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ECONOMIC POLICY IN THE PRESENCE OF GLOBALISATION: REPORT ON HANS-WERNER SINN'S 60TH BIRTHDAY CONFERENCE

HEIDEMARIE C. SHERMAN*

“Economic Policy in the Presence of Globalisation” was the title of a conference held on April 25, 2008 in Munich to honour Professor Hans-Werner Sinn, President of the Ifo Institute, on his 60th birthday. The programme, organized by Professors Monika Schnitzer, University of Munich and Assaf Razin, Tel Aviv University, encompassed the Welfare State, Tax Competition, European Integration, Climate Change, and Skills and Schools and assembled speakers and discussants of great distinction. Every speaker, many guests and representatives of the State of Bavaria and the University of Munich congratulated Hans-Werner Sinn on his birthday and commended him on his many contributions to economic theory and policy.

Panel 1: Can the Welfare State Survive?



Alan J. Auerbach

In his introductory presentation *Alan J. Auerbach*, University of California, Berkeley, started out with the state of play, noting that while it is not clear how to define the “welfare state”, most governments provide substantial public spending on such welfare items as health, public pensions, unemployment compensation, and poverty alleviation. According to the



Hans-Werner Sinn, Monika Schnitzer and Assaf Razin

OECD, social spending as a percentage of GDP is highest in Germany and France, at close to 30 percent. Among the challenges we face, he stressed the demographic change, i.e. low birthrates and greater longevity, with rapidly rising old-age dependency ratios, fastest in Italy and Germany. The change in population structure also implies changing public spending patterns. He showed projections of public pensions and public health care spending as a share of GDP. The latter has always been higher for the United States, where it is estimated to rise to 50 percent of GDP by 2082. He pointed out that there may be offsetting changes: education spending is predicted to decline as a share of GDP, given the older population; unemployment compensation is predicted to decline as well, with a larger fraction of the population no longer in the work force. But for the EU15 the increases in pension and health spending (about 4 percent of GDP from 2004 to 2050) will greatly exceed these potential gains which are expected to be less than 1 percent. In sum, between now and 2050, major European countries need about 3 percent of GDP to maintain their social welfare systems. Unfortunately there are some serious complicating factors. He mentioned four:

- *Progressivity* – Advanced economies rely on high-income individuals and capital for a significant share of government revenues and, as winners from globalization, these are potential sources of additional revenues. However, increased integra-

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tion and mobility make these factors more difficult to tax without increased coordination.

- *Productivity* – The ability to fund the welfare state depends in part on economic growth. Unfortunately recent productivity growth in Europe has been disappointing; the gap to US total factor productivity has widened.
- *Perceptions* – Our methods of fiscal accounting treat predictable problems as residing in the future. Furthermore, standard measures of government debt and deficits ignore implicit liabilities and hence mask the need for action. Generational imbalances are especially high in Japan, Italy, Germany and France.
- *Politics* – With old-age dependency ratios approaching 50 percent, the median voter will be increasingly hard to convince to reduce spending on the elderly.

What are possible solutions? Immigration is not the answer, as the young get old and the poor are net recipients of transfers. The net fiscal impact is unclear. Can labor market institutions of Continental Europe help explain higher unemployment rates and lower productivity growth? The general view is that more flexibility is needed to allow absorption and reallocation of workers. But how best to do so while providing some form of social insurance for workers? Some have suggested that high European tax rates have slowed employment growth. Although the extent to which is controversial, high marginal tax rates certainly make raising further revenue more difficult. Tax rates can be reduced only by shrinking government, making tax system less progressive, and shifting the tax base to activities that are less responsive to taxation. Finally there is pension reform. Although there are many factors at work to explain the low labor force participation of aging workers in Europe, there is considerable evidence that pension system incentives play a role.

Can the welfare state survive? Yes, but not in its current form. Many types of reform are necessary: pension reform, labor market reform, tax reform, and so on. But the clock is ticking, as problems and the age of the median voter are growing.

