

## CAN GOVERNMENT FINANCIAL TRANSFERS LEAD TO RESPONSIBLE FISHING?

### A (NEW) TRADE THEORY PARABLE

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#### ABSTRACT

Recent literature on trade in fisheries products and in factors of production for fishing can be used to ask when it might be welfare increasing to encourage government financial transfers (GFTs) in the fisheries. Using numerical techniques and assuming a small open one factor 2 good economy with production inefficiencies in the resource sector, welfare gains from GFTs that encourage productive efficiency can be seen over a wide range of prices, depending upon the costs of implementing the policies. GFTs that fail to sufficiently induce efficient production can be welfare-reducing. However, other economic behavior engendered by GFT policy may favor the latter result. The groundfish crisis in Eastern Canada is discussed as a possible case in point. When the assumption of factor immobility and competitive factor markets are relaxed, comparative advantage arguments for trade in fishing services are also weakened. In these cases, the internal validity of trade models is not at issue, but rather their application to situations where the assumed conditions are at odds with economic realities. New International Trade Theory has heretofore mainly dealt with trade effects under assumptions that diverge from perfect competition. In that regard, the study of trade involving exhaustible resources and common pool behavior contributes to that research agenda.

**Keywords:** GFTs; Government financial transfers; trade; fisheries; New Trade Theory

#### INTRODUCTION

Most resource economists begin their predictive and policy modeling in trade theory using assumptions that often lead to a conclusion that unrestricted trade is welfare maximizing. Within this orthodoxy is the well-known argument that tariffs and subsidies are often welfare decreasing. In many cases for example, subsidies at best benefit the producers in the home country and consumers in the importing country. Depending upon the relative supply and demand elasticities at home and abroad, it is an empirical question of who gets the bigger benefit. However, it is more difficult to show an unambiguous net gain at home if the transfer is financed by a tax.

However, trade theorists of different persuasions have become interested in what happens when there are departures from the normal assumptions that underlie models of pure competition. One such research agenda has been dubbed the “New International Trade Theory” [1,2,3]. These specialists have focused upon the trade results and impacts of imperfect competition. Although there are those who have argued that imperfect competition does not weaken the argument for liberalized trade, there are other economists [4,5,6,7] that argue exactly the opposite; in a world where differences in factor mobility are extreme, where asymmetries of information are the norm, where relative scale of economies to resource bases can be large, and where an increasing proportion of trade is intra-firm rather than intra-country, public managers in countries might be advised to engage in different forms of “enlightened protectionism” for long term sustainability reasons and for welfare reasons. Issues relating to imperfect competition have also extended to strategic trade research agendas. Protectionism and protectionist policies are viewed by some as second best solutions to a number of trade and trade-related environmental problems.

Deraniyagala and Fine [8] have argued that: “recent trade literature has, within the confines of an evolving neoclassical theory of market imperfections, made great attempts to address at least some of the realities of trade. By doing so, from the perspective of neo-liberalism, it has been extremely mischievous, if not troublesome in view of the extent to which its conclusions have been over-ruled by the forward march of support for trade liberalization.” They go on to state in their conclusions that it would be inappropriate to address trade theory and policy separately from other aspects of industrial policy, performance, and macroeconomic considerations. Particularly for those working in fisheries, this counsel should be heeded, regardless of stance on liberalized trade.

Recent work in trade theory and exhaustible resources, such as the fishery, conclude that in the small country case, trade under conditions of productive inefficiency (open access behavior) can lead to welfare decreasing effects [9], whereas trade under efficient production always leads to welfare gains from trade. The message seems to be to get one’s public management house in order before promoting liberalized trade tied to exhaustible resources. Similar questions regarding trade among large countries are asked by Emami and Johnston [10], again with the caution that immiserizing management could take place.

