

Meaning and Measurement in Intergenerational Equity

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“Intergenerational equity” is a term that can be interpreted in the sense of either: (1) equity between persons in the intergenerational transmission of economic status - often judged by the norm of “equality of opportunity” or (2) equity in the intergenerational division of aggregate resources, considering all members of each generation as a group. Many of the papers in the companion volume focus on the first meaning, and the determinants of intergenerational social mobility has long been a central issue in sociology and politics. This volume has focussed on the second interpretation, and espoused a “new” type of measurement of “generational accounting”.

However, intergenerational equity in the second sense is not exactly a new issue. It has always been, and will always be, true that the adults now alive make decisions which affect the future welfare of their children, and their children’s children. It has also always been the case, because future generations have nothing to trade and no power to coerce, that the division of resources between present and future generations is determined by the norms of equity of the current generation. And it has been clear for a long time in Canada that a bulge in births in the 1950's would create an uneven generational structure, with long run implications for retirement security issues.

Why is there now a new level of concern for this second interpretation of intergenerational equity? Do the papers in this volume add to our understanding of intergenerational equity and hold out the promise for improved policy formulation -- or is their selective focus misleading, and likely to produce poorer policy choices? In my comments, I will focus on the issues raised by “Generational Accounting” because, in my view, the conceptual framework underlying accounting conventions is extremely important. By organizing and framing our social perceptions, accounting conventions can shape our understanding of social reality, and thereby significantly influence public policy. Indeed,

it is the stated purpose of “generational accounting” to highlight a supposedly neglected dimension of equity and to influence public policy.

I will argue that these efforts are fundamentally misleading. Section 1 emphasizes that the relative well being of unborn generations will be determined by the stock of real productive assets which they receive as an endowment, an issue about which the “generational accounting” of forecast tax burdens has nothing to say. Section 2 argues that since the central social function of the family is intergenerational reproduction, any realistic model of intergenerational transfers must examine seriously the transfer of resources within the family, and the impacts of public policies on those intra-family reallocations. Section 3 notes that in aggregating individuals into groups, on the criterion of birth year, “generational accounting” focusses on relatively small differences in average income, compared to the very large differences in individual income between the rich and the poor of each cohort. Section 4 discusses the type of research programme a statistical agency might adopt to assist the decision making process and why the issue of intergenerational equity has come to the fore.

1. The Real Bequest

Equity between Canadians now alive and Canadians yet unborn is, as I have argued elsewhere (Osberg, 1985, 1992,1993), an important component in societal well-being. However, it should be emphasized from the outset that the aggregate economic well-being of future generations will depend on the aggregate stock of real productive assets which they inherit, minus any net liabilities to foreigners. Future generations will have to combine their own labour power with the endowment of assets which they receive, and they will have to make their own decisions about the distribution of annual output, but the important issue is the legacy of real assets.

The bequest of productive assets left to future generations is not limited to the aggregate stock of physical capital goods and structures (both public and private). In an economy increasingly oriented to the production of information and knowledge services, many would argue that the endowment which this generation leaves to the next in the form of human capital, societal knowhow, culture and research and development will be even more important. Environmental assets, both in the form of resource stocks and in the shape of environmental problems, are also an important component of the intergenerational bequest. The productive potential of future generations will also be heavily influenced by the amount of resources which they have to devote to battling crime or picking up the pieces left by disintegrating families -- under the heading of "social capital" one can group the social institutions that create and sustain such traits as honesty, law abidingness and nurturance of the young.¹

Future generations will have to combine their own labour power with the physical capital, human capital, environmental assets and social capital left to them by previous generations, and out of that stream of income they will make payments on any net debts owing to foreigners. Hence, in analyzing issues of intergenerational equity, it is crucial to measure accurately trends in these stocks. Good data now exist on net financial indebtedness to foreigners and on the aggregate value of the private capital stock (public capital stock figures may be less complete). Canada also has a substantial amount of information on the level of educational attainment of Canadians, and is beginning to acquire data on the quality, as well as the quantity, of schooling. However, information on the

¹The importance of social capital in socially sustainable development is taken up in Osberg(1992).

aggregate value of training investments by firms, or our stock of research and development, is sketchy at best.

