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2 Income Distribution Theory: A Survey of Selected Recent Contributions

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1 INTRODUCTION

The field of income distribution theory has probably received more attention during the past five years than it had received during the previous 15-20 years. These developments were mostly motivated by the urgent need to move beyond representative-agent models and the development of new tools allowing tractable equilibrium modelling of heterogeneity between agents, but probably also by the dramatic recent development of income inequality both in developed and developing countries.

This survey is not intended to be exhaustive.¹ On the contrary, I choose to concentrate on three different sets of ideas that have been developed in recent research and which I view as important, while leaving untouched the rest of the literature. I summarize briefly the main theoretical ingredients of these different models, and I move on to the research agenda and especially the need for more collaboration with empirical research.

First, I show how credit-rationing modifies substantially the logic of the neoclassical accumulation/distribution model, by making the wealth distribution (and not only aggregate wealth) a key variable of the development process; I emphasize the distinction between 'poverty traps' and 'low-mobility traps' and the urgent need for further empirical work.

Next, I present the main ideas of recent work on local externalities and neighbourhood segregation (housing market vs zoning, social inefficiency, long-run effects), stressing the interaction with other levels of spatial segregation (firm, family) and the prospects for estimating the key parameters.

Finally, I show how recent work on mechanisms generating persistent inequality out of self-fulfilling beliefs (e.g., statistical discrimination, learning models) addresses the issue of efficient redistributive policy tools: transfers contingent solely on income vs quota-type affirmative action vs transfers contingent on income and race (or gender, or parental income).

The next three sections take these topics in turn.

2 CREDIT RATIONING AND INEQUALITY TRAPS

Credit or wealth constraints are said to arise whenever the opportunity to invest depends not only on the 'technological' viability of the investment (rate of return, risk, ability of the entrepreneur, ...) but also on the initial wealth (or collateral) of the would-be entrepreneur *per se*. Although the idea that such constraints are pervasive in capitalist economies dates back at least to Marx,² one had to wait for the development of information economics in the past 15 years to find formal theories describing precisely the microeconomic origin of these constraints. It is by now well understood that the source of credit constraints is the commitment power of initial wealth: without a sufficient personal stake in the project the would-be entrepreneur has no commitment that he or she will reveal the truth to the lender (adverse selection) nor that he or she will take the right actions to ensure the lender will be repaid (moral hazard). Depending on the exact technological and informational parameters, this will result in equilibrium into a credit-rationing curve $k(w, r)$: $k(w, r) \geq w$ is the maximal capital investment a would-be entrepreneur with initial wealth w can undertake when the interest rate is r , i.e. $k(w, r) - w$ is the maximal credit that lenders accept to offer.

In the past five years, these equilibrium credit-rationing models have been used as building blocks by a new generation of dynamic models of capital accumulation and income distribution. The general conclusion is that long-run output, capital stock and income distribution can now depend on the initial distribution of wealth as well as on transitory shocks, which stands in great contrast with Solow-type models. In the Solow model, the long-run capital stock *per capita* k^* (which is also the long-run average wealth) is uniquely determined by $sf(k^*) = \delta k^*$ in the case with linear savings,³ and by $f(k^*) = \theta + \delta$ in the case with dynastic preferences,⁴ and this k^* is completely independent from the initial wealth distribution $F_0(w)$. Intuitively, this is because first-best credit makes wealth inequality irrelevant: efficient capital allocation implies that the rich and the poor work with the same amount of capital per labour unit, so that

aggregate output only depends on aggregate wealth; the concavity of the production function then ensures global convergence of aggregate accumulation.⁵