This has led some like Herman Daly to ask whether it is not possible to use “enlightened protectionism” to protect an economy from welfare decreases due to unsustainable policies and inefficient behavior that occurs both inside the country and outside of it. These research agendas cited above, plus those that advocate the proactive implication of the welfare state, open the door wide to the use of government financial transfers, or GFTs, not to competitively favor an industry, but to make it “be responsible” in terms of productive efficiency and sustainability. Recent calls by OECD and FAO [11,12,13] to do something about excess capacity in the fishery has further incited some governments to consider more aggressive policies to correct for these inefficiencies (often caused by policies that promoted open access fishing in the past). GFTs, in the form of buyout programs for example, are considered important policy tools, especially for proactive welfare states like Canada. On the other hand, however, there has also been increased attention paid to “perverse subsidies,” and their role in over-exploitation of resources. These discussions are also in part fuelled by the realization that certain GFTs have been used to strategic ends.

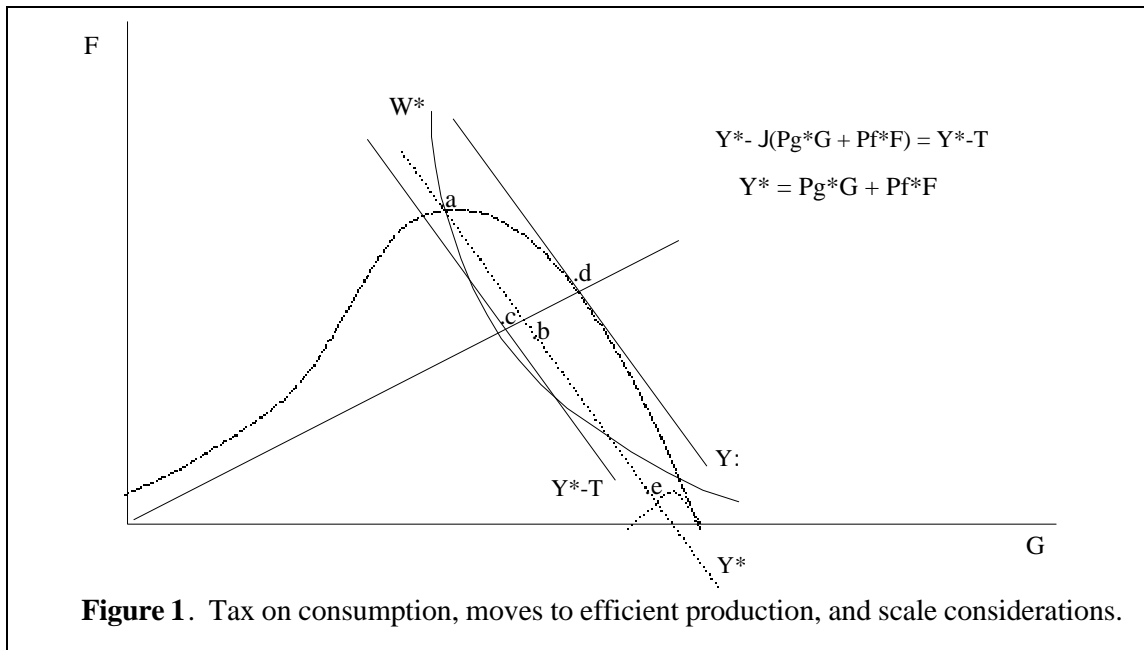
Nevertheless, when there are significant departures from standard competitive assumptions, the macro-economic and trade reasons for judicious GFT policies seem strengthened, especially if they are aimed at achieving economic efficiencies in production<sup>b</sup>. These can be demonstrated in a relatively straightforward way using modifications of existing trade models. These are discussed below.

However, demonstrating the macro-economic possibility of a welfare increasing GFT is not the same thing as formulating a GFT policy which is incentive compatible and which realizes these gains. Public managers must contend with institutional inertia, rent seeking on the part of potential recipients of GFTs, free-riding, and strategic behavior, both on the part of the governed and those charged with governing. All of this can make the actual costs of achieving the sought-for efficiencies greater than the values of the gains themselves. In an economy where the relative size of the fisheries sector is small, the net gains from such transfers may be negative.