Important aspects of our intergenerational bequest are difficult to measure, but it may be dysfunctional to ignore issues, just because of that difficulty. Resource stocks such as ore bodies, forests or fish stocks present complex problems of valuation and management -- but it is surely undesirable to implicitly set their value to zero, by ignoring them. Similarly, future generations will probably not thank us if we ignore our social problems and bequeath to them a society with a higher endemic rate of crime, violence and social decay - even if we also leave them a greater capital stock of penitentiaries.

I emphasize the importance of measurement of the legacy of productive capacity which this generation of Canadians will leave to the future, because in this volume there is not one word of discussion of these issues. This volume does contain a good deal of discussion of the distribution of financial liabilities in the papers on Workmen's Compensation Board funding, the federal deficit and the distribution of tax liabilities. However, none of these papers address the issue of whether Canada's stock of real productive assets is increasing over time, or whether it is falling. Hence, the question of whether, in fact, the decisions of this generation are leaving the next generation better off, or worse off, in aggregate terms remains unaddressed. The measurement of trends in real productive capacity is central to assessment of the options that will be open to our children, and to future generations. However, the adults of today should also face the fact that future generations may make fundamentally different social choices than we have,² and we will not be able to do anything about

²For example, faced with a high tax burden due to accumulated debt, future generations might decide to sell off public assets (such as national parks, or the road network) - or they could (conceivably) decide to repudiate debt. Either course would alter the distribution of income within

it, because we will then be dead. Today's adults can decide the type and amount of their legacy of productive assets, but they cannot bind future generations as to how those assets will be used, or how each generation will decide to distribute its aggregate income.

In the Oreopoulos/Vaillancourt paper [henceforth O-V], a trend rate of population growth, and a trend rate of growth of national income, are assumed, hence real income per capita is exogenously determined, at each and every point of time in the future. One might then wonder what remains to be said about the aggregate economic well-being of different generations. However, the O-V paper, like much of the Generational Accounting literature, is not really about the consumption possibilities, in aggregate, of future generations - rather it is about whether tax rates might have to be raised in future, or whether current tax rates are sustainable (the O-V conclusion is that "Canadian fiscal policy is nearing sustainability").

Does the relative burden of tax liabilities affect the rate of accumulation of aggregate productive capacity? Only two papers (by James and Matier and by Merette) consider this issue at all explicitly, although no measurement is attempted in either. These papers are important advances in the discussion because they do at least try to link, in an explicit way, the intergenerational balance in tax liabilities to aggregate capital formation and economic growth. However, even leaving aside the many grounds for skepticism about the output of computable general equilibrium models calibrated with an ad hoc selection of response elasticities³ and based on the assumption of the non-

generations, but not the aggregate income of each generation. Of course, the option of asset sales only exists if such assets exist.

³To anyone familiar with the labour economics literature (e.g. Heckman's 1993 survey), a base case labour supply elasticity of 1.0 seems implausibly high - most surveys (e.g. Pencavel, 1986) put the consensus estimate at about 0.1. This is half the minimum value of the labour supply elasticity used by Merette and James/Matier (i.e. 0.2) - and, as they note, their results are

existence of involuntary unemployment or the business cycle, can these papers tell us anything useful about Canada's legacy of productive capacity?

One does not really have to run the model underlying these two papers to know the conclusion. The strength of the computable general equilibrium methodology is that it forces the analyst to specify clearly and explicitly a full system of equations (unlike the O-V paper). However, such explicitness comes with a price - the assumptions of the model are plain to see. A major assumption of both papers is that all public expenditure is non-productive.

To take a concrete example, governments could today decide to spend more on the maintenance (or creation) of public infrastructure, such as roads or bridges or governments could decide to spend more on education. Such expenditures would add to the deficit, and thereby increase the tax liabilities of future generations. Would the public capital stock and private human capital which corresponds to these expenditures also add to the incomes of future generations? In Generational Accounting the answer is assumed to be "no". All government expenditure is assumed to be consumption - the Benefit-Cost ratio of all public sector projects is implicitly set to zero. Since the growth rate of national income is taken as exogenous in the O-V paper, their implicit assumption goes further - both the private and the public capital stock are unconnected to the tax burden of different generations - and their model of the income generation process is left unspecified. The James/Matier and Merette papers are commendably explicit in specifying a model of the link between taxation, the private capital stock and income generation - but they presume the public capital stock not to exist, and public expenditures to be uniformly unproductive. In these papers, the mathematical appendix spells out a complete model of a world in which there is a government sector which

sensitive to the choice.

produces a public good and transfers income. However, since the government produced public good does not appear either in the utility function of individuals or in the production function of firms, nobody wants it. Hence, in these models there is no good reason for government to exist.