The simplest novelty introduced by credit-rationing is the possible existence of poverty traps.⁶ Consider for example a model with linear savings and a very extreme form of moral-hazard-induced credit-rationing: borrowers can always 'take the money and run' at no cost, so that in effect the credit market completely collapses ($k(w, r) = w$); further assume that each generation can either earn a subsistence income y or make a fixed investment I that yields a net return RI , with $RI > y$. Then at each period t , all agents whose initial wealth w_t is smaller than I earn y , while agents with $w_t \geq I$ earn RI , so that transitional equations can be written:

$$\text{If } w_t < I, w_{t+1} = (1 - \delta)w_t + sy$$

$$\text{If } w_t > I, w_{t+1} = (1 - \delta)w_t + sRI$$

If we assume the savings rate s to be small enough so that $sy + (1 - \delta)I < I$ and the rate of return R to be high enough so that $sRI + (1 - \delta)I > I$, then we have a poverty trap: poor dynasties starting with $w_0 < I$ earn a low income y and remain poor forever ($w_t \rightarrow w^0 = sy/\delta < I$), while rich dynasties starting with $w_0 \geq I$ earn a high-income RI and remain rich ($w_t \rightarrow w^1 = sRI/\delta > I$). That is, if the initial distribution of wealth $F_0(w)$ is characterized by a mass $F_0(I)$ of poor dynasties and a mass $1 - F_0(I)$ of rich dynasties, then so will be the long-run distribution $F_\infty(w)$: initial wealth inequality persists in the long run. Note that this persistence would immediately disappear with first-best credit: everybody would invest I irrespective of one's initial wealth, and all dynasties would converge to the same wealth level, for any initial wealth distribution. Note also that those poverty traps rely entirely on a threshold effect requiring a technological non-convexity: without the assumption of a fixed-size investment, poor dynasties could slowly accumulate by starting with small investment levels and eventually catch up with the rich.

However, an important finding of the recent literature is that we actually do not need non-convexities and threshold effects to conclude that initial inequality can persist in the long run. Consider a model where agents can invest at any level according to a production function $f(k)$, but where moral hazard in entrepreneurial effort leads to a credit-rationing curve $k(w, r)$ that becomes more binding as the market interest rate r goes up ($dk(w, r)/dr < 0$).⁷ Risks from investment are imperfectly insurable (because of moral hazard), so that individual transitions $w_{t+1}(w_t)$ are stochastic. With suitable concavity assumptions, one can ensure that

individual transitions $w_{t+1}(w_t)$ exhibit no threshold effect, i.e., that one can switch between any two wealth levels in a finite time with positive probability. If we assume that the interest rate r is exogenously fixed, this ergodicity property is sufficient to ensure global convergence, i.e., the fact that the long-run distribution $F_{\alpha r}(w)$ does not depend on the initial distribution $F_0(w)$.

However things are different when the interest rate is endogenously determined by the supply and demand of capital. Note first that with credit constraints the equilibrium interest rate is not simply given by 'the' marginal product of capital, since the latter varies across production units. In other words the equilibrium interest rate r_t now depends on the entire wealth distribution $F_t(w)$ at period t . One can then show that depending on the exact initial distribution $F_0(w)$ there will exist different possible long-run distributions $F_{\alpha 1}(w)$, $F_{\alpha 2}(w)$ associated with different long-run interest rates.⁸ The intuition is the following: initial distributions with a large mass of low-wealth agents lead to a high demand for capital and to high interest rates, which in turn imply that it takes a long time for low-wealth agents to accumulate and rebuild their collateral, so that the initially large mass of poor agents is self-reproducing; conversely, low initial interest rates lead to high wealth mobility, high accumulation and low equilibrium interest rates. Such a multiplicity will arise whenever an interest rate rise strengthens credit constraints more than it strengthens the accumulation of the rich, i.e., whenever $|dk(w,r)/dr|$ is large enough. The steady states with higher interest rates have at the same time less wealth mobility and a lower aggregate output and capital stock.⁹

The key difference between this type of 'low-mobility trap' and the inequality traps described earlier is that the latter can be eliminated once and for all by pushing all poor agents above the threshold, whereas the former is more perverse and requires continuous downward pressures on the interest rate (through monetary or credit policy) to shift the economy to a lower interest rate, higher mobility development path.

