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The Role of Compensation in Policy Reform

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EXECUTIVE SUMMARY

Governments reform policies in order to improve their efficiency and respond to changing social priorities. Reform is resisted when concerns exist about those who may lose out in the process, or when other policy goals are negatively impacted. Compensation can remove barriers to reform by addressing this resistance, and can contribute to adjustment by speeding its process but may itself impede the reform process if it masks the market signals that lead to adjustment. Compensation is not always necessary or appropriate, and should not be seen a prerequisite for reform.

Even if their overall effect is positive, policy reforms can generate losses for some affected groups. Agricultural policies can become capitalized in asset values, notably for land and for policy assets such as quotas. Sector participants, including farmers, farm workers and upstream or downstream industries may lose income or face displacement as a consequence of policy reform. Farmers may be unable to recover the cost of their investments if a policy reform changes returns, especially when the reformed policy promoted investment. Affected groups can have differing levels of public sympathy, political influence, and legal rights, all of which influence the design of compensation policy.

Compensation offered as a corrective to the loss of income or asset values, or for costs incurred as a consequence of reform are social transfers much like any other and should therefore follow the guidelines set out in the document *Agricultural Policies in OECD Countries: A Positive Reform Agenda* (OECD, 2002). That is, compensation should be directly targeted to the affected groups, tailored to the objectives of the policy, temporary, and cost effective. Effective policies reduce deadweight losses by minimising market distortions—lump-sum transfers are an obvious choice. This also ensures that adjustment subsequent to policy reform is not impeded by distortions in input or output markets.

In some cases, affected groups have sufficient political influence to block or alter policy reform. Compensation can be critical in obtaining the consent of these groups and allowing reform to take place. In this manner, compensation can be seen as enabling policy reform. The overall welfare gains of policy reform are balanced against the costs of providing compensation to negatively affected but influential groups; compensation is given and the policy reform undertaken when the net welfare gains remain positive. This may be thought of as a requirement to turn a potential Pareto improvement into an actual Pareto improvement, although the amount of compensation offered is a function of political influence and may result in either over- or under-compensation.

For policy reforms to be durable, the pressures that lead to the original policies must change. Policy reform usually follows changes in these pressures, but sometimes it occurs despite them. In the latter case, compensation can be tailored in such a way as to modify these social pressures and help consolidate policy reform. It does this when it alters the relative influence of affected groups, by changing public perceptions regarding the acceptability of change or through investments or constraints that change the incentives of affected groups.

Compensation as part of policy reform may be more likely and affordable when relatively highly distorting programs are being reformed. This is because the low transfer efficiency of such programs makes compensation relatively inexpensive, and because of the relatively higher welfare gains available from reforming these policies, which offer more scope for compensation to be given while preserving a positive welfare gain.

THE ROLE OF COMPENSATION IN POLICY REFORM

Introduction

The subject of agricultural policy reform and the subsequent adjustment process of the agricultural sector has received considerable attention. Examples of reform and adjustment were considered in the document “Adjustment Options and Strategies in the Context of Agricultural Policy Reform” [AGR/CA/APM(2005)18/FINAL], and some initial guidelines for adjustment policies were put forward. The Trade and Structural Adjustment Project (TASAP) work [TD/TC(2005)2/CHAP1/FINAL] also includes case studies and guidelines for pro-adjustment policy reform, in agriculture as well as other sectors. The report “Global, National and Household Effects of Trade and Agricultural Policy Reform” [COM/AGR/TD/WP(2005)45/FINAL] considers the effects of policy reform and adjustment on both domestic and foreign actors.

This study proposes to add to this work by considering the role of compensation in the reform process. It will identify the circumstances in which granting of compensation is necessary or beneficial to the reform process, and will suggest guidelines for pro-adjustment, pro-reform compensation mechanisms. In *Agricultural Policies in OECD Countries: A Positive Reform Agenda* (OECD, 2002) it was observed that while agricultural reform should be of widespread benefit, not everyone will gain in the short run. To facilitate adjustment there may be a need for transitional assistance aimed at those who may be negatively affected.

When past policies have resulted in distortions, structural adjustment is desirable because it re-allocates factors of production into more efficient uses, raising productivity and welfare. Adjustment is resisted when concerns exist about those who may lose out in the process, or when other policy goals are negatively impacted. Compensation is one means by which these concerns may be abated, but may itself impede the reform process if it masks the market signals that lead to adjustment. Pro-adjustment compensation can remove barriers to adjustment by making reforms more feasible, and can contribute to adjustment by speeding its process.

Compensation becomes a policy option when policy reform itself, or the subsequent process of adjustment, creates winners and losers. Agricultural policies can become capitalized in asset values, notably for land and for policy assets such as quotas. Removing the policy reverses this capitalisation and generates potential losses for the asset holders. Sector participants, including farmers, landowners, farm workers and upstream or downstream industries may lose income or face displacement as a consequence of policy reform.

Adjustment can also impose costs on certain populations, in particular those that were initially singled out for policy attention. Agricultural policy can strongly promote certain activities, resulting in investments in related infrastructure. The value of these investments may be reduced by a policy reform. These are, strictly speaking, sunk costs, and not all adjustment costs are automatically deserving of compensation. There are circumstances when such compensation may be desirable from a policy or

political economy perspective. Compensation may also serve to allow reform to become consolidated, and limit the possibility of roll-backs of reform.