Therefore, while the benefits of GFTs to correct productive inefficiencies is relatively easy to show using trade models, they may be much more difficult to put into place, even for countries who are experienced in fisheries management, who are relatively rich, and who were highly motivated to effect the changes proposed. The history of The Atlantic Groundfish Strategy (TAGS) and related programs in Eastern Canada are discussed to show some common difficulties encountered when using GFTs to effect efficiency changes. In doing so, we suggest that the solutions to these types of problems may lie in more attention to institutional economics and public choice issues related to formulating efficient transfer policy. This is especially true for countries like Canada, where corrective transfer schemes are common.

MODELING WELFARE EFFECTS OF TRADE

**Figure 1** uses the theoretical observations mainly of Brander and Taylor [9] and Hannesson [14] to make a few further points related to this discussion. The analysis starts with a small (price taking) country in autarky at point “a” with inefficient production in the **F** (fish) sector (for reasons outlined by other authors even before the ones we have cited here, notably Scott and Southey). Therefore, under “no trade” the economy consumes and produces at “a”. To make the presentation easy to follow, imagine that the world relative price for fish is such that producers still opt to produce at “a”<sup>c</sup>. With trade *and* inefficient production in the **F** sector, (and assuming for simplicity a welfare function that is homothetic), a wedge is driven between producers and consumers (producers at “a” and consumers at “b”). Although for this particular price trade is welfare increasing, there is a range of prices where a change from autarky would be welfare decreasing.



**Figure 1.** Tax on consumption, moves to efficient production, and scale considerations.

The leaders of such a country may conclude that, because they have a reliable tax structure on consumption, and since they view themselves as capable of improving the welfare of the whole country through fiscal policy, that they might apply a tax  $Y^* - T$  and transfer these funds to the workers in the **F** sector in a way that encourages them to *change their behavior*. It might be added that for the more active welfare states, this role is a given. Taxes and transfers, or fiscal policy, are an integral part of governments attempting to push out the Production Possibilities Frontier (**PPF**) (increase potential GDP), or reduce or eliminate inefficiencies to move the economy closer to this frontier<sup>d</sup>.

To simplify a bit, imagine that the tax-transfer-behavioral change is instantaneous, and that inefficiency in the **F** sector is the only inefficiency in the economy (an unlikely situation). *With* this tax/transfer cost, it is possible to have welfare gains (a producer-induced movement from “c” to “d”). Whether it pays off or not depends upon the size of the program, and the relative distance from the efficiency frontier, and the efficiency of the program. For most developed countries the **F** sector is relatively small, and therefore the relative size of these gains may be very small, more like the distances implied by the equilibrium at “e” on the smaller **PPF**.

Further, and removed from the strict considerations of the model, an economy with a small **F** sector might *overtax* itself for that sector, especially if 1) members of the society or their government find the sector culturally important; 2) workers in the sector lobby and obtain tax/transfers for reasons other than efficiency improvement; 3) the methods of taxation/transfer are subject to inefficiencies of their own, and do not move production to an efficient frontier. However, one important thing to note is that the inefficiency experienced in **F** could be a strong incentive to try GFTs, simply based upon the possible welfare gains.