This phenomenon of low-mobility traps is actually very general, and it has first been pointed out by Banerjee and Newman (1993) in a context that is slightly different from the one we have just described. Banerjee and Newman consider a dynamic accumulation/distribution model with a fixed exogenous interest rate r , but with an endogenous wage rate v , playing a role that is similar to the endogenous interest rate in the previous discussion. In their model, the wage rate is the equilibrium market price of monitored labour: they consider a world where moral hazard-induced credit constraints prevent poor agents from investing in large projects but where rich agents can use a technology to monitor poor agents working as

wage earners. That is, there are three possible occupations in their model (unlike in the previous model where everybody was an entrepreneur): wage earners (who are too poor to make any investment on their own), self-employed (who finance and run their own investment) and entrepreneurs (who finance large investments and monitor wage earners).¹⁰ The equilibrium wage rate v , is determined by the equality between the number of agents 'choosing' to become wage earners and the number of wage earners required by entrepreneurs, and thus depends on the entire wealth distribution $F_t(w)$. One can easily see how this can generate long-run effects of the initial wealth distribution: an initially large mass of poor agents with no other option than becoming a wage earner leads to a low wage rate and little upward mobility for wage earners, while an initially small mass of poor agents leads to high wage rates and high mobility between wage earners and self-employed, which reproduces the forces leading to high wage rates.

At this stage, it is fair to say that the properties of credit-rationing models of income distribution are well understood at a theoretical level. However, much more empirical work remains to be done in order to convince ourselves that these inequality and mobility traps are indeed relevant and that some specific policies of credit subsidies or wealth redistribution might be appropriate. First, we need to know more about the magnitude of actual credit constraints: we know that they exist from indirect evidence such as that about parental wealth and children's education investment,¹¹ but to my knowledge there exists no systematic study about the actual policies of existing credit institutions (how do collateral requirements differ across investment projects, across countries?).¹²

Next, we need to know whether these credit constraints are sufficiently large so that their interaction with actual wealth distributions can generate traps of the type described above. We already know that this is plausible: historians cite France vs England. Note, however, that this empirical work can more easily be done for traps based on accumulation thresholds, since they do not require looking at the formation of prices on the capital and labour markets.

3 LOCAL SEGREGATION

The importance of social segregation in spatially distinct neighbourhood has been stressed by sociological research for a long time.¹³ However it is only in the past few years that formal economic models of income distribution have started to integrate the determinants and consequences of

spatial segregation. These models tell us under what conditions *laissez-faire* spatial segregation is socially inefficient and identify the exact parameters that we need to estimate in order to know in which case we are.

Consider first the following transparent model due to Benabou (1993a): agents must choose to live in one of two spatially distinct neighbourhoods and whether to obtain a low education (cost C_L) or a high education (cost C_H); these costs $C_L(x)$ and $C_H(x)$ depend negatively upon the fraction x of one's neighbours choosing to obtain a high education, reflecting the positive external effects of education on one's neighbours (in the classroom, as a role model, ...). Whether or not it is socially optimal to get all agents choosing a high education to live in the same neighbourhood depends on the slope of the total educational cost function $C(x) = xC_H(x) + (1-x)C_L(x)$: if $C(x)$ is convex, then for any given optimal number of high-education agents it is less costly to divide them equally between the two neighbourhoods, and conversely segregation is optimal if $C(x)$ is concave.