Since these models also assume that there is no uncertainty, no inequality within cohorts and no barrier to spreading consumption over one's lifetime by borrowing and lending in perfect capital markets, there is also no good reason for government transfer payments to exist. Since the public goods produced by government are assumed to have no benefits in increasing either the utility of individuals or the productivity of firms, and since the taxes required to finance the production of public goods and transfer payments are assumed to have resource misallocation effects, the existence of government is assumed to create social costs, but to have no social benefits. If one believes these models, the optimal size of the public sector is, therefore, clearly zero.

In the private sector, most accountants would think it odd to focus on only half the balance sheet, and consider only liabilities. If one considered only tax liabilities, one could easily reduce the tax liabilities of future generations by closing public schools and by selling off the road network - but it is worth asking if future generations would be better off paying tuition fees and highway tolls. Such questions can not be considered by a theoretical framework that recognizes only the costs of government, while assuming the benefits of government activity to be non-existent. Strong conclusions are drawn in these papers,⁴ but although some organizations emphasize one side of the ledger for explicitly political reasons [- e.g. The Fraser Institute, which publicizes annually "Tax Freedom Day" to symbolize the proportion of income in Canada absorbed by taxation, while omitting

⁴For example: "Under the general tax mix, impacts on social welfare are positive at all transfer reduction speeds" Merette, p.18

any corresponding “Public Service Day” to recognize the services which would not exist without such taxation], a balanced approach would consider both assets and liabilities.

The neglect of value added in the public sector is really quite fundamental to “generational accounting”. If public sector expenditures, such as those on education, are presumed to be unproductive, their dollar values can be allocated (as “consumption”) to individuals, and the dollar value of benefits to individuals is equal to the dollar value of costs to government . The value of total expenditure will then correspond to the discounted dollar value of the taxation required to pay for such expenditures. In the accounting identity stressed by generational accountants, the “tax payments of the unborn” is the residual which balances the tax and expenditure sides of government accounts. However, if expenditures on services such as education yield greater dollar benefits to recipient individuals than their dollar cost to government (i.e. the rate of return on human capital is positive), “generational accounts” lose their fundamental accounting identity.

As well, it is worth noting that the Merette and James/Matier papers present a model of the intergenerational allocation of resources in which children do not exist (adults being born, without cost, at age 17). Their model of higher education can truly be summarized as “the blind leading themselves”, since it assumes that only student time is required for learning - no other inputs (such as books, professors, buildings, or laboratories) are needed, hence public expenditure is assumed to play no role in increasing human capital. Although all models must simplify reality in order to be tractable, credibility is lost if essential aspects of the issue under examination are omitted.

The neglect of a public sector role in productive investment may be highly dysfunctional -- Wolff (1996) has argued that the decline in investment in public sector infrastructure in the United

States since the early 1970's has been an important source of the slowdown in US productivity growth.

2. Tax Incidence -who really pays?

In the public finance literature, there is a long history of analysis of the incidence of taxation (e.g., Vermaeten, Gillespie and Vermaeten, 1994), but in asking the question of who pays a specific tax, the key issue is “compared to what?”. The debates of tax incidence analysis often centre around the construction of a convincing counter-factual case, since the issue of what would have happened in the absence of the tax is central to analyzing its distributional impact. It is often the case that the initial incidence of taxation differs from its ultimate incidence, because individuals and markets react.

For example, payroll taxes, even if initially paid by employers, are usually seen in the public finance literature as additions to labour costs which are ultimately borne by labour, in the form of lower wages. Similarly, although property taxes are initially paid by landlords, it is often assumed that the taxes paid on land are passed through to tenants in the form of higher rents.

The distinction between initial and ultimate incidence of taxation is of clear relevance for the analysis of intergenerational tax incidence, since the assumption that there is zero shifting between generations of tax burden or transfer benefit is clearly extreme. Generations share incomes within families while they live together, and much of the private capital stock is left as inheritances within the same family line. Indeed, it can be argued that our primary social unit is the family, and the primary social function of the family is the reproduction of the human species -- hence the family must be at the centre of any discussion of intergenerational equity issues.

