeted deficit of the federal government must not exceed federal investment spending. Most Länder constitutions have a similar law. • Both the central government and subnational governments should aim at balanced budgets.
Netherlands	1994	**Multi-year expenditure agreements** • Separate expenditure ceilings on central government, social security, and labour market and health spending. • Automatic stabilisers are allowed to work fully on the revenue side, except if the deficit came close to the Maastricht Treaty's 3 percent ceiling.
Spain	2003	**Fiscal Stability Law** • Accounts should balance or show a surplus at all levels of government (central, social, territorial and local) as well as for public enterprises and corporations. • A cap is put on central government expenditure and a contingency fund (2 percent of expenditure) is set up to cover unscheduled non discretionary expenditure.
Sweden	1997	**Fiscal Budget Act** • Set nominal expenditure limits for the subsequent three years on 27 expenditure areas (including social security). • Maintain a general government surplus of 2 percent of GDP on average over the business cycle.

continued: Table

United Kingdom	1997	**Code for Fiscal Stability** • Golden rule: over the business cycle, the Government will borrow only to invest and not to fund current spending. • Sustainable investment rule: net debt as a proportion for GDP must be held stable over the business cycle at a prudent level (defined so far as net debt below 40 percent of GDP).
EU area/ EU countries	1992	**Maastricht Treaty; extended in 1997 under the Stability and Growth Pact** • 3 percent of GDP ceiling on general government net borrowing. • "Close to balance or surplus" target applying in cyclically-adjusted term each year. • 60 percent of gross government debt-to-GDP ratio norm.
Norway	2001	**Fiscal Stability Guidelines** • Structural non-oil central-government budget deficit should not exceed 4 percent of the Government Petroleum Fund over the cycle. • In the event of major revaluations of the Fund's capital or statistical revisions of the structural deficit, corrective action should be spread over several years.
Switzerland	2003	**Debt Containment Rule** • Sets a ceiling for expenditures which is equal to total revenues adjusted for the cycle and for ex post deviations of out-turns from the norm laid out in the rule.
Poland	1999	**Act on Public Finance** • The Constitution sets a limit of 60 percent of GDP for total public debt.
Australia	1998	**Charter of Budget Honesty** • No legislated numerical rules. The Charter requires the government to spell out objectives and targets but places no constraints on their nature.
Canada	1998	**Debt Repayment Plan** • There are no legislated rules at the federal level but the government has a "balanced budget or better" policy. Most provinces have some form of balanced budget legislation.
Japan	2002	**A Reform and Perspective programme (revised in 2003)** • Maintain general government expenditures at or below the 2002 level of 38 percent of GDP. • Achieve primary budget surplus by early 2010s.
New Zealand	1994	**Fiscal Responsibility Act** • Maintain debt and net worth at "prudent" levels and run operating surpluses on average over a "reasonable" period of time. The Government sets its own numerical targets consistent with these principles.
United States	1990 to 2002	**Budget Enforcement Act** • Medium-term nominal caps for discretionary spending. • Legislated changes to revenues or mandatory spending programmes should be budget neutral over a five-year horizon.
Source: See reference.		

cent of GDP. (The EU Commission procedure in case of an "excessive deficit", however, applies only to the Euro countries.)

A budget rule which is applied not in each budget year but (only) over the cycle is basically reasonable from an economic point of view. On the other hand, it opens room for discretionary decisions because what the cycle and its average GDP growth rate is can not be known in advance – but has to be known for determining what size of a budget deficit in a specific year conforms to the cycle. Moreover, to allow for business cycle effects on the tolerated size of the budget deficit will reduce the simplicity of assessing the deficit and will add an element of ambiguity – at least in the public discussion of the budget.

Problems also arise with the "Golden rule". Usually, investment in this context is defined as fixed investment and excludes investment in human capital, although the latter might even earn a higher social rate of return. On the other hand, including human capital investment might provide leeway for discretionary decisions and could invalidate the very intention of the Golden Rule. Moreover, fixed investment should be calculated as a net value, i.e. net of amortisation. But the difficulty is to determine correctly the amount of amortisation. This might again open room for opportunistic behaviour.

R.O.

Reference

Joumard, I., P.M. Konksrud, Y.-S. Nam and R. Price (2004), Enhancing the Effectiveness of Public Spending: Experience in OECD Countries, OECD Economics Department Working Paper No. 380.

RECENT NEW ENTRIES TO THE DICE DATABASE

In the second quarter of 2004, the DICE Database (w) received about 50 new entries. Education has been one of the main topics. Many tables and charts are focused on "Learning Environment and Organisation of Schools", on the "Mobility of Students" and on the results of "PIRLS".