Discussion

Sir Tony Atkinson, Oxford University, took issue with the question posed. Can THE welfare state survive? What kind of a welfare state are we talking

about? First, countries differ and so do their definitions of a welfare state. Second, the welfare state is not fixed, but in evolution. For example, the United Kingdom went from social assistance to social insurance, which has since been scaled back to means-tested. Third, how do we survive if the welfare state does not? In the United Kingdom, state welfare payments are much lower than on the European Continent. Therefore, there is more reliance on private provision for old-age pensions and health insurance. Finally he asked about the functions of the welfare state. What should be its scale? What is the best mechanism, the best balance between private and public provision?

Robin Boadway, Queens University Canada, referred to Sinn's notion of the welfare state as the patient and the economist as the doctor. Thus, the examination of the unwell welfare state found the following symptoms: widening inequality, unemployment of the low skilled, malfunctioning labour markets, competitive pressures, high levels of public indebtedness, adverse demographic trends, escalating health and disability costs. The ailments are country-specific, for example: (1) low-skilled unemployment, labour market rigidity and generous transfers (EU), (2) persons below the poverty line (various countries), (3) unfunded government liabilities (Japan, EU and US), (4) demographic pressures (everywhere), (5) health care coverage (US), and (6) strains on solidarity, especially for migrants (EU and US). Here are his prescriptions, first the easier ones: better work incentives, lower marginal tax rates, participation incentives like earnings subsidy, workfare, better targeting of policies like improved tagging of needy groups, monitoring for voluntary unemployment and the need to ensure that the needy get higher transfers relative to the less needy. More difficult to apply are the following prescriptions: fix deteriorating generational accounts, knowing that intergenerational redistribution is difficult, and deal with demographics (the role of immigration, incentives for fertility, later retirement). Boadway concluded by pointing to the intellectual challenge for public economics. Are political outcomes deterministic, as political economy models suppose? Or is there room for political free will? Can we follow Hans-Werner Sinn's optimism that policy makers are open to persuasion? He finished on the note that optimism must extend to societal consensus for solidarity and the welfare state in the face of the ideological conflict between self-reliance and rewards of hard work vs. luck and social insurance.

Panel 2: Tax Competition

Peter Birch Sørensen, University of Copenhagen, first presented the mainstream view that is held by many in European organizations: (1) if competition in the private marketplace is good, fiscal competition between governments must be good too; (2) fiscal competition to attract mobile factors and activities keeps governments on their toes and helps to weed out public sector inefficiencies; and (3) Europe must embrace tax competition as an integral part of the Lisbon agenda. He then presented Sinn's "selection principle" as an alternative view: if governments step in where markets fail, reintroducing markets through the backdoor of systems competition will again result in market failure. According to Sinn, the trouble with tax competition under conditions of mobile capital is that there is no efficiency problem, but a *distributional* problem, since labour is subsidising capital. Harmonising the capital tax at the supra-national level would not be a satisfactory solution, because national governments would then compete to attract capital by offering excessive levels of infrastructure. Sinn's solution is to impose a self-financing constraint requiring national governments to levy a capital tax sufficient to cover the cost of infrastructure provision. The outcome would be the same (efficient) allocation of resources but no redistribution from labour to capital.

Sørensen went on to criticise the Leviathan literature and presented a model on political equilibrium with tax competition that he developed together with Wolfgang Eggert. It is a probabilistic voting model where politicians create rents to public sector employ-



Peter Birch Sørensen

ees as part of a political strategy to maximise the expected number of votes. He found that tax competition has the potential to wipe out all rents, but at the same time it will cause an underprovision of public goods. Tax competition is welfare-improving up to a point, but excessive tax base mobility reduces welfare. Hence there is an optimal intensity of tax competition.

Starting from a tax competition equilibrium where all rents have been destroyed, some amount of tax coordination will always increase social welfare. It may even be welfare-improving to carry tax coordination beyond the point where rents to public sector workers start to emerge.