The use of compensation payments has been a feature of many policy reforms in the past (some examples are considered in section five of this document). The variety of approaches taken to compensation policy, and the differences in outcomes of such policies, hint at the need for further investigation. This study considers compensation policies in the context of agricultural policy reform from the perspective of efficiency, equity and political economy. Its goals are to:

- Provide a meaningful definition of compensation and clarify the distinction between adjustment policies and compensation policies;
- Identify situations in which granting compensation for reform-related losses might be warranted;
- Develop principles regarding the amount of compensation and its relation to asset values, income, policy goals, and social equity goals;
- Provide practical advice about how to design compensation mechanisms that are appropriately tailored, equitable, pro-adjustment and pro-reform.

The structure of the study is as follows. Compensation and related concepts will be defined in the following section. The third section will deal with the underlying motivations for any compensation policy. Section four covers the amount and delivery of compensation and its relation to reform. Some examples are presented in section five, and section six presents the results of some analytical work related to levels of compensation using the Policy Evaluation Model (PEM). The seventh section concludes.

Definitions of compensation and related concepts

Throughout this paper, definitions will be made in order to maintain a focus on the main themes with which the paper hopes to deal. Accepting that in reality, clear lines are seldom easy to draw and every rule has its exception, the definitions used here will strive for expositional clarity and utility rather than comprehensiveness. The topic is compensation in the specific context of policy reform, which is characterised by transition and adjustment. This leads to a number of relevant concepts: compensation, adjustment policy and re-instrumentation of policies are all possible components of the process of policy reform.

Compensation policies as considered in this study provide a monetary transfer to a targeted group that has been made worse off as a result of a policy reform. The negative effect of the policy reform on the targeted group may result from the cost to workers of economic dislocation, losses in asset values subsequent to structural adjustment, or the loss of the value of transfer payments directed toward them. Compensation policy may be motivated by several different factors, and have goals other than simply providing compensation.

Ideally, compensation payments are given during a defined period. This period may be but is not required to be related to the duration of economic adjustment subsequent to reform. When the amount of compensation makes a single payment prohibitive, payments may be spread over several years (for example in the case of peanut or tobacco reforms in the United States). Both theoretically and from the perspective of the recipients, a single payment is preferable to a series of payments over time. However, if the compensation is treated as income and there are high marginal income tax rates, it might be

advantageous for those who are compensated for payments to be spread out over a number of tax years (the after-tax net present value of a series of payments could be higher). A key distinction between compensation payments and re-instrumentation (discussed below) is a defined end date for payments.

Adjustment policies intend to influence the pace and degree of post-reform adjustment of the economy after a shock has occurred. In the context of agriculture and where the shock in question is a reform of existing policy, these programs usually either assist producers to exit the industry or diversify into new industries, or by raising the stock and quality of human, material and social capital to improve viability and competitiveness within agriculture. Some examples are early retirement programs, subsidised training programs or investment aids. Adjustment policies can be compensatory if they provide value to a party injured by reform, but this is not their aim and may be considered a secondary effect. Where compensation always involves a monetary transfer, adjustment policies need not involve such a transfer. Adjustment is a more dynamic concept than compensation; it implies farmers are required to incur costs and take action to respond to a new situation. Receiving compensation, on the other hand, is a more passive concept—something has happened to the producer and they receive a payment as a result—where the farmer is not the active agent. Adjustment policies involve some judgements on the part of policy makers as to what actions sector participants should take subsequent to reform (and encourage these), while compensation policies do not.

Re-instrumentation replaces one policy instrument with another in the context of an ongoing policy goal. This could be for example the replacement of a tariff with a deficiency payment to support producer prices, or a deficiency payment with an area payment. Such an approach would be pursued when the original policy instrument is unsustainable or otherwise undesirable, while the government continues to maintain the goal of the policy. In practice, re-instrumentation also contains elements of compensation, in particular when the policy goal has to do with farm income. Re-instrumentation policy can be similar to compensation policy, the key difference being the lack of a specific end date for payments.

Compensation may aid adjustment if the transfer helps producers to exit the sector or is invested in a manner that improves farm viability, but this is not the primary intent. As it has been defined here, it would be difficult for a single policy instrument to deliver simultaneously the “right” amount of adjustment assistance and the “right” amount of compensation. A single policy instrument means producers will be either over- or under-compensated or over- or under-assisted in the adjustment process. The problem of mixing rationales for government intervention and its consequences were discussed in OECD (2002) and is an application of the Tinbergen principle which calls for “one policy instrument for each objective”. That said, there is considerable scope for overlap between compensation and adjustment policy in particular, and the design of a compensation or adjustment policy should take this into account. In some cases, efficiency considerations related to transactions costs in policy delivery may result in the twin policy objectives of compensation and adjustment being best met through a single program. At the least, the design of a compensation policy should take into account the income effects of any concurrently operating adjustment programmes.