The key point is that whether segregation or integration will prevail in *laissez-faire* equilibrium depends on a different condition: Benabou shows that whenever $C_H'(x) < C_L'(x)$, i.e., the marginal benefits of having more educated neighbours are higher if you choose high education, then integration is inherently unstable and market forces push towards stable segregation. The intuition is that if the two neighbourhoods have initially a marginally different composition, this condition implies that high-education agents are ready to pay a marginally higher rent to live in the better neighbourhood, which leads to more segregation, and so on. The reason why the conditions for social optimality and decentralized equilibrium are different is that high-education agents only take into account their marginal benefits of moving to a better neighbourhood and do not internalize the marginal costs they impose on their initial neighbourhood by diminishing the fraction of high-education agents. The failure of the price system is that the housing market does not charge the true social costs of moving: market rents are the same for everybody, whereas a socially-optimal price system should charge a higher rent to high-education movers to a high-education area (or, alternatively, a lower rent to high-education movers to a low-education area). These two conditions also highlight what typical situations lead to inefficient segregation: if $C_H'(x) < C_L'(x)$ but both slopes are very close, then $C(x)$ will be convex if $C_H(x)$ and $C_L(x)$ are convex, i.e., if the benefits of living with educated people exhibit decreasing returns; conversely if these returns are increasing segregation will be socially optimal, and so will be the decentralized equilibrium.¹⁴

In Benabou's model, the forces behind segregation are the pure forces of local externalities (peer effects) and the housing market. This can be

extended in several directions: first, segregation could be supported by other institutions than a competitive housing market, such as the possibility for local communities to enact zoning regulations, which will in general exacerbate inefficient segregation.¹⁵ Next, individual motives for segregation can be more complex than direct peer effects: if each community decides how much fiscal revenue to allocate to schools, then this creates an incentive to locate in a wealthy neighborhood, even if there are no direct peer effects in the classroom.¹⁶ Whether segregation will take place and whether it is efficient then depend on the shape of the marginal benefits of having better-funded schools, just as in the Benabou model. Note also that forces behind inefficient segregation always tend to be magnified by imperfect capital markets: if one adds to the Benabou model that agents are initially unequal and face credit constraints, then poor agents might be unable to move to a better neighbourhood even if $C_H'(x) > C_L'(x)$, i.e., even if their marginal benefits of moving are higher. Dynamic extensions of these models also help to identify other key parameters: Benabou (1993b) shows that even in cases where for a given initial level of human capital inequality segregation leads to higher output, segregation can actually be dynamically inefficient because by increasing future human capital inequality it reduces long-run output and growth; the magnitude of these different effects depends on the exact elasticities of the production function.¹⁷

Just as for the topic of the previous section, these theories of local segregation tend to be ahead of measurement: the Benabou model provides a powerful rationale for radical policies like generalized busing or housing policies, but we do not know whether the right parameter conditions are met in practice. At least, past research tells us that this is plausible: there is a long tradition of empirical research arguing that direct financial transfers to the schools of poor neighbourhoods have a limited effect on educational achievement, thereby suggesting that the 'quality' of one's classmates matters more than the amount of money allocated to schools and that only busing or housing policies can counteract these peer effects.¹⁸ The availability of large panel data sets with information about several generations and about neighbourhoods now makes possible to better estimate the magnitude of neighbourhood effects: Cooper *et al.* (1994) find in PSID data that for a given parental income group the intergenerational correlation of incomes can vary by a factor of 2 depending on the average income of the parents' neighbourhood. However these results do not allow us to distinguish between different channels of neighbourhood effects: more micro data about educational achievement are needed to estimate the parameters identified by the theory.

The models described above all deal with a specific level of local externalities (namely, neighbourhood and schooling) and analyze the endogenous division of the population between different groups and the consequences for the dynamics of inequality. The same task can be undertaken for other levels of local externalities, like the family and the firm. At the level of the family, Meyer (1995) shows how divorce leads to a higher correlation of income and human capital levels between spouses, because more information about others' permanent attributes have been accumulated by the age of divorce. She also shows that almost half of the total increase of US household income inequality in the past 20 years is due to the increase in the correlation between spouses' incomes, and that almost 40 per cent of the rise in this correlation is due to this 'divorce effect'. Kremer (1995) suggests that a cumulative mechanism might exist along similar lines: higher human capital inequality increases the incentives to marry with someone of similar human capital level, which in turn generates higher human capital inequality between children, and so on. Kremer illustrates these perverse dynamics by contrasting the US case with that of Brazil.