Discussion

Michael Keen, International Monetary Fund, argued that reflection on the tax competition literature helps us to think about models, ideas and instruments like tax holidays, free-trade zones, and European R&D subsidies. The IMF is campaigning against these special industry and related incentives. Since capital mobility is different in different countries, the standard treatment advocated by the Institute of International Finance (IIF) may not be correct. Because of asymmetries, there are always winners and losers. Some groups of countries may be coordinated, however, e.g. regional trading blocks may coordinate among themselves. Keen then addressed some of Sinn's papers on direct vs. indirect taxes and presented recent thinking on the issue at the IMF.

John Wilson, Michigan State University, noted that many models assume that markets are efficient and that the only source of inefficiencies is tax competition itself. This stacks the results against tax competition. He agreed with Sinn's selection principle and his warning against unfettered systems competition. But he wanted to introduce some additional considerations and some qualifications. To play the devil's advocate, he referred to the theory of the second-best, which says that if there is market failure, then competition among governments might be welfare-improving if it addresses (at least partially) the initial market failure. First he picked an example from the new geography literature, i.e. monopolistic competition with trade costs. Without taxes, because of home-market effects, the larger of two countries has more than the proportionate number of mobile firms, the number being inefficiently large. If you allow countries to compete by giving subsidies to firms, then for some parameter values tax competition improves welfare. The larger country will subsidize capital at lower rates than the small country, thus reducing the number of firms locating there. Second, he stressed that tax competition may be welfare improving if the failure is not private but caused by governments. His example was presented by Eckhard Janeba

addressing strategic trade policy. Countries have an incentive to compete in export subsidies, but this competition is wasteful. If you introduce mobility of firms and allow countries to compete for firms, this may eliminate these wasteful subsidies as governments do not want to attract firms if they have to subsidize their output. Hence governments will “overcut” each others’ output subsidies, until subsidies are eliminated. Tax competition for firms essentially changes the incentives facing governments. Third, tax competition may be a cure for tax exporting. Governments have the incentive to tax heavily income earned by foreigners and tax competition can offset these incentives. In other words, tax competition can be welfare-improving in economies with lots of foreign ownership. Fourth he mentioned the literature on tax competition as a solution to commitment problems. Governments possess incentives to raise taxes on firms that have already sunk their investments, which, in turn, discourages investment. If firms can move their taxable income between regions after investments have been made, then governments may compete to bring taxes down to levels where initial investments become profitable. Fifth, tax competition may tame “Leviathan” governments. The total size of government would be excessive in the absence of this competition, since government officials benefit from increasing the size of the public sector. Tax competition is beneficial because it reduces this excessive size. He concluded by saying that tax competition can be beneficial – if we start with an economy that is subject to distortions, either in the private sector or generated by the public sector. But, if tax competition is bad, the cure may be worse than the disease.

Sir James Mirrlees, University of Cambridge, stressed that Sinn’s selection principle is an important contribution. Sinn tends to be inclined to the benevolent government view. But there are other features of government policy like the CAP. He noted that what one country does, does affect the other country. They may then discuss coordination. But it is difficult to see how they would do that. Since capital is highly mobile, it is better to have equal tax rates for capital but not for labour. Sinn has stated that it is important to have labour mobility in the EU, and that it is desirable to have labour move from low-wage to high-wage countries. Theoretically, one should maximize the sum of consumption equivalents. But what is the right welfare function for each country? How should foreigners’ welfare count? What is a plausible wel-

fare function for a group of nations? Should we use a constraint of no transfers between nations? Or fixed transfers?

Luncheon Speech

Kai A. Konrad, Social Science Research Center, Berlin, emphasized the two distinct roles of Hans-Werner Sinn. On the one hand, Sinn is known as an academic, who has had a major influence on the scientific development in a number of fields. On the other hand, Sinn is a key player in German economic policy. He is vigorously fighting for a welfare state that is sustainable.