Many policies have been put into place in the past that attempt to deal with questions of compensation and adjustment at the same time. Such an approach may be appropriate when the transactions costs of operating two separate programmes exceeds the value of the efficiency gain resulting from applying two separate instruments to these different yet related objectives. Moreover, altering the rate of adjustment is not an end in itself; the ultimate intent is to improve economic welfare and income of the individuals involved, a goal not far separated from that of compensation. For this

reason, the idea of using a single policy approach cannot be dismissed. It may also be the case that it is politically advantageous to minimise the distinction between compensation and adjustment in practice.¹

Any change in a program, policy or institution could be considered a policy reform. In looking at the question of compensation subsequent to policy reform, reforms that result in significant negative impacts on income or wealth to a specific group (in the context of an overall welfare gain) are of interest. *Policy reforms in this context are taken to be a reduction in domestic support in the form of budgetary payments of any type, any reduction of price support, including as part of a trade agreement that lowers border protection, or any new regulatory requirements that impose new costs on producers, in particular where such regulation leads to a public rather than private benefit.*² An example of such a regulatory change could be the application of the polluter pay principle where before polluters were allowed free disposal. This definition encompasses policy reforms that either reduce benefits to producers or increase their costs. Other types of reforms are unlikely to lead to questions of compensation being raised, and so are excluded from consideration in this study.

Different reform strategies are possible (Table 1). Gradual reform without compensation reduces interventions over time, significantly enough to yield benefits but slowly enough to avoid resistance (squeeze-out). When offered with compensation, typically the old policy is terminated and replaced with a series of cash payments (cash-out). When these payments are of unlimited duration, this is termed re-instrumentation. Rapid reform terminates a policy completely without a phase-out period, either associated with a compensation payment (buyout) or not (cut-out).

Table 1. Alternative reform strategies

Compensation?	Duration of Implementation	
	Long	Short
Yes	Cash-out	Buyout
No	Squeeze-out	Cut-out

Source: adapted from Orden and Díaz-Bonilla (2004)

Basis or rationale for compensation

The reform of an existing policy situation does not by itself justify the provision of compensation. Modern economies are constantly changing as the economy evolves in the face of technical progress and other external influences, creating winners and losers in the process. It is impossible and undesirable to indemnify all members of society from harms caused by economic change. One of the primary risks in offering compensation is that the market signals that lead to improved efficiency and productivity may be muted or silenced entirely, adversely impacting the long term growth and viability of the sector.

1. It is doubtless the case that more effort is expended here to separate the concepts of compensation and adjustment than seems to be made in public discourse, and indeed perhaps by policy makers. Rhetorically, adjustment may be the preferred term when it is seen as keeping producers in the sector, while compensation is seen as getting them to leave. Adjustment as a term may also be used to connect the payment to a social benefit rather than being a simple transfer payment.

2. Regulation regarding practices affecting soil erosion could have primarily private benefits accruing to the landowner, with different implications for compensation than those that aim to reduce externality or increase public benefits, such as environmental regulations.

Nevertheless, compensation may be an attractive policy option in some cases. The motivation for this may come from reasons of political economy, social choice and preferences or some legal obligations. It is unhelpful to consider which of these pressures one may prefer, as the policy maker has little choice over this. What is important is how they are addressed. Moreover, it is seldom easy to observe clearly a simple motivation for a given policy, as these rationales mix and intertwine with each other, at least rhetorically. Naturally, different motivations and objectives lead to different approaches to obtain them. If anything useful is to be said about the use of compensation as a policy option (the questions of when and how and how much), one must begin with understanding its objective and purpose.

Social choice

Expressing the preferences of the public is the foundation of policy-making in democratic systems. Saying that social preferences can form the basis of compensation policy is then far from controversial. It is worth mentioning as a reminder that the motivations for offering compensation subsequent to policy reform can be the same as those for any other policy transfer in any other context. Thus, OECD principles of sound policy making apply equally to the case of compensation as for any other policy. That is, according to these principles, good policy is targeted to obtain a clearly-stated objective, and is no greater in size than required to meet that objective. In the sections that follow, how these principles can be met with respect to particular examples of compensation policy will be considered.

If a policy exists that redistributes resources towards agricultural producers, reform of that policy will raise the question of compensation if the underlying social preference for that transfer has not changed. Preferences may be expressed for relative incomes across different types of farmers and for farmers relative to consumers and taxpayers. Compensation in this case is intended as a transfer to bring the actual income distribution in line with the preferred one, however defined.³

Social choice theory formalises the study of social preferences as distribution rules that follow a set of fundamental principles. The most famous of these is the Rawlsian “maximin” rule that holds that the income of the least well-off member of society is to be maximised (Rawls, 1971). More sophisticated versions recognise the free-rider problem when income becomes disassociated with effort, as well as concerns of fairness. These concerns are addressed by ensuring that income remains dependent at least in part on individual effort, such that compensation is provided only for matters beyond the individual’s control (Roemer, 1993; Fleurbaey, 1995; Bossert and Fleurbaey, 1996; Fleurbaey and Maniquet, 1996; Devooght, 2004; Schokkaert and Devooght, 2003). Such approaches may be primarily interested in notions of fairness over free-riding, but forming a consistent view of what is fair has proven difficult at best (Cappelen and Tungodden, 2004).

The general idea is to divide the characteristics of an individual into those for which they are responsible and those for which they are not. Compensation may be provided for bad luck, but not for sloth. The division between these characteristics turns on the questions of control and identity. Individuals are held responsible for those things in which they are in control, or for the consequences of their sense of self-identity. These theories describe social choice across individuals which do not apply to groups in a straightforward way.

3. A possible intent of the original policy reform could be to correct the distribution between producers and consumers and taxpayers, if the policy is perceived as leading to unfair outcomes.