At the level of the firm, Kremer and Maskin (1995) show that higher human capital inequality also increases the incentives of high-skill workers to break away from low-skill workers and work together. If human capital acquisition is influenced by one's co-workers (just as by one's neighbours and one's parents), then this can also generate perverse, cumulative dynamics. They show that this process might be quite relevant to account for the recent evolution of US wage inequality.¹⁹

4 SELF-FULFILLING INEQUALITY AND REDISTRIBUTIVE TOOLS

One of the most widely held economic principles about inequality and redistribution is that if governments want to reduce inequality they should do so through a system of taxes and transfers conditional solely on incomes obtained on the market, and not by trying to influence directly the productive sphere and the formation of prices. Of course, the existence of imperfections such as credit constraints or local externalities can justify using more complex tools such as credit subsidies or housing policy. However we observe many other redistributive tools in the real world, many of which seem hard to justify on economic grounds. For example, it is not obvious why quota-type affirmative action is an efficient way to redistribute towards minorities, as opposed to direct income transfers.

This latter issue has been addressed by Coate and Loury (1993). They start with a model of persistent inequality borrowed from the statistical theory of discrimination:²⁰ two racial groups (say, the blacks and the whites) have the same distribution $G(c)$ of cost c to become a qualified worker, but employers only observe a noisy signal θ of workers' qualification; under appropriate assumptions there exists a discriminatory hiring policy (θ_B, θ_w) which is self-fulfilling: employers promote to qualified tasks black workers with a $\theta \geq \theta_B$ and white workers with a $\theta \geq \theta_w < \theta_B$, which induces black workers to become qualified less often than the whites (the threshold cost c_B is lower than c_w), which in turn validates employers' discriminatory priors.

Coate and Loury then ask: what policy can break this inefficient equilibrium? The ideal policy would be to force employers to use the same testing requirements $\theta_B = \theta_w$, which would immediately annihilate racial inequality. However they argue that this is not enforceable, and that in practice affirmative action policies look much more like quotas: employers must end up with the same distribution of black and white workers in their qualified and unqualified tasks. Coate and Loury then distinguish between two cases. First, they show that if initial discrimination is not complete, in the sense that a positive fraction of black workers ends up in qualified tasks, then quota-type policies are generally dominated by a policy of state-financed income subsidy to black workers promoted to qualified tasks, which would gradually eliminate discrimination. The intuition is that quotas can lead to 'patronizing' hiring policies whereby employers reduce their standards θ_B so much in order to meet the quota that black workers have even less incentive to become qualified than in the previous situation. However, if we start from a situation where θ_B is so high that no black worker is allocated to qualified tasks (complete discrimination), then quota-type affirmative action is the only way to make progress. In any case, note that the optimal policy tool (race-specific income subsidies to promotion or quotas) would be difficult to justify without a model of racial inequality based upon self-fulfilling beliefs.

As is always the case with statistical discrimination, one can apply this same logic to other observationally distinguishable groups than blacks and whites. For example, Acemoglu (1994) shows that in a model where employers observe imperfectly whether unemployed have paid the cost to recover their skills, an equilibrium where unemployed do not incur this cost and are discriminated against by employers can be supported by self-fulfilling beliefs; he then shows how this can justify policies of positive discrimination towards long-term unemployed, although such policies would seem inefficient in a model where the latter are simply less productive.