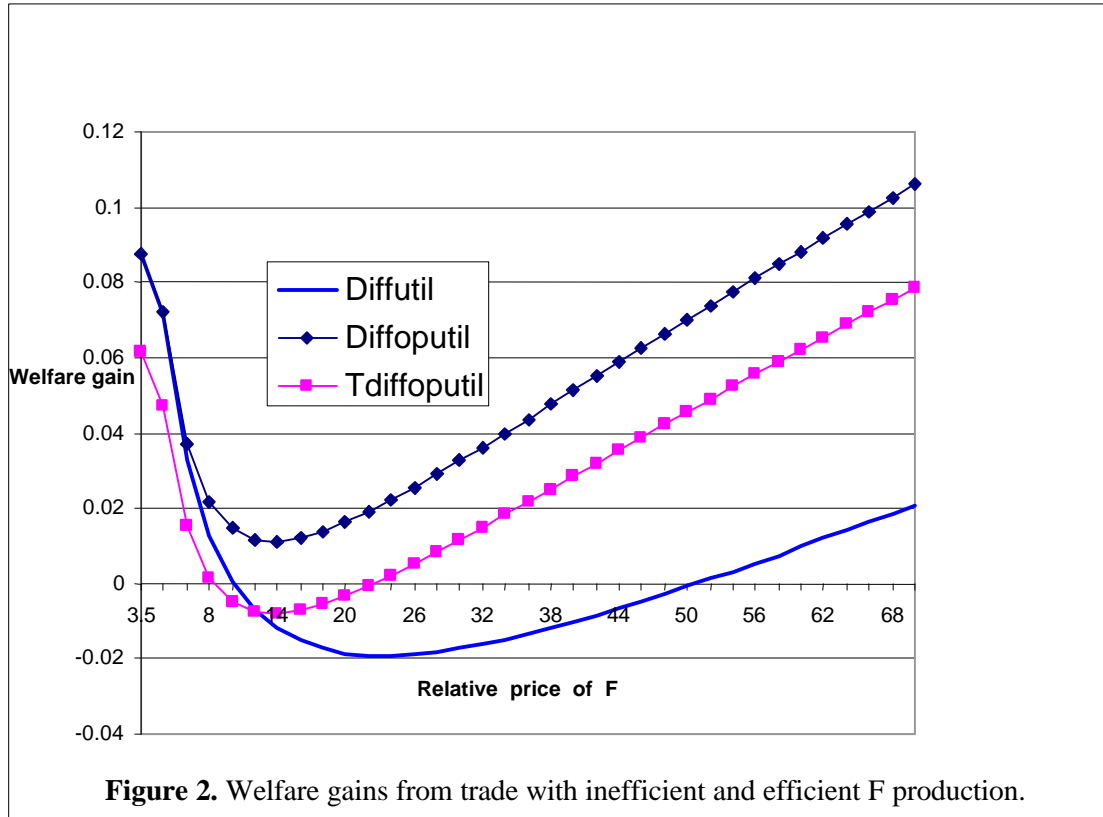
To save space for conceptual development, this paper follows the reasoning of Brander and Taylor, to produce a numerical analysis of Hannesson's example (**Figure 2**), cast as a simple macro model using EXCEL and iterative optimization programs written in BASIC. The innovation of this paper, if any, is that these models are presented more to scale. Second, the analysis takes a detailed numerical look at the tax-shift effects of a GFT for different levels of world price. Correctly scaling the problem is nevertheless time consuming, because each point is a solution to an optimization problem under different trade assumptions. Therefore, the welfare level under autarky is the best that consumers can do under autarky; the net change in utility with trade under inefficient production from this level of autarky is the blue line, and shows the main results of Brander and Taylor, over a precise range of relative prices. **Diffutil** therefore describes the welfare gains over utility at autarky at different world prices.

**Diffoputil** is the welfare difference between autarky and a trading situation, assuming a *costless* move to efficient production in the fishery. In other words, the dark blue dotted line is the traditional liberalized trade argument. It is *always* welfare maximizing to allow trade, *after* productive efficiency is achieved. However, in considering the geometry of the problem, this may turn out to be a trivial statement.

**Tdiffoputil** on the other hand assumes that there is a cost associated with management leading to more efficient production. If that cost is completely captured by the tax system in place, then the welfare positions at each possible world price declines monotonically by the amount of the tax.

Most discussions on alleviating inefficiencies in the fishery, at least until recently, have not expressly discussed the costs of the efficiency gains. This diagram demonstrates that for relative prices of fish of roughly 10 to 24, taxing consumption at 10% and promoting efficiency will still lead to welfare declines, although note that welfare losses are lessened by taxing and effecting change over a wide range of prices. Until a price of about 13, there would be no incentive to change from the status quo. This shows that if efficiency gains cost something to put into place, there still may be prices at which such a change would still lead to welfare losses due to trading, though not as much as if nothing were done at all. These results obviously depend upon a number of factors. For example, if effort creep is a problem (if the catchability coefficient of the fleet, **q**, increases), then forcing production rationalization right away might be welfare maximizing over the long term. In other model runs, we set **q** at 0.20 (from 0.15), and in these cases, a 10% tax/GFT would lead to welfare increases over autarky for all world prices.