From the times he became Hans-Werner’s Ph.D. student, Konrad has known that Sinn does have deep moral sentiments for redistribution. And he stressed that Sinn has contributed to giving the welfare state a normative underpinning within the framework of mainstream welfare economics. Konrad mentioned that in Munich he was exposed to a whole new world of ideas. Three of the major ideas he was exposed to by Sinn are closely related, namely: (1) the redistribution paradox, (2) why market insurance cannot fully replace governmental redistribution, and (3) what globalization does to this.

Concerning the redistribution paradox, the central idea is that people are willing and able to take risks because there is a welfare state that provides some kind of insurance against the consequences of failure. Sinn showed that redistribution in a welfare state may induce both, income growth and more risk taking. So

much more, that the distribution of net incomes after redistribution has a higher mean, and is even more uneven than it is in the absence of the safety net of a welfare state. A further implication is that risk taking acts as an engine of growth. And this turned out to be not only a theoretical possibility. Edward Bird, for instance, found (in 2001) that “all else equal, in-



Kai A. Konrad

come risk seems to be higher in countries with larger shares of social spending in GDP". And Julie Cullen and Roger Gordon confirmed more recently: "overall we forecast that a uniform cut in personal tax rates by five percentage points leads to a 40 percent fall in entrepreneurial risk taking". The redistribution paradox establishes the first central component of this theory: the welfare state can boost income, but more welfare may cause a more uneven income distribution.

The second idea was implicitly criticised by some people in the mid-eighties who argued that if there is a complete private market for risk, the government cannot improve upon it. However, Sinn countered this argument with a simple but striking observation: insurance markets become available too late in life. In fact, even if the parents could sign the contracts on behalf of their kids this would not help. Some children are born to become kings in the near or distant future, some are born with special talents that are highly regarded in our society, and some are born with clever and caring parents. But others are born with physical or mental handicaps, or with incompetent, inexperienced parents, or with parents who simply do not care. This, he thought, was a good foundation for the welfare state.

Here is where the third issue comes into the picture, and which brought Konrad to the main topic of the conference: globalization. Globalization has deep implications for the welfare state. First, countries have *more need* for a governmental insurance policy and second, countries have *less scope* for raising revenues that can be redistributed. Sinn, he said, concludes that globalization and the competition among nation states reintroduces the market failures which the government was supposed to cure. This is his "selection principle". Essentially, it may make redistribution unfeasible. But this has two implications. Without systems competition, the nation state could tax the super-successful and give to those who failed. This would make super-success feasible and unleash growth. Without a behavioural change, that is, with unchanged risk taking, the income distribution would widen dramatically. However, individuals would stop taking these high risks and would rather revert to safe, but low-value alternatives.

Konrad continued that, like in his work on German unification, labour market policy, capital income taxation, environmental policy etc., there is an extremely close link between Sinn's own research insights and the policy proposals which he pushes forward in

the public debate. As regards social policy or the welfare state, Sinn can be seen as continuing the line of economists who shaped social policy in Germany in the past. Sinn, he stressed, fights for the welfare state, not against it, as is often claimed in the media.

Panel 3: European Integration

According to *Otmar Issing*, University of Frankfurt, economic integration in Europe is a success story without parallel anywhere in the world. Nowhere has this been more apparent than in the attraction exerted first by the European Economic Community (EEC) and then the EU, with candidates queuing up, then as now, to gain admission. The prosperity of European countries is due in large measure to the dismantling of trade barriers and the opening-up of markets. Issing stressed that the shared success of economic integration has yielded benefits to Europe that go beyond the economy. It cannot be denied that the Community has also helped to secure peace. The preparations for EMU in the 1990s gave strong momentum to integration in Western Europe, particularly in the areas that are subject to the Maastricht criteria and the Stability and Growth Pact. These criteria relate to price stability, the governments' fiscal position, participation in the exchange rate mechanism and convergence of long-term interest rates.

Issing continued that after a painful process of transition from central planning and political dictatorship to democracy and a market system, preparation for and access to EU has extended European inte-



Otmar Issing

gration eastwards, creating the largest economic area in the world. This enlargement of "Europe" has the potential of enormous economic and political advantages for old and new member states. But, there are also risks for conflicts and problems of all kinds, which cannot be addressed here.