I believe that one can learn a lot by applying this same methodology to similar issues: the fact that persistent inequality can be generated through various mechanisms of self-fulfilling beliefs can possibly justify the existence of many other redistributive tools that would otherwise appear seriously inefficient. For example, one can show that the (rational) process of learning the relative importance of individual effort and pre-determined factors (luck ...) for becoming rich can generate persistent inequality between otherwise identical dynasties: 'left-wing' dynasties believe less in effort and are less often upwardly-mobile than 'right-wing' dynasties, whatever the truth might be.²¹ Such a situation can generate a rationale for negative marginal income tax rates, of the type used in the United States with EITC,²² in order to induce those dynasties that are viewed by the majority as underestimating effort to put more effort and learn that it pays off. In a world where persistent inequality is simply the product of fixed ability differentials, such negative marginal rates seem hard to justify: most distributive justice theories would prescribe that transfers decline monotonically with market income.²³

At this stage, it is still the case that looking at the way redistribution is actually carried out raises a lot of unexplained puzzles. In general, direct income transfers raise much less enthusiasm than their presumed efficiency properties would suggest: French farmers do not want income transfers in exchange for producing less, they want to be able to produce and sell their production at a 'fair' price; similar types of behaviour exist within the unskilled almost everywhere.²⁴ This is probably the single largest gap between economic theory and the way economic agents behave. The right answer has probably something to do with the fact that agents care about 'status', and that the latter is largely correlated with labour market earnings. Whether formal models can help us to make progress on this front remains to be established. Unlike the first two topics covered in this survey, this is an area where empirical knowledge seems to be ahead of theory.

Notes

1. See the relevant chapters in A. B. Atkinson and F. Bourguignon (eds), *Handbook of Income Distribution* (Amsterdam: North Holland), forthcoming 1998, for surveys designed to cover the entire literature.
2. According to Marx and many other socialist theorists, initial wealth and capital ownership *per se* determine power relationships on the workplace: this could not happen in a world of neoclassical, first-best credit markets where initial wealth *per se* is irrelevant from the viewpoint of productive efficiency. Given the underdeveloped financial systems surrounding them,

- nineteenth-century theorists do not even refer to the concept of credit constraints, although it is implicit in their analysis.
3. Where s is the savings rate and δ is the depreciation rate.
 4. Where θ is the rate of time preference.
 5. With linear savings, all individual wealth levels converge towards the same wealth level $w^* = k^*$, irrespective of $F_0(w)$. With dynastic preferences, any distribution $F(w)$ whose average wealth equals k^* is a steady-state distribution. In both cases, wealth dispersion is irrelevant for long-run output and capital stock. Note that things would be different with a convex, exogenous savings function $S(y)$, see Bourguignon (1981) (this case is somewhat similar in spirit to the case of poverty traps described below).
 6. A formal dynamic model of such poverty traps was first proposed by Galor and Zeira (1993), who choose to interpret the fixed-size investment as a human capital investment. The model that follows is essentially similar to theirs.
 7. For an endogenous derivation of such a curve, see Piketty (1992), whose moral-hazard credit model is taken from Aghion and Bolton (1991).
 8. See Piketty (1992).
 9. This is obviously not the only development pattern that the interaction between equilibrium interest rate, wealth distribution and credit constraints can generate. For example, Aghion and Bolton (1991) do not consider the long-run effects of initial wealth dispersion and concentrate on the endogenous Kuznets curve implied by credit constraints and a dropping interest rate (at a low development stage, interest rates are high and inequality rises, before the rich accumulate, the interest rate drops and inequality diminishes).
 10. On the concept of poverty implied by this process of occupational 'choice', see Banerjee and Newman (1994). This typology of occupational choice based solely upon endogenous incentive constraints and the wealth distribution has been extended by Legros and Newman (1994): they allow poor agents to form partnerships to be able to invest, in contrast to 'hierarchical' firms where one rich agent makes the investment and monitors poor wage earners. They show that hierarchical firms will tend to dominate in equilibrium even though partnerships lead to higher output (there is no labour wasted in monitoring) and are incentive-compatible, essentially because rich agents use hierarchical firms to extract a larger share of a smaller pie.
 11. There exists a long tradition of sociological research showing that for given school tests at the age of 10 children from lower parental strata tend to end their education earlier. Obviously, this does not distinguish between credit constraints and differences in motivation and 'reference group'. See, e.g., Boudon (1973).
 12. For example the recent empirical literature on the 'credit crunch' shows that investment behaviour depends crucially on the current net wealth and that the toughness of these credit constraints varies substantially along the business cycle and across different types of firms, but without analyzing the actual credit policies of banks. On this literature, see Bernanke and Gertler (1993).
 13. Dating back at least to the Chicago School of sociology between the two world wars.