SOCIAL SECURITY PROGRAMS THROUGHOUT THE WORLD (SSPTW)

This publication of the U.S. Social Security Administration highlights the principal features of social security programs in more than 170 countries: old-age, survivors, and disability; sickness and maternity; work injury; unemployment; and family allowances. A set of tables in each volume provides information for each country on the types of social security programs, types of mandatory systems for retirement income, contribution rates, and demographic and other statistics related to social security.

Beginning with the March 2002 edition, SSPTW now appears in four volumes published on a rolling basis every six months. Each volume focuses on a specific region of the world: Europe, Asia and the Pacific, Africa, and the Americas.
(http://www.ssa.gov./policy)

EURYDICE

The information network on education in Europe, Eurydice has since 1980 been one of the strategic mechanisms established by the European Commission and Member States to boost cooperation, by improving understanding of systems and policies. Since 1995, Eurydice has also been an integral part of Socrates, the Community action programme in education. Eurydice is an institutional network for gathering, monitoring, processing and circulating reliable and readily comparable information on education systems and policies throughout Europe. Eurydice covers the education systems of the Member States of the European Union, the three countries of the European Free Trade Association which are members of the European Economic Area, and the EU candidate countries involved in the Socrates Programme.

In order to meet the varied needs of its users, Eurydice prepares and publishes the following:

- readily comparable and regularly updated monographs on the organisation of education systems,
- comparative studies on specific topics of Community interest,
- indicators.

Apart Eurydice makes available to its users Eurybase, a highly detailed database on education systems.
(http://www.eurydice.org)

CESIFO VENICE SUMMER INSTITUTE 2004

Now into its fifth year, the CESifo Venice Summer Institute is by now a well established highlight of the international economists' conference agenda. CESifo will hold this year's Summer Institute from 19 to 24 July at its traditional venue on the tiny island San Servolo, about ten minutes by boat from the San Marco quare in Venice.

With six workshops on this occasion, the institute will cover a wide range of research fields. The Institute will open with two workshops: The Revival of Aggregate Demand Management Policies: Back to Keynes?, with Torben Andersen, Alex Cukierman and Jordi Gali as keynote speakers, and Behavioral Public Economics, where the keynote speakers will be Andrei Shleifer and Eytan Sheshinski. Both workshops will be held on July 19 and 20. On July 21–22, while the Recent Developments in Antitrust Analysis workshop proceeds, with Timothy Bresnahan and Michael Waldman as keynote speakers, Christian Keuschnigg will run a parallel workshop on Policy Analysis With Numerical Models. Finally, on July 23 and 24, globalisation will be discussed in a workshop with Richard Higgott, Pierre Sauvé and John Whalley as keynote speakers, concurrently with the workshop on Growth and Institutions, with keynote speakers Philippe Aghion, David Dollar and Danny Quah.

PENSION REFORM

Mindful of the importance of the policy debate on pension reform in Europe and elsewhere, CESifo

and DELTA will jointly organise two scientific conferences on reform-related issues, the first to be held in Munich on 5-6 November 2004, the second in Paris in the first half of 2006.

The two conferences will deal with the microeconomic incentives, macroeconomic implications, and political sustainability of intergenerational transfers, on the one hand, and the transitional costs and macroeconomic implications of funded systems of retirement savings, on the other. The intention of the organisers is to focus more on the analysis of intergenerational transfer systems in the first conference, and more on funded systems of retirement savings in the second, but to address both aspects in both conferences. Each of the two conferences will feature both theoretical and empirical research.

Scientific organisers: Georges de Menil and Robert Fenge.

DICE
Database for Institutional Comparisons in Europe
www.cesifo.de/DICE

The database DICE was created to stimulate the political and academic discussion on institutional and economic policy reforms. For this purpose, DICE provides country-comparative information on institutions, regulations and the conduct of economic policy.

To date, the following main topics are covered: Labour Market, Public Finances, Social Policy, Pensions, Health, Business Environment, Capital Market and Education. Information about Basic Macro Indicators is added for the convenience of the user.

The information provided comes mainly in the form of tables – with countries as the first column –, but DICE contains also several graphs and short reports.

In most tables all 15 EU and some important non-EU countries are covered. Many topics already contain information on the EU accession countries.

DICE consists mainly of information which is – in principle – also available elsewhere. But we think that the access we provide is very convenient for the user, the presentation is systematic and the main focus is truly on institutions, regulations and economic policy conduct. However, some tables are based on empirical institutional research by ifo and CESifo colleagues as well as the DICE staff.

DICE is a free access database.

Critical remarks and recommendations are always welcome.
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