Issing then turned to the topic of European Monetary Un-

ion. The introduction of a single currency, the euro, and the establishment of a supranational central bank, the ECB, can be considered the final step of economic integration. And he emphasised that the euro is probably the most successful “innovation” in the history of currencies. Although this result is in stark contrast to many sceptical voices before its start, after more than nine years it is taken more or less as self-evident that the euro had to become a success.

Finally, he pointed out that EMU is still work in progress, an experiment which is exposed to risks. He stressed that the risks are not coming from the ECB and its monetary policy, but rather stem from the failure of the body politic to deliver on its responsibilities and promises. As a result, the ability of economies to adapt quickly is still limited. Substantial progress has been made, but a lot still needs to be done, including greater flexibility of markets and sound fiscal policies. As sovereignty over fiscal policies in principle remains at the national level, the EU member countries decided to introduce fiscal rules to help to prevent imprudent fiscal policies and their adverse effects on inflation and expectations. These rules are enshrined in the Maastricht Treaty and operationalised in the Stability and Growth Pact. In his opinion, the Lisbon Agenda, the “pro-employment and growth blueprint” for Europe, sets the right priorities. However, it must be implemented more forcefully.

But, what about the unfinished house of European integration, what about Political Union? Issing has no doubts that with the introduction of the single currency and the establishment of the ECB as a supranational institution, the process of European integration has transgressed the border of economic integration. The ECB is an element of European statehood but it does not make a state. He does not see Political Union around the corner. So, the question is: “can monetary union survive without political union?” Issing’s short answer was an unequivocal yes! He would even claim that all attempts of stronger political integration in the direction of complementing monetary union by a kind of “European Social Union” are undermining the success of the single monetary policy. “Harmonising” or “Europeanising” social rights implying rigid labour market rules would go in the opposite direction of the need for greater flexibility of markets. Such a social union would also be associated with higher intra-community transfers and a rising burden of taxes and social contributions.

Issing ended his remarks by noting that the public debate on a constitution for Europe concentrates on issues which are outside the sphere of monetary union. A common foreign policy or a European army have nothing to do with EMU. And he was rather sceptical regarding the euro as a kind of pacemaker for such political projects by fostering a kind of European identification.

Discussion

Paul de Grauwe, University of Leuven, reiterated that the EU with its common currency has avoided exchange crises, has become a symbol of European integration and price stability. But he noted that challenges remain. Economic divergences have not been reduced, there is a boom in Spain and a recession in Italy, and greater wage and price stability in Germany than elsewhere. Why is this so? Greater integration also means greater specialisation. The European Central Bank is responsible for a common monetary policy, but taxation and wage policy remain in the hands of national governments. What can be done? He mentioned the following three areas:

- With monetary and exchange rate policies no longer available to national governments, greater flexibility of markets is needed.
- Fiscal discipline is essential, but in his view the Stability and Growth Pact was ill conceived. What is needed instead is a control system where the actors are truly held responsible.
- Some form of political union is needed to maintain a stable economic and monetary union and solidarity with the other countries.

Rick van der Ploeg, Oxford University, asked why so many people rejected the EU constitution. Obviously the European project is not seen as positive. Although EMU is a success, many people are against it. And although integration is a success, many people are critical of the EU and its institutions. And in foreign policy the EU is not present at all. European integration has obvious benefits, such as peace, economic convergence, and low and stable inflation. Why the criticism? Regarding EMU, in his opinion the euro is strong because the dollar is weak. Further, the policies of the ECB are too much geared to price stability. He also claimed that the Stability and Growth Pact was sold to prevent a weak euro and to get government deficits down, but

that confidence has been lacking. People love to blame Europe, which is seen as a neo-liberal project (flexibility, Lisbon Agenda).