One thing that can be said about Hannesson's example in light of a scaled numerical model is that the size of the **F** sector relative to the **G** sector is unrealistically large, which makes the positive effects of the tax/transfer more visible on a diagram but somewhat large. Our tax on consumption of 10% of total output directed as a GFT to the **F** sector to change its performance would be considered a large transfer compared to reality. To take an example, total spending by DFO is about 0.17% of 2003 Canadian GDP, and the fisheries sector is probably no greater than 1% of Canadian GDP, given that last estimates of the entire ocean industries sector in Canada for 1988-2000 was about 1.55%<sup>c</sup>. A more realistic relative scale size of the fishery to the rest of the Canadian economy (for example) is therefore presented in **Figure 1**. The more important the fisheries sector is to a country, the more that country can afford to try GFTs to change behavior. Alternatively, the less important the sector is, the converse is true, but then institutional/public choice effects also come into play, as in the specific case cited below.



### GFT POLICY IN EASTERN CANADA: THE RAGs of TAGS

The Atlantic groundfishery in Canada is but one of many examples of how different public sector objectives can result in over-exploitation and economic inefficiency, so no malice is intended by using this case. The decline in this fishery in 1992 can be linked to other important factors that may not be the fault of the sector or the government. However, part of the decline is undoubtedly due to liberal investment incentives by both the provinces and the federal government in the decades preceding the collapse. These were not shut off quickly enough to avert overcapitalization and declines in resources. Also, low opportunity costs of labor in the fishery due to Employment Insurance (EI) incentives, and other Federal and provincial development projects aimed at maintaining employment in the seafood sector in the regions, played an important role as well.

The main sources of information relating to the restructuring programs of the groundfishery in Eastern Canada can be found in the various Reports of the Auditor General of Canada (RAGs) [15, 16, 17]. These provide an excellent yet disturbing overview of the historical roots of the crisis, which included the growth of capacity in the 70s and 80s assisted by GFTs, and then, the attempts of Fisheries and Oceans (DFO) and Human Resources and Development Canada (HRDC) to minimize the social and economic impacts of the 1992 groundfishery closure and subsequent moratorium and to reduce excess capacity in its wake. This case study is also about how the Canadian government and some provinces made a concerted effort at using transfers to change behavior. However, they have since been criticized by the Auditor General of Canada for not having provided “good value for money spent.” In this sense, then, the Canadian experience illuminates an important aspect of the problem not covered by the model.

In response to the groundfish moratorium, DFO and HRDC were involved in The Atlantic Groundfish Strategy (TAGS), which was at the time the fourth major program to address social and economic issues of the East Coast groundfishery. The original budget for TAGS was \$C 1.9 billion over five years, in which \$C 1.748 billion was earmarked for income support and adjustment, \$C 97 million was allocated for rationalization of capacity, and \$C 50 million was for economic development. TAGS was a joint program of HRDC, DFO, the Atlantic Canada Opportunities Agency and the Federal Office of Regional Development - Quebec.

The difficulties with this program have been treated by the RAG reports of various years. However, there are essentially two observations that can be made as to why TAGS ultimately was not a success. First, the agencies were not equipped to effect the changes they proposed, and second, the program did not adequately control for economic behavior of members of the industry.

### **Path Dependency in Agency Behavior**

DFO and HDRC may not have been prepared for the internal adjustments required in their own agencies, and the inertia in their own organizations, under the rather aggressive announced policy of TAGS. HDRC until the groundfish crisis mainly organized Employment Insurance payments to members of the fishing industry. DFO does play a regulatory role, but they also were involved in fisheries development, much as other fisheries departments had in other countries during the 60's and 70's. Changing the operational climate of these agencies from one of promoter and transferor of benefits to one of forcing fisheries industry workers to re-orient their careers and to sell out their interests for capacity reduction may have been difficult. The practical result was that what started as a relatively balanced attempt to provide a safety net for those affected by the moratorium while reducing capacity became predominantly oriented towards income support. This left less money for capacity reduction and development activities. Further, TAGS had originally been conceived as a way to wean large sections of the population off of fishing, by tying their assistance to job re-training and active participation in finding alternative employment. However, by the end of 1996, this objective was abandoned to keep funds available for income support.