In my view, the Ricardian equivalence proposition of Barro (1974) represents an extreme statement, but it is equally extreme to assume (as in the papers of this volume) that individuals have no family links between generations. If the “Generational Accounting” of tax incidence is to be taken seriously, there has to be some consideration of tax shifting between generations. The interaction between tax and expenditure policy decisions and the intra-household allocation of resources between generations has to be examined seriously. As Phipps and Burton (1996) have shown, the details of tax and expenditure policy changes matter, since changes in tax or transfer policy which impinge unequally on men and women will differ in their impact on child expenditures.

The provision of in kind services such as education may well have a different impact than cash. In this volume, Hicks mentions the issue of the intra-family division of resources, but to maintain comparability with the Generational Accountants, she devotes most of her attention to distributing taxes and transfers among individuals, ignoring family status. It is not surprising that (as her Figure 1 indicates) this exercise demonstrates that people typically pay net taxes while they are in the labour force, and receive net transfers when (as children or as senior citizens) they are not.

However, her discussion of expenditures on education also illustrates the problematic nature of Generational Accounting. In the debate on funding of post-secondary education, the argument is often made that, since university students tend to come from upper-income families, government subsidies to universities which are financed from general tax revenue are regressive, on average transferring resources from poor families to rich. Implicitly, the assertion is that families (not necessarily co-resident) are the relevant unit for income distribution comparisons, and that government expenditures simply substitute for intra-family intergenerational transfers. The policy prescription is to let tuition fees rise - but student groups (usually composed of young people) tend

to argue that, even if this does reduce government deficits and their future taxes, they are not better off with a larger private debt. Figure 14 in the Hicks paper illustrates the difference it makes to presumed incidence if education expenditures are assigned as a benefit by age of household head, and can be compared to her Figure 7, which assigns education costs to students.

In general, although it is more work to assess the degree to which intergenerational transfers within the family are affected by particular changes in tax or expenditure policy, the result will be much more believable than the assumption that there is no linkage between generations, except through the state. As Kotlikoff and Summers (1981) have demonstrated, at best some 19% of total U.S. wealth in 1974 could be explained as the result of life cycle savings - the remainder of the U.S. capital stock is transferred within families as intergenerational bequests. Although the models of James/Matier and Merette assume private intergenerational transfers to be zero, this seems a bad approximation to empirical reality.

The “Generational Accounts” perspective can only be rescued if it is argued that actual intergenerational transfers are all unintentional, and arise due to the uncertainty of lifetimes and the non-availability of annuities. However, this argument implies that:

- (a) the failure of capital markets to supply the option of annuities is truly colossal;
- (b) the elderly who die leaving multi-million dollar estates [which in fact comprise much of the capital stock] have highly exaggerated ideas of their potential life span, and/or future spending and
- (c) inheritance taxation (even at a confiscatory rate) would have no impact on savings or labour supply behaviour, since all bequests are said to be unintentional.

I do not think it was the intention of Generational Accountants in general (or the Department of Finance, in particular) to argue that Inheritance Taxation is the perfect non-distortionary tax and can be set at any desired level without affecting behaviour, but it is an implication of their assumption of zero intentional bequests. A more balanced approach should, in my view, consider the optimal inheritance tax as a balance between equity concerns (in the sense of equality of opportunity among individuals) and any behavioural impacts on savings and aggregate capital formation.

3. Aggregation

In considering equity between different generations, we are focussing attention on a particular example of group equity. Discussions of group equity are a staple of the political diet, and it is common in political debate to aggregate individuals into groups, and to summarize the well being of each group with a simple average (e.g., the average earnings of males compared to the average earnings of females, or the average personal incomes of Ontario residents, compared to the rest of Canada). Among the set of all individuals, both those now alive and those who will be alive in the future, “generational accounting” aggregates individuals into groups by birth year, and summarizes the well being of birth cohorts by simple averages of income received, or taxes paid.

Traditionally, economic theorists who consider issues of social welfare have favoured a focus on equity among individuals, rather than among groups, for both principled and practical reasons. On principle, economists (e.g. Jenkins, 1991) have often insisted on the idea that “anonymity” is a desirable characteristic of an ethically defensible social welfare function . The principle of anonymity expresses the liberal value that individuals are not of greater or lesser social worth because of such characteristics as race, or sex, or age, and requires that aggregate social welfare should be unaffected

if any two individuals simply trade places in the income distribution. However, if one's equity comparisons are limited to looking at the average incomes of the young and the old, and if a rich youth and a poor senior citizen were simply to exchange incomes, (with no other change in the income distribution), the average incomes of youths and seniors would be affected. Generational accounting measures of intergenerational equity do not, therefore, satisfy the basic liberal value of non-discrimination.