14. Assume for example $C_L(x) = (1 - a)C_H(x) - c$, with a sufficiently close to 0. Then $C''(x) = C_H''(x) - ad^2((1 - x)C_H(x))/dx^2$, which is arbitrarily close to $C_H''(x)$.
15. Zoning regulations allow local communities to restrict access to their neighbourhood to agents meeting specific criteria of income, age, children, landowner/tenant status ... See Durlauf (1993) and Fernandez and Rogerson (1993a) for such models.
16. See Fernandez and Rogerson (1993b) and Benabou (1993a, 1993b) for an explicit modelling of this fiscal channel for segregation.
17. See also the dynamic model of Fernandez and Rogerson (1993b), who calibrate their model to US data to estimate the output gain of a switch from local education financing to national education financing.
18. The Coleman Report (USGPO 1966) first pointed out the limited effects of financial transfers to poor schools on educational achievement. This literature has generally been used to argue that we should stop wasting money and forget about altering human capital inequality, although another reading is that it points towards more radical policies. See however Card and Krueger (1992) for a criticism of these estimates: they find much larger effects by using after-school wages rather than standardized tests.
19. Kremer and Maskin show that in almost every production sector the variance of the distribution of firm-level mean wages has increased much more rapidly than the mean variance of the firm-level distribution of wages. Kramarz, Lolliven and LePele (1995) obtain similar conclusions with French data.
20. See Arrow (1973) and Phelps (1968).
21. For such a model based upon rational Bayesian learning, see Piketty (1995). See also the quasi-rational model of Roemer and Wets (1994), where agents learn about the convex relationship between human capital investment and market income through linear extrapolation of the (human capital investment, income) pair of their social neighbourhood.
22. EITC (Earned Income Tax Credit) is the rapidly growing US system of subsidies to low market incomes. In 1996, the transfer will be equal to 40 per cent of earned incomes below \$9110 per year (a maximum transfer of \$3644) before declining at a 21 per cent rate between \$11 900 and \$29 200 per year. Thus the \$0-9110 income interval benefits from a 40 per cent negative marginal tax rate. The effects on labour market participation seem substantial (see Eissa and Liebman, 1995).
23. In a Mirrlees-type framework with pure productivity differentials, both the Rawlsian and the utilitarian optima involve positive marginal rates along the entire tax schedule (though not necessarily monotonic).
24. For an analysis of similar behaviour, see Kahneman *et al.* (1986) and Akerlof and Yellen (1990).

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3 The International Evidence on Income Distribution in Modern Economies: Where Do We Stand?

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1 INTRODUCTION¹

Interest in cross-national comparison of personal income distributions, low relative incomes, and income inequality in general has grown dramatically during the past five years. Interest in cross-national distribution research did not come about by accident; several factors helped propel this line of research in the 1980s and 1990s. First of all, income distributions in the United States, the United Kingdom, and in several other nations began to trend toward greater inequality in a systematic and secular pattern, and the inequality-generating pressures of a rapidly internationalizing highly technical economy were felt in several modern nations. Second, the former state socialist nations of Central and Eastern Europe (CEE) began a still continuing process of economic and social adjustment and transition to a new socioeconomic order. While this transition is still underway, CEE nations have experienced large changes in both real income levels and in income distribution. Third, along with the rise in inequality, a growing interest in the question of 'fairness' *vis-à-vis* 'budget pressures' was present in the national political debates of the late 1980s and early 1990s, thus making 'income distribution' a legitimate realm of political inquiry.

Finally, the emergence of comparable cross-national data on distribution allowed for comparisons of similarities and differences across