One economic interpretation of why TAGS met with limited success is that HRDC and DFO, in attempting to mimic the coordinating signals of the labor market, quickly found themselves incapable of replacing market signals by directives, in part because they did not have the correct information, and getting it would have been too costly and time consuming. For example, in order to identify those who were actually affected by the moratorium, both DFO and HRDC had to coordinate what data they had across agencies. However, even with this coordination, there was still not enough organized information to help the agencies identify all affected parties. Faced with these ambiguities, admissibility to the program became more lenient.

The agencies reverted to their old mandates, thus reversing one of the original directives of the TAGS program, which was to *not* return to the status quo. The notions of path dependency extend as well to bureaucratic behavior. HRDC is mainly concerned with distributing benefits to eligible recipients. Therefore, TAGS became a vehicle for this important mandate, although benefit distribution was only one part of TAGS, and perhaps not even the most important one. Likewise, switching their mandate from industry support to capacity reduction may have been difficult for DFO, especially in an environment where DFO managers may view industry as important clients and partners.

It may have been more difficult than the government thought to embark upon an integrated, top-down, assessment of the impacts of the groundfish moratorium, to reduce capacity, *and* to ease transition to other employment with the governmental structures now in place. It assumed, for example, efficiencies in coordination between departments that may not have existed.

### Difficulties in Dealing with Economic Behavior

DFO and HDRC, because they needed put the program in place rapidly, may not have been completely prepared to deal with the various economic behaviors associated with rent seeking and free-riding on the part of the constituents they served. The TAGS program had set as an objective the reduction of the fleet capacity by 50%. This was to be done through re-training, gradual attrition of capacity through retirement, and buy-outs. However, each of these measures seemed to have been gradually weakened through the subsequent negotiations with industry members.

Initially, TAGS planned to identify a “core” group of fishers and fish processing plants likely to be part of the fishery in the future, based on criteria established in consultation with the provinces and the industry. Federal measures of capacity reduction applied only to fishers in that group. The core group of fishers and fish processing plants was limited by Special Eligibility Criteria applicable only to groundfish fishers and industry members. By the summer of 1995, DFO identified some 6,200 qualifying fishers. However, in early 1996, a similar process occurred for licensing purposes, and 9,800 fishers qualified. In December 1996, a further review found that 10,435 fishers were part of the industry. The evolution of the eligibility criteria, coupled with confusing applications of these criteria, led to an upward creep of eligible fishers.

Because of the “upward creep” in eligibility, TAGS predictions about how far funds for effort reduction would go was optimistic. Those eligible for TAGS were 51 percent more than expected. Of the nearly C\$2 billion devoted to TAGS, 76 percent was eventually used for income support, as opposed to the forecast of 36 percent. Other factors used in forecasts had been either underestimated or overestimated.

Being a part of the “core” group of fishers and fish processing plants, and ultimately being a part of a stable industry with a potentially higher income due to the liberal benefits of the program, was an attractive prospect. However, rent seeking was not accounted for by HRDC and DFO in forecasting participation. Yet, the evidence suggests that the economic motivations for fishers lobbying for inclusion in the “core” were relatively strong. Often, when license numbers are frozen, and rules are made for inclusion in the fleet, there is usually an appeals process to allow those excluded to make their case. However, the TAGS adjustment program *not only* defined eligibility to be in the fishery, but being in the fishery conferred eligibility for TAGS transfer payments and program benefits. The progressively increasing pool of included “core” fishers cited by RAG 1997 may have been the result of political pressure motivated by rent-seeking, since only those who had been identified as part of the “core” were eligible to compete to be bought out.