Empirically, when there is substantial variation within groups, compared to the actual size of between group differences, it might be considered misleading to organize one's data so as to suppress consideration of most of the inequality among individuals, and thereby concentrate attention on a relatively small component of aggregate inequality. Differences among individuals within birth cohorts are much larger in magnitude in Canada than differences between cohorts in average income. Since most Canadians live in families, benefit from economies of scale in household consumption and share incomes within their families, it is misleading to examine only individual income in comparing the well being of birth cohorts.⁵

Inequality in the distribution of equivalent annual money income within five birth cohorts of Canadians over the period 1975-1994 is much larger than differences between cohorts. The average equivalent annual income of the top 10% of baby boomers was 6.64 times larger than the average income of the bottom 10% of baby boomers in 1994 - if one compares the average incomes of the boomers (borne 1946-1959) and Generation X (borne 1960-1975), the ratio was only 1.098. Over

⁵Most two year olds do not, for example, possess any individual income, yet the fact that they grow into three year olds, (indeed the fact that society survives, despite the zero income of most children) indicates some degree of consumption pooling. For an explicit analysis of the impact of alternative assumptions concerning the intra-household sharing of resources for the incidence and depth of child poverty, see Sharif and Phipps (1994).

95% of aggregate inequality (as measured by the Theil index) can be ascribed to inequality among people of the same birth cohorts, and less than 5% of aggregate inequality can be ascribed to between cohort differences in average equivalent money income (see Osberg, 1996). As Wolfson notes in this volume, differences in average equivalent income between birth cohorts are relatively small compared to differences in income within birth cohorts.

Indeed, as Murphy's paper notes, because a high proportion of senior citizens have modest incomes, any increase in the tax burden that bears relatively heavily on the top end of the income distribution will also alter the relative average tax burden by age group, to the perceived advantage of older cohorts. Taxation that is progressive among individuals can thereby be transmuted, by the principles of "Generational Accounting", into an assertion of inequity between generations - and it is clear that, whatever gloss the generational accountants put on it, rich individuals will gain and the poor individuals will lose if the progressivity of the tax system is eroded. Policy measures to deal with the presumed problem of inter-cohort inequality can have significant impacts on inequality among individuals - which fuels the impression that a false fight is being created in which the poor (of all ages) will be the losers.

Furthermore, although it might be protested that generational accounting aims at redirecting transfers (e.g. to poor children), the more fundamental issue is the overall level of redistribution within society. Kapur (1996) argues that diminished altruism, in public life and within the family, is an important general trend in US values, which underlies the peculiarly American debate over intergenerational fairness (and is also dysfunctional to long run growth). In comparing societies, it is not generally true that more for the old means less for the young - societies with greater social cohesion tend to do more about poverty, and treat dependent groups better, *in general*. Myles

(1995:103) summarizes the international evidence as “Countries that spend a lot on old people also spend a lot on children.”

4. Conclusion and Implications

The allocation of resources between generations will ultimately be determined by what the current generation of adults considers to be “fair”. Within families, individuals choose the bequest that they consider fair according to norms that differ widely, and subject to a lifetime income constraint that differs even more. The social dilemma for a liberal society is that the differing values of parents, and the differing resources available to them, inevitably create inequalities of opportunity for their children and grandchildren.⁶ As well, since individuals also inherit membership in a society, and a common endowment of public goods to supplement their inheritance of private assets, there is inevitably a *social* decision to be made about the aggregate stock of such assets.

Values clearly differ concerning the relative importance of inequality of opportunity, compared to other dimensions of equity, or the desirable mix between public and private bequest or the appropriate aggregate bequest to be left, in total, to subsequent generations. Public policy affects each dimension of these issues, and the political process will inevitably be called on to try to find a balance between conflicting values and interests. The role of a statistical agency in this debate is to construct an unbiased fact base - on the presumption that an informed debate will, in a democracy, ultimately produce better social decisions than an uninformed debate.