Panel 4: Global Climate Change

Remarks on the Stern Review

Eytan Sheshinski, The Hebrew University of Jerusalem, commented on the Stern Review “Optimal Policy to Mitigate Greenhouse Effects”. He noted that the main criticism of the Stern Review was on the choice of various parameters. Based on these parameters and people’s attitudes, Stern’s policy recommendations are very drastic. He considers the spending of 1 percent of global GDP on mitigating the greenhouse effects as justified. Sheshinski first sketched the background of the greenhouse effects: (1) current level of CO₂ are 380 ppm compared to 280 ppm before the industrial revolution, (2) the level could reach 550 ppm by 2035, (3) this level would imply a two degrees centigrade rise in temperature, and (4) “business as usual” would treble the level of CO₂ by the end of the century, with a 50 percent chance of exceeding a rise of five degrees centigrade.

The implications on agriculture, low-income countries, reversal of the Gulf stream and other catastrophes are well known. The question is: “are the benefits from reducing climate change worth the costs?” He made two comments: (1) emissions are practically irreversible, and (2) because the scale of the problem is global, policies must be global, too. Cost-benefit analysis must allow for uncertainty and risk aversion and for a comparison of future outcomes with the present. The Ramsey-type solution is:



Eytan Sheshinski and Hans-Werner Sinn

$$r = \rho + g\eta$$

for each $t \geq 0$

where r = rate of return; ρ = time preference; g = rate of growth of consumption and η = risk aversion. The Stern Review chose: $\rho = .001$ and $\eta = 1$ (logarithmic utility); $g = .013$. Many criticized the low levels of ρ and η .

The Review presents (for the first time) a range of probabilities for market and non-market damages (health and ecological effects). In the “High-climate scenario”, i.e. if nothing is done, then because of CO₂ alone, the losses of global GDP by the year 2200 have an expected value of 13.8 percent (of what it would be otherwise). With $\eta = 2$, the global GDP loss would amount to 20 percent. At any time preference of $\rho \leq 8.5$ percent, it would be worth while to invest 1 percent of global GDP on greenhouse mitigating effects.

The Green Paradox

Hans-Werner Sinn, University of Munich, agreed with the size of the problem as presented by the Stern Review, i.e. a 5 percent increase in temperature by 2100. It will be even more if every fossil fuel is taken out of the ground and burnt. He also posed the question of what to do to mitigate the amount of greenhouse gases. The Stern Review is in line with the general answer and policy prescription i.e. to reduce the *demand* for fossil fuels by switching to bio-fuels, pellets, wind power, solar panels, hybrid cars, nuclear power. But a fall in demand by some countries, leading to lower prices of fossil fuels, will just increase the demand by other countries. He stressed that the oil sheiks will not care about our demand decisions. This is a trivial but important point. Obviously it cannot be the solution. We must look at the *supply* side!

A lower price for fossil fuels will be translated into a fall in extraction only to the extent that market supply shrinks after a price decline. For this reason, Sinn stressed, proper policies to fight global warming require an analysis of the *supply* side. The supply reaction is based on intertemporal supply decisions of the resource owners. It is not only current prices but also expected future prices that influence the rate of extraction of non-renewable resources. The supply reactions that do occur will depend on the whole future time path of prices. The decision

problem of the resource owners can be characterised as one where they choose between (1) extracting the resource now and investing the proceeds in financial markets to earn a future financial return, and (2) keeping the stock in the ground and benefiting from future price rises as the resources become scarcer.

If we announce a green policy only for ten years, i.e. today's demand restrictions are not expected to continue in the future, then suppliers will defer extraction. If we announce a green policy that will drastically reduce demand in 30 years' time, suppliers will have an incentive to extract more now. As global warming increases, the calls for measures to address climate change will likely grow louder, resulting in increasingly stricter demand-reduction policies in the future. As resource owners anticipate such developments, they will intensify extraction today. This is what Sinn calls the *green paradox*.