Also, speculative behavior of those who were ultimately admitted to the “core” may have played a role in exhausting capacity reduction funds more rapidly than expected. The availability of information, *before the fact*, about how much money was available for the buyback, the reservation price of the government, who might be eligible to be bought out, and when the program was to end could be expected to fuel rent-seeking behavior, which would inflate buyout prices. This could limit total money available for buyouts.

It is unclear if targeting a core group of fishers for buyout and program benefits before the fact was a good thing from a strategic point of view. Much of the admissibility criteria had to do with the degree of professionalism, investment, and commitment to the fishery. It is expected that these fishers would probably be the better performers in the fishery. This would mean that even in difficult times, their cost structures would be lower. They would therefore be more difficult to remove, and would demand a greater reservation price. Licenses attached to this group also may be less apt to display abrupt technical progress, because they may be already at the frontiers of their technical capability. Licenses attached to older vessels and marginal operators may be a source of large changes in effective effort, if the license falls into the hands of an experienced entrepreneur, and if the laws allow for improvements to a vessel or replacement. The point is that if managers had wanted to use the TAGS money more efficiently, it might

have been good to *not* make such an issue over who was going to be part of the “core,” when the objective was to remove excess capacity. The “core” would have been what was left after findings on license eligibility, appeals, retirements, and buybacks; and it probably would have consisted of much the same fishers, except that they would not have known beforehand.

It is surprising that the architects of the TAGS program did not realize that part of the opportunity costs experienced by fishers (core or not) included the institutionalized Employment Insurance payments that most of the fleet got. The RAG 1997 seems correct in saying that embedded in the capitalized price paid to buy a fisher out of his license are also the foregone benefits of the license, a large part of which (over 30%, according to RAG) is Employment Insurance.

## DISCUSSION AND CONCLUSIONS

This paper used simple GE models in a trade context to show that when there are departures from productive efficiency (due for example to open access behavior), an investment in institutions that promote productive efficiency might be worth-while, if the **F** sector is relatively important to the economy, and if the gains in output exceed the tax on the consumption part of the economy. The smaller the **F** sector is relative to the rest of the economy, the more likely it is that the gains experienced will be relatively small, especially compared to all of the other inefficiencies in the general economy. Specific types of GFTs may be called for, since in a trading economy, output growth could counter-balance the tax load, and could therefore increase country welfare.

However, the paper also pointed out using a case study from Canada that *even* faced with a resource conservation crisis, and *even* when the stated objectives included rationalization of resource use, the GFTs used in the TAGS program likely did not promote the welfare of producers and consumers in Canada. The reason why is to be found in the theories and models relating to institutional performance, rent seeking, and strategic behavior of economic agents both inside and outside the public sector.

However, this is not another argument against “perverse” subsidies; it is an argument against allowing economic tools like GFTs to be used in a “perverse” manner. Transfers and subsidies to one sector or another, appropriately regulated, are the sorts of things that most constituents expect their governments to do in their attempt to make the economy run better. Even policy mistakes (like subsidizing a large export sector) would seem to be that country's own business, and their own loss, especially if it is a democracy.

This paper does say that while there appears to be a clear macro-level argument for using GFTs to promote welfare and sustainability in fisheries, the use of GFTS in real policy settings can be welfare decreasing and non-sustainable for a country, if careful attention is not paid to how the tools might change the economic behavior of both public servants and the recipients of GFTs.

Transfers, while possibly very useful, can set up a number of counter-productive strategic behaviors on the part of potential recipients *and* those who are administering the funds that must be controlled from the start. There also may be other tools that do not involve transfers of money, but which essentially do the same types of things. Market-based institutions that are more automatic and counter cyclical, like individual quota share management, might be used in many places where direct intervention with GFTs to reduce capacity might be considered. For example, DFO might have created a fleet register (similar to those used by Commercial Fisheries Entry Commission of Alaska), where *all* licensed vessels have their landings of fish species documented for a standardized period before the regulatory change took place, after which each license would be awarded a share of any fishery by zone fished based upon historical activity. After an appropriate period to work out appeals, these shares could be permanently attached to the licenses. Such a system might be organized such that shares could “stripped” or “swept-up” from



licenses to a certain minimum level through open market transactions, after which the license would automatically expire.