Summary

- Compensation policies based on social choice or preferences should be regarded as “normal” policies to which previous OECD policy advice applies.
- For income distribution, fairness does not equal equity. Fair distributions consider merit and responsibility and not just the equalisation of incomes.
- Social preferences by definition determine the optimal income distribution and therefore compensation policy — it is to the public to decide whether “fair” or “equal” or something else is to be the overall goal.

Government obligation to provide compensation

Governments have wide latitude to introduce or remove policies that deliver benefits to or impose costs on different constituencies, including the making of transfer payments or the application of regulations. The only sense in which one may say that a government may be truly constrained in its policy options is through application of the rule of law and the constitution of the country. It is easy to overstate the importance and effect of any such restriction. In fact, this applies almost exclusively to regulatory policy, does not infringe upon the ability of the government to make and change such policy, and would be relevant for only a subset of those affected by the regulation.⁴ Finally, the parameters of any form of compensation under this heading are largely out of the hands of the government, rendering moot any question of an “optimal” compensation policy.

The idea of a government “taking”, that is, a reduction in property values resulting from government action, is perhaps best developed in the United States, where the concept has its foundations in constitutional law, but is not exclusive to that country (see Kim and Kim, 2002). It has been applied primarily in cases where government regulation restricts the use to which land may be put, and therefore its value.⁵ This reflects a view of property rights as being composed of a set of possible uses or characteristics, each one contributing to the ultimate value of a parcel of land.

For example, a policy reform that prevents a farmer from growing crops on parcels of land adjacent to waterways. Inasmuch as an option for the use of that land has been eliminated, the value of the land will be reduced. It is this change in land value that forms the basis of a “taking” argument. For that argument to prevail the land owner must at a minimum show that the regulatory change runs counter to his “reasonable, investment-backed expectations”, a test that is not without its difficulties in practice (Runge, 1992).

There are many situations where a sense of obligation is felt to offer compensation to groups affected by policy reform. This may come from a sense of moral duty (Curry report, 2002), or the idea that such compensation would promote efficiency (Eucken, 1975). However, neither of these reflects a situation where an effective constraint external to the government’s own policy-making process exists. Rather, it is more in terms of a self-imposed constraint to do the “right” thing. This idea will be taken up in the following section which deals with the political economy of compensation and policy reform.

4. In fact, the requirement to pass constitutional muster does restrict government policy options to a certain degree, but this is beyond the scope of this paper, where a legal requirement to give compensation is the issue, not the question of legal constraints on policy in general.

5. A seminal case is *Lucas v. South Carolina*. See Halper (1998) for a discussion.

If cases of governments being compelled to give compensation subsequent to a policy reform are rare and usually limited to a relatively small number of individuals, why is it important? Such cases increase the potential cost of policy reform and introduce risks to the reform process. A proactive approach to this risk would be to clarify the allocation of property rights for agricultural land such that governments and stakeholders are aware of their rights and responsibilities in the wake of policy reform.

Summary

- The relevance of the concept of government “taking” with respect to property values and compensation is country-specific, in that it depends on the laws in place in each country.
- A central criterion in determining whether a taking has occurred is “reasonable investment-backed expectations”. If such expectations are upset by government action, a basis may exist for a taking claim.
- In such cases, decisions regarding compensation due to reduction of property values will have to be taken through the legal system rather than the political one, removing it from the domain of options under government control under normal circumstances.
- However, governments can act proactively to ensure that the property rights regime is clear to reduce uncertainties in the costs of policy reform.

Political economy

In this section, two main ideas are singled out for attention. First, the presumption is that policies are chosen in order to maximise social welfare subject to economic and political constraints and second, that pressure groups can have influence on policy reform and the distribution of benefits. By focusing on these ideas, it is possible to remain in a domain where the question of an optimal policy from an economic welfare perspective is still central, and where political economic factors operate to influence that optimal policy choice without invalidating it.

A simple case is when one group has the ability to veto any reform, and therefore preserve the status quo. If a policy reform that raises social welfare is to be undertaken, this group must not be made worse off by the policy reform, lest they exercise their veto power.⁶ In this case, a policy that offers a potential Pareto improvement must be turned into one that delivers an actual Pareto improvement. That is, welfare is maximised subject to the constraint that the pressure group not block the reform process. One obvious way to do this is by offering a transfer payment to compensate the pressure group for any welfare losses. This would be done in any situation where the net welfare gains are not fully exhausted by the deadweight losses or other costs arising from the transfer.

This example describes the essential elements of pragmatic compensation. In order to obtain the benefits of reform, those who are harmed by it (and who have sufficient influence) must be compensated. Without compensation, the reform will be blocked and its potential benefits lost. In a more

6. In fact, depending on the relative power of the group, it may be able to insist on a disproportionate share of the benefits of the reform, and not be satisfied simply by not being harmed by it. The source of a group’s political power could be its ability to muster public sympathy, its willingness to make political contributions, or any number of other factors or combinations thereof. The basis of their influence is not directly relevant to the analysis, though it is clearly preferential for groups to find their influence through public support.

general model of interactions between pressure groups, a policy reform may be seen as offering a pool of benefits, over which the different groups compete (see for example Becker, 1983).

In summary, compensation subsequent to policy reform may be the equilibrium outcome of a political process where pressure groups, including agricultural producers and related interests, apply political pressure to obtain favourable treatment. In particular, the existence of support in the status quo makes such compensation more likely as it implies something about the relative power of the subsidised group, and as well because the deadweight costs of providing compensation are reduced relative to other unrelated policy options. These deadweight costs are reduced because of industry-specific investments and because the government institutions to deliver compensation are already in place.⁷

The influence of history

In the 2002 Curry Report in the UK, the authors foresee that agricultural producers will become increasingly market oriented as agricultural policies are reformed. They observe that “*for an industry that has been under the Government’s wing for the last fifty years, this will be a serious challenge*” and further state that “*Government has supported the industry for fifty years—it has a moral duty to help as the industry transforms itself and breaks away from subsidy*” (Report of the Policy Commission on the Future of Farming and Food, 2002).

The point that the authors of the Curry report are making is that past policies that have helped shape the economic landscape in which producers operate. This creates a certain responsibility when that landscape is changed through policy reform. This may be especially evident when private investment is subsidised or promoted. The authors of the Curry report call this a “moral duty”, but whether this motivation is a sense of duty or simply political inevitability, it reflects a sense that past policy has an influence on current policy by limiting the set of reasonable policy choices.

In Germany, Eucken (1975) postulates a number of principles for 'good' economic policy making, one of them being 'Konstanz der Wirtschaftspolitik', *i.e.* the principle that economic policy should not change too frequently and abruptly in order to create sufficient certainty for investors because otherwise resources will not be allocated optimally. Following Eucken's principle of 'Konstanz der Wirtschaftspolitik', other writers have derived the idea that if a policy is indeed changed abruptly, without the people affected (in particular investors) having been able to foresee that, they have something of a 'right' to compensation, both because they individually had a right to assume that policy would respect the principle of 'Konstanz der Wirtschaftspolitik', and because the economy overall should remain assured that they can trust a reliable path of policy development, and hence take proper investment decisions.

When a firm is unable to recover the costs of their investments as a result of a policy reform, these are termed “stranded costs”⁸ (Brennan and Boyd, 1996; Kolbe and Tye, 1996). Efficiency arguments for compensating these rarely surface since “stranded costs” are also “sunk costs” that should not influence marginal decision-making. An economic approach to compensating these costs would choose the amount of compensation that maximises the expected total value of returns to all parties (including taxpayers). This approach is neutral to equity and distribution issues, and provides a utilitarian basis for evaluating the need for compensation (see Arrow, 1971 for a related analysis). Complications of offering compensation for stranded costs include moral hazard and strategic behaviour, as well as the problem of

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7. Investments that are specific to an industry lead to a smaller short-run elasticity of supply. The relatively inelastic response leads to lower deadweight costs for a given intervention.
 8. Because the costs at issue involve historical investments, “stranded costs” can also be referred to as “stranded assets”.

compensating investments that simply represent bad decision making (Brennan and Boyd, 1996). Further, affected parties may already have been compensated; either through earning a rate of return higher than market rates in previous years, or by mistakes or defects in program design that allow these parties to earn excess rents (Kolbe and Tye, 1996).

Summary

- Governments interested in increasing social welfare through a policy reform may have to offer compensation to affected groups that possess sufficient influence to effectively demand it.
- The amount of compensation in the above case is more a function of the influence of the pressure group than the amount of harm realised—either over- or under-compensation may be an optimal policy.
- The current policy environment has an influence on compensation policy through path dependency—governments may feel a responsibility to offer compensation subsequent to policy reform that changes an economic landscape that they had a hand in creating.
- The cost of investments made under the expectation of a certain policy environment may not be recoverable when policies change. These are termed “stranded costs”.

Design and delivery of compensation payments

The previous section considered some of the underlying motivations and objectives for offering compensation subsequent to a policy reform. These distinctions are important inasmuch as differing objectives imply different approaches; there is no single “right” way to deliver compensation. Compensation offered with the intent to correct a loss of income or asset values, or for costs incurred as a consequence of reform are social transfers much like any other and should be expected to follow in most cases the guidelines set out in the document *Agricultural Policies in OECD Countries: A Positive Reform Agenda* (OECD, 2002). That is, compensation should be directly targeted to the affected groups, tailored to the objectives of the policy, temporary, and cost effective. Some specifics will be considered below.

It has been shown that a net welfare gain from policy reform is possible even after the costs of compensation are considered; in particular in the case of trade liberalisation (reduction of market price support). Dixit and Norman show that gains from trade can be distributed in a Pareto-improving manner using either lump-sum transfers (Dixit and Norman, 1980), or commodity taxes or subsidies (Dixit and Norman, 1986). Feenstra and Lewis (1991) further point out that adjustment assistance can help maintain Pareto gains when compensation is offered. Lawrence and Litan (1986) conclude that ‘pragmatic free-traders’ should support trade related aid if it helps reduce trade protection. However, strategic behaviour of individuals who anticipate compensation payments may sabotage these gains by deliberately under-investing (Willmann, 2002), or by their voting behaviour (Davidson, Matusz and Nelson, 2004).

Beyond the question of whether compensation payments should be undertaken and whether they preserve a net welfare gain lie a large number of questions about the design specifics of any compensation programme (Box 1). Clearly identified objectives are a valuable aid to answering some of these questions, while others have more to do with identifying best practices. On the latter, the case studies discussed in section 5 may offer some guidance.

Box 1. Elements of compensation program design

The design of any compensation program will begin with answering a set of fundamental questions. How these questions are answered depend on the specific objectives of compensation payments.

1. *Degree of compensation.* What should the size of the payment be? Should it reflect a measured harm, or the value of continuing the reformed program for a specific number of years? If the latter, how many years? To what extent are existing adjustment or general social programs compensating, and should any compensation payment be adjusted for this?
2. *Distribution of compensation.* Should all affected parties be compensated equally, or should compensation payments allow for redistribution? Should there be a per-individual or per-farm cap on payments? Should those leaving the sector be treated differently from those who remain?
3. *Duration of compensation.* Should compensation be a lump-sum, a set amount over a definite period, or a declining amount over time? Should payment be in the form of cash payments, or bonds or other assets?
4. *Scope of compensation.* Should compensation extend beyond farmers to landowners, farm workers or up- and downstream industry? Should unintended beneficiaries of policies be eligible for compensation? Should recent entrants be treated differently from those who have operated under the reformed policy for a longer period?
5. *Basis of calculation of compensation payments.* Should payments be made per-farm, per-hectare, per-individual, or on some other basis? Should the calculation of payments be based on observed or expected harm? Should an individual, regional, or national approach to calculation of payments be taken?

Using compensation payments to reduce opposition to reform

It is possible that affected groups have sufficient political influence to block or alter policy reform. Compensation can be critical in overcoming opposition of these groups and allowing reform to take place. In this manner, compensation can be seen as enabling policy reform. The overall welfare gains of policy reform are balanced against the costs of providing compensation to negatively affected but influential groups; compensation is given and the policy reform undertaken when the net welfare gains remain positive. This may be thought of as a requirement to turn a potential Pareto improvement into an actual Pareto improvement, although the amount of compensation offered is a function of political influence and may result in either over- or under-compensation as an optimal strategy.

The costs of compensation include not only deadweight losses from market distortions (including those due to taxation related to funding any payments), but also the cost of government funds where effective fiscal limits exist. That is, if the ability to raise taxes is limited then public funds are accordingly more “scarce” than private funds and so have a higher cost. In some cases, this problem of the cost of public funds has been dealt with using sector-specific levies to fund compensation payments. For example, the tobacco program buyout in the US was funded by assessments on the tobacco industry rather than general revenues. If the sectoral tax precedent had not existed, the high cost of the tobacco buyout might have blocked its enactment (Orden and Díaz-Bonilla, 2004). Another example of this is in the Australian dairy reform, where a consumer levy was used to fund compensation payments. Such sector-specific approaches are distortionary and undermine the purpose and benefits of reform, and should be temporary in nature.

The political economy model implies that compensation is a necessary cost to obtain welfare-improving policy reforms. Foster and Rausser, 1991 consider how compensation may obtain political consent at least cost. Specifically, the amount of compensation may be lower if it is delivered in a way that reduces that group’s influence. If compensation is directed at a subset of an interest group, it reduces the homogeneity of the group’s interests and can either break it up entirely or increase its coordination costs. For example, lower costs could be obtained by using a lump-sum payment targeted

at smaller farms. This would not only reduce the cohesion of farming groups, but also affect their degree of public support, which is contingent at least in part on the image of the small family farm. Targeted compensation payments act as a "wedge" between these sub-groups.

Some of the characteristics that lead to groups having more political influence are their membership size, ability to muster public sympathy, and ability to overcome the free-rider problem. Small, homogeneous groups that enjoy a good public image tend to have relatively more influence due to their lower costs of organisation and control. Agriculture can be seen to have an advantage in all of these features. The sector is usually relatively small and without significant intra-sector competition that would prohibit co-ordination. In fact, unlike most other industries, farmers have long tended to organise and co-operate to improve production and marketing technologies, and thus possess a strong basis for cooperation and co-ordination. Farmers also enjoy a strong public image; a 2005 Gallup poll found farming was the third most positively regarded industry after restaurants and computers (Economist, 2005).

Past experience of compensation related to policy reform suggests that overcompensation is a common outcome of the reform process. For example, the US tobacco and peanut buy-out payments are equivalent to the value of the quota rental revenue for 15 years, even though quota values had been trending downward up to the point of the reform (Orden and Díaz-Bonilla, 2005).

Becker (1983) demonstrates that the presence of deadweight losses provides an intrinsic advantage to taxpayers over subsidised groups. Deadweight losses are the difference between the realized benefit to subsidised groups and the cost borne by taxpayers. When this difference is large, taxpayers will have a greater incentive to lobby than beneficiaries per dollar of transfer. While the costs of many programs, including agricultural support, seem high, this result implies that they are cheap relative to other programs that are too costly to muster, where "cheap" refers to deadweight losses, not taxes or subsidies. Some pressure groups are able to overcome their intrinsic disadvantage by virtue of their size, efficiency at applying pressure, or other factors. Becker finds that the interaction between deadweight losses and effective pressure implies something of a "tyranny of the status quo":

"This tyranny of the status quo is not the same, however, as laissez faire because the political sector would protect the status quo against many shocks and changes in the private sector. Suppose that an industry (autos) pays much higher wages than are available to its employees elsewhere (because they have invested in industry-specific capital) until unexpected competition from imports (Japan) reduces equilibrium wages in the industry below those available elsewhere. If government assistance were not forthcoming, workers would leave the industry and suffer a large reduction in earnings...These workers may be able to exert influence and elicit political support because the deadweight cost of doing so is cheap relative to those of other programs.

A well-known maxim of economics states that "sunk costs are sunk,"...Without government assistance, even large investments in industry-specific capital would not deter exit from the industry if imports reduced earnings below those available elsewhere. "Sunk costs are not sunk" in the political sector, however, because investments in human or physical capital specific to a firm, industry or even region reduce the short-run elasticity of supply, and the deadweight costs of "distortions" are lower when supply (and demand) is less elastic. Many persons have been annoyed by the recent political support to Chrysler because the earnings of their workers had been so high. My analysis suggests that annoying or not, this may be precisely the reason why Chrysler has been supported" (Becker, 1983).

Summary

- Compensation subsequent to policy reform should follow general principles of policy reform as set out in *Agricultural Policies in OECD Countries: A Positive Reform Agenda* (OECD, 2002).
- When political economy concerns dominate, compensation is the means by which the benefits of policy reform are obtained. The cost of compensation should be minimized so that the maximum net welfare benefit is preserved.
- Over- and under-compensation are both potentially optimal strategies to overcoming opposition to policy reform. The relative influence of pressure groups is the determinant factor.
- The cost of compensation may be reduced if it is targeted in such a manner as to reduce the influence of specific groups.
- The status-quo is likely to be defended because certain factors act to reduce the deadweight costs of doing so.

Using compensation payments to reduce the negative impacts of reform

Compensation motivated by distributional preferences seeks to reduce the negative effects of policy reform on specific groups or individuals or for the same individual over time. Such compensation must be tied to actual measures of income and income differentials and these differentials must be reduced by compensation, or else the policy goal is not met. For this reason, accuracy in measurement of the effects of policy reform and in delivery of compensation is integral to the policy objective. Avoiding over- or under-compensation is a core issue, as accurate compensation translates directly to increased policy effectiveness.⁹

Policy reform provides an opportunity to refine the effect that agricultural policy has on the distribution of income. In particular, if the policy being reformed is poorly targeted or not transparently delivered, its effects may differ from both original intent and current social preferences and objectives. Compensation payments that simply follow the pattern of benefits of the reformed policy risk losing the possibility of taking stock of the actual impacts of the reformed policy and bringing these closer to desired outcomes through the distribution of reform payments. For example, capping of per-farm compensation payments and other forms of “degressivity” in compensation seek to improve the distribution of payments where prior programs were seen to disproportionately benefit large farms. This can be seen as either corrective of a poorly targeted program or as “catching up” with changing social preferences. Indeed, when policy *ineffectiveness* motivates reform, adjustments such as degressivity in compensation are clearly desirable.

Past examples of compensation policy have shown that estimating the effects of policy reform in advance is difficult for many reasons, including inherently unpredictable market dynamics. An ex-post approach to compensation, where the impact is observed and evaluated prior to the payment of compensation, is potentially a superior approach. Unfortunately, there are many reasons having to do with the political process of policy reform, the acceptability of reform, the practicalities of the budget planning cycle of a particular state or negotiations between states (for example the EU) that may prevent

9. This is different from compensation payments used as a tool to obtain policy reform, where the objective of the government is to minimise the cost of compensation, and where over- or under-compensation may be optimal.

this from being a feasible alternative to rapidly delivered compensation and explain why such an approach is so seldom seen in practice. A potential alternative is to divide the compensation payment into parts, with an advance payment delivered up front, and then a second payment given after more information on damages is revealed. Ex-post measurement is also typical where compensation is a legal requirement, as harm must be demonstrated before relief can be obtained.

Compensation in the context of policy reform should not undo the effect of policy reform on improved market orientation. Compensation that simply cushions the effect of reforms will slow or prevent entirely the sector adjustments that will improve efficiency and deliver the net social benefits that motivate reform in the first place. Policy reforms by their nature change the status quo. Attempting to preserve the status quo through an associated compensation policy adds complexity and cost for an uncertain result. This is different in the case of re-instrumentation, where one policy may replace another while preserving a policy goal (related to farm income, for example).

Effective policies reduce deadweight losses by minimising market distortions—lump-sum transfers are an obvious choice. This also ensures that adjustment subsequent to policy reform is not impeded by distortions in input or output markets. Effective policy must also solve the identification problem. That is, it must identify and deliver compensation to targeted groups when others have an incentive to try to obtain the same benefits. For example, in dynamic labour markets there is always a certain amount of people moving from one industry to another. Targeting compensation policy must identify those that are displaced by policy reform from those who are moving as part of the normal labour market baseline.

There are three groups most likely to receive compensation payments after a policy reform. These are farmers whose income is reduced by policy reform, landowners whose assets lose value as a result of reform and farm labourers, who face income loss as well as the costs of displacement as a result of policy reform.

Farm income is often a target of agricultural policy, and therefore would likely be impacted by policy reform. However, the transfer efficiency (the proportion of payments that accrue to farm income) of policies varies and is never perfect, and so farm income changes from policy reform will be less than the change in program expenditure according to the degree of transfer efficiency of the reformed policy. This should be taken into account in determining the proper amount of compensation. Previous OECD work suggests that in particular, the transfer efficiency of market price support or payments based on the use of inputs is relatively low (OECD, 2001).

Landowners are harmed when the value of land is reduced. That is, the change in the price of specific parcels of land prior to reform to the price after reform has occurred. This is not the same as the value of land in a specific use, as land will always be put to the use that has the lowest opportunity cost. Because land can shift to a different use after reform, the reduction in land value will be less than what the commodity- or sector-specific price effect would imply. For this reason, calculation of the amount of harm must take the flexibility of the land market into account.

Large reforms can lead to structural adjustment where labour is released from the reforming sector and moves to other sectors of the economy. In general, it is assumed that workers incur costs when moving between sectors. These costs are due to expenditures on retraining and the search time required to find a job in a different sector. It can also include the cost of relocation where sectors are region specific. In the case of agriculture, this could mean a movement from rural to urban areas.

The cost imposed on dislocated workers can be reduced through adjustment assistance which may involve subsidised training and unemployment benefits; these adjustment policies reduce the costs of displacement by reducing both the transitional cost and duration of dislocation for the worker. Such

labour-adjustment policies as unemployment insurance and retraining programs exist in many countries. In general, economy-wide approaches such as these are preferred to sector-specific initiatives. These policies may not entirely eliminate demands for compensation, as workers who stay in the sector may also be harmed by reform, and those who exit the sector may still find themselves worse off.

Davidson and Matusz (2006) consider the effect of trade liberalisation on labour. Their research arrives at three rules that any compensation scheme should satisfy. The first two are that any policy should be temporary and targeted. The third rule states that the best policy has a large impact on the average dislocated worker but only a small impact on the marginal dislocated worker. Such a policy is effective, as it has a large impact per dollar spent, and efficient, as the small impact on the marginal worker limits economic distortions and deadweight losses.

Applying these rules to four general types of employment policies (unemployment insurance, training assistance, wage subsidies and employment subsidies) identifies that the best way to compensate those who leave the sector is with a temporary targeted wage subsidy (lump-sum payments are not considered in the study). A temporary targeted employment subsidy is the best policy for workers who remain in the sector. This result is driven by heterogeneous labour ability. Higher ability leads to higher wages as well as a higher probability of moving out of the sector after a policy reform. Wage serves as a skill identifier, and targeting it is an effective way to deliver compensation. The more decoupled employment payment for those who remain in the sector is effective at providing compensation without greatly affecting the entry-exit decision of the worker, and thus efficiency.

Programs are ideally temporary and targeted because any distortion increases deadweight loss in the economy, and should be as small as possible. Targeting ensures that only the necessary distortions are made by eliminating or reducing unintended spillovers or beneficiaries. Temporary policies have the same virtue. Presuming that there is some equilibrium rate of labour movement among sectors, a policy that changes this rate introduces a deadweight loss in the sense that either more or less people than is optimal move across industries. By limiting compensation to the duration of the expected cycle of retraining and job search, the equilibrium rate of labour movement is only disturbed in the short-term, reducing deadweight loss.¹⁰

Summary

- When compensation is the policy objective, accuracy in assessing the impacts of policy reform is essential to program efficiency. While ex-post measurement is superior, it is often impossible in practice. A two-step approach may be a solution.
- Policy reform and compensation provide an opportunity to bring the distributional impacts of agricultural policies more in line with current social preferences, implying in some cases a pattern of compensation payments different from that of the reformed policy. This is most likely to be the case when policy reform is motivated by lack of effectiveness of the reformed policy in meeting its objectives.
- Compensation should in every case minimise market distortions. Programs that are temporary, targeted and tailored will minimize costs and allow beneficial market adjustments to occur.

10. Davidson and Matusz (2006) point out that one may expect that under a temporary compensation program, some individuals who leave the sector by virtue of some government assistance would return to the sector in the event that they lose their employment in the new sector (but not simply because of the removal of the wage subsidy).

- The change in expenditure on the policy being reformed overestimates the amount of compensation required to offset it. This is because land (or other forms of capital) is transformable to different uses and because programs are imperfectly transfer efficient. Ignoring this effect could lead to overcompensation and an associated reduction in policy efficiency.

Using compensation payments to reinforce policy reform

Compensation can play a role in the consolidation of policy reform, helping reform to become entrenched and counterbalancing the pressures to reverse reforms and preserve the *status quo ante*. However, the payment of compensation does not engender by itself a commitment to policy reform—there is nothing intrinsic about compensation that by its nature consolidates policy reform. Consider the situation where a pressure group has sufficient influence to obtain a net policy transfer. Suppose the government wishes to end this transfer, and offers the pressure group a lump sum equal to the net present value of the transfer as compensation. The pressure group is by construction indifferent between receiving the compensation payment and continuing to receive the policy transfer, and so will agree to the reform. Once the policy has been ended and the lump sum paid, we return to the original situation. The pressure group still has influence sufficient to obtain a transfer, and no reason not to do so. Just as sunk costs do not change marginal decision-making, the compensation payment is a “sunk benefit” that cannot influence future calls for special policy treatment. If policy reform and compensation do not change the underlying situation, reform is unlikely to endure.

It would be advantageous for a government to be able to commit to a policy reform, and be definitive about any related compensatory payments. A clear signal about the future form of policy allows affected individuals the certainty they need to make proper adjustment decisions. This is often hard to accomplish in practice. As noted earlier, there are few constraints to the power to make policy, and a promise of a certain policy path on the part of a prior government does not form a binding commitment for a future one. Because policy statements are subject to reversal their information value is less and the incentive to lobby the government for policy changes remains. In game theory, one method by which such statements can become more authoritative is through the effects of reputation. In effect, if you consistently do what you say you will, people believe you are more likely to stick to your word in the future.

Without the ability to commit credibly to a policy path, compensation payments risk turning into de facto