⁶I cannot resist adding that the whole public policy argument of Generational Accounting seems to me rather odd - the model assumes zero private bequests within families (i.e. we are all assumed not care about our own children), yet in public policy our concern for disembodied “generations yet unborne” is appealed to.

Currently, in Canada one often now observes that the same value of “Intergenerational Equity” is appealed to by both the advocates and the opponents of particular policy choices. To take Ontario as an example, cuts to social assistance have been both justified on the grounds that our children must be relieved from the burden of public debt and attacked on the grounds that deepening child poverty will blight the lives of the children whose family benefits have been cut. Although it is probably too much to expect that such debates could ever be divorced entirely from wishful thinking, ideology and the pursuit of self-interest, it would be nice to have a somewhat larger proportion of fact, compared to simple assertion, in these controversies.

However, an informed debate will not be produced if it is fuelled by a biased selection of information - if only the costs of programmes are counted, while benefits are not, it is clear that all programmes will fail a cost/benefit evaluation. An agency like Statistics Canada can do a great deal to improve the debate on Intergenerational Equity in Canada, but one thing that I would argue that it should not do is to participate in the sort of Generational Accounting exercises that have been presented to-day.

Statistics Canada can, in my view, greatly assist in informing the debate on Intergenerational Equity by improving our knowledge of: (1) Trends over time in the stocks of real productive assets of the Canadian economy; and (2) actual transfers of resources within families, and their determinants.

In order to assess whether future generations will on average be better off, or worse off, than current generations, we need to know whether the aggregate endowment of physical, intellectual, environmental and social capital (plus/minus net foreign assets/liabilities) is growing over time. We now have partial information on some of these components, but it is arguable that the components that will be most important in the Information Economy of the next century (i.e. intellectual,

environmental and social capital) are the aspects of our bequest which we currently hardly try to measure - which implicitly sets their value to zero in the public policy discussion. It is important to measure the trend over time in these stocks, both as a way of assessing the aggregate value of the intergenerational bequest and as an input into the assessment of tradeoffs between its different dimensions (e.g. tradeoffs between environmental and physical capital).

It is striking that in the papers of this volume, it has been generally assumed that the family does not, in any meaningful way, exist. The companion volume focusses on the original meaning of the term “Intergenerational Equity”, in which the key idea is the inheritance of relative individual economic status between generations. In this discussion, the social institution of the family is central and the implicit point of reference is the ideal of equality of opportunity. This is a very different set of issues, and a very different set of values as to what is really important, but I would argue that the family cannot be ignored even if one is only interested in the aggregate bequest left from one generation, as a group, to the next.

What proportion of the real productive assets left by this generation to the next are bequeathed through decisions made within the family? How are those family decisions influenced by public policy decisions (e.g. on inheritance taxation)? The papers of this volume assume the answer to both questions to be “zero” - but this cannot be a good guide to public policy.

Finally, one cannot resist the impression that only the Morissette and Picot/Myles papers are getting at the reason why there is now widespread anxiety about the well being of future generations and why intergenerational equity has become an issue with public resonance. In my view, the current public concern with intergenerational equity arises from the basic fact that compared to earlier

generations, youth today face a labour market of lower wages and greater insecurity⁷. Youth are, on average, worse off, but even if the tax man is not the real reason, the relative burden of taxation is an easy target because the average tax load has risen and the public at large has been sensitized to the issue of a burgeoning government debt. More generally, the 1990s have seen a decline in the average real equivalent income of all birth cohorts, and because high unemployment has lasted so long, the promise of a better material standard of life in the future is seeming less credible to many people of all ages.

Macro-economic policy has a generational equity dimension, because a policy of high interest rates and aggregate demand restraint to contain inflation will provide benefits to asset holders (who tend to be older) while swelling the public debt that youth will have to repay through their taxes. As well, the costs of a slack labour market are borne disproportionately by the youth who are trying to get their first foothold. Osberg and Fortin (1996) and Fortin (1996) have argued that the Bank of Canada's aggressive pursuit of "price stability", using contractionary monetary policy, is almost entirely responsible for the escalation of the public debt in Canada, and the slow growth and chronic high unemployment of the 1990s. The costs of a poorly performing macro economy show up in many dimensions, but there may be a common underlying cause.

⁷See also Green and Beaudry (1997), Osberg, Erksoy and Phipps (1994)

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