The government (HRDC for example) might have clarified what types of businesses might qualify for Employment Insurance. For example, if a firm had been operating below average variable cost for some time before the moratorium, then the enterprise is clearly not in the business of making money, but is searching for tax write-offs and EI benefits for its employees. Rules already exist for small businesses in the Canadian tax code that limit these sorts of abuses. These might be extended to fishing firms and processing plants. Closing these loopholes would provide incentives for marginal firms to exit the industry, because closing EI loopholes (or rather making the difference between “avoidable” seasonal unemployment and “unavoidable” unemployment due to economic cycles) would increase opportunity costs to industry members. However, these policies would require a major shift in attention to industry structure, costs of production, economic performance, and aggressive use of career planning services.

Offers might be made for outstanding shares, according to what public managers were willing to spend. Economists who have studied buyback programs in Canada have cautioned against revealing too much about how willing government is to buy back licenses, and for how much, and over what periods of time, for obvious reasons. Rather than saying that some percentage of the fleet will be bought out by a certain date, the percentages and the date might remain uncertain. Rather than publishing government reservation prices for different classes of vessels, the attitude might be: “you offer and we may or may not accept,” supported by analyses of the technical characteristics of the fleet which would enable the government to pinpoint more exactly the capacity being taken out of the fishery. Alternatively, if there is sufficient information on the technical characteristics of different members of the fleet, a dichotomous “take it or leave it” offer might be preferable. In fisheries not under a moratorium, public managers could insist upon the creation of a buyback superfund, financed by remaining license holders with matching funds from the government, to encourage the removal of shares on a periodic basis.

EI premiums could be phased out for seasonal work over a reasonable period, allowing those in the industry to find alternative employment. At the same time, generous scholarship packages for retraining, following the original objectives of TAGS, might have been effective.

The TAGS history in Canada also reveals important asymmetries in scientific information gathering that would need to be addressed for GFTs to be used efficiently, especially in a program that is trying to manage capacity. While fisheries scientists continue to analyze stock assessment data to discern what might have gone wrong with those stocks, the same statement is not true regarding the analysis of the industry. There appears to be little information collected or economic analysis done on the cost structure of the groundfish fleet, or their performance in the past.

The difficulty with GFTs is not that they are an undesirable policy tool. It is rather that these tools are used liberally by those who may not appreciate their economic implications. This may be in part the fault of economists who argue that transfers are so dangerous they should be discouraged...which no one listens to, including many economists. However, part of the blame for failed GFT policy might also be laid at the feet of managers who think that “economic policy” means “spending oneself out of a problem.” The danger is that while we do spend to solve problems, we create other problems by doing it, and these need to be controlled as well.

In effect, attention and discussion should probably move away from; “what subsidies are perverse?” to “how can we use subsidies or GFTs (and other economic tools) in a way that promotes welfare in a sustainable way without directly hurting others?” Responding to this question correctly is more complex, but possibly more useful in the long run.

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## ENDNOTES

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<sup>b</sup> Government arguably exists in the first place to promote general efficiencies, so any transfer which is not specifically aimed at gaining an unfair trade advantage in a sector might be considered that country's own business. In the case of fisheries, allocating funds and making transfers to correct a "bad" such as over-capacity is almost self-evident, especially now that it has become an issue of international importance.

<sup>c</sup> This is simply an artifice for illustration only. There may be many "wedges" depending upon the world price, with many resulting welfare effects.

<sup>d</sup> The classical example in macroeconomics is fiscal policy that attempts to bring an economy to full employment through managing the asymmetries between the tax and projected spending multipliers.

<sup>e</sup> [http://www.dfo-mpo.gc.ca/communic/statistics/oceans/economy/contribution/exec\\_e.htm](http://www.dfo-mpo.gc.ca/communic/statistics/oceans/economy/contribution/exec_e.htm).