So everything depends on the time path of the green policy. Sinn suggests a strategy that is price neutral. We know that because of increasing scarcity the price of fossil fuels will rise over time (the so-called Hotelling rule). So if we depress the price, it will be relative to what it would have been and not relative to what it is today. According to Sinn, if there are no extraction costs, the price-neutral strategy is a proportional decline of prices that could be achieved with a constant *ad valorem* tax. Such a tax is a cash-flow tax which is intertemporally neutral. With extraction costs, however, the neutrality condition becomes more complicated. The discounted value of the absolute price wedge must be constant. In terms of *ad valorem* taxes, the rate of increase of the *ad valorem* tax rate (or the proportional decline of prices) must be greater than the rate of interest times the cost share in revenue. If the tax rate increases faster, i.e. if the policy becomes greener over time, extraction will be sped up and global warming will accelerate.

Unfortunately, in reality, the support for green policies will grow, which means the oil countries will extract more and global warming will increase. What can we do? We could impose quantitative constraints. We could introduce a "Super-Kyoto" that issues rationing coupons for energy. In that case we would need a worldwide coupon system for oil consumption. But that would amount to communism, only a central planning solution for the whole world would do. Alternatively we could pump the

released CO₂ back into the ground. But there is not enough space, as 1 m³ of coal taken out of the ground and burnt produces 5.6 m³ of CO₂ and if there were space, people would not want to live close by because the CO₂ would be stored under pressure and if it escaped, everyone would die. Sinn could only shrug his shoulders and say: yes, economics is a dismal science.

Concluding Presentation: Skills, Schools, Synapses

James J. Heckman, University of Chicago, gave an interesting presentation on education. In particular, he asked: "why invest in disadvantaged children?" Even ignoring arguments of fairness and social justice, he noted the benefits for society at large like a reduction in crime and the promotion of integration of persons into society, improvement in the efficiency of schools, increase in the productivity of workers. On productivity enhancement grounds alone, the case for early intervention for disadvantaged children is strong, he stressed. Early childhood programs targeted at disadvantaged children promote economic efficiency and reduce poverty. For such programs there is no "equity-efficiency" trade-off.

The accident of birth is a major source of inequality in society. The early years exert a powerful influence over the rest of the life of a child. We are talking about the years 0 to 3 as well as the later preschool years 4 to 5. Children raised in disadvantaged environments are much less likely to succeed in schools and in economic and social life and are much less likely to be healthy adults. The good news for policy makers is that there is strong evidence that early environments can be enriched and that we can off-



Sir James Mirrlees, Hans-Werner Sinn and James J. Heckman

set, in part, the powerful consequences of the accident of birth.

According to Heckman, many major economic and social problems such as crime, teenage pregnancy, dropping out of high school and adverse health conditions can be traced to low levels of skill and ability in society. We need to recognize the multiplicity of abilities. Current public policy discussions focus on promoting and measuring cognitive ability through IQ and achievement tests. Cognitive abilities are important determinants of socioeconomic success. So are socio-emotional skills, physical and mental health, perseverance, attention, motivation, and self confidence. They contribute to performance in society at large and even help determine scores on the tests that are used to monitor cognitive achievement.

According to Heckman, ability gaps between the advantaged and disadvantaged open up early in the lives of children. Family environments of young children are major predictors of cognitive and socio-emotional abilities, as well as crime, health and obesity. If society intervenes early enough, it can raise cognitive and socio-emotional abilities and the health of disadvantaged children. These interventions are estimated to have high benefit-cost ratios and rates of return. And early interventions have much higher economic returns than later interventions such as reduced pupil-teacher ratios, active labour market programs, convict rehabilitation programs, adult literacy programs, tuition subsidies or expenditure on police.

He stressed that life cycle skill formation is dynamic in nature. Skill begets skill; motivation begets motivation. If a child is not motivated and stimulated to learn and engage early on in life, the more likely it is that when the child becomes an adult, it will fail in social and economic life. Gaps in the abilities that play such important roles in determining diverse adult labour market and health outcomes open up early across socio-economic groups. Schooling after the second grade plays only a minor role in alleviating these gaps. Measures of school quality (teacher/pupil ratios and teacher salaries) that receive so much attention in public forums play only a minor role in creating or eliminating the gaps after the first few years of schooling. Early intervention lowers the cost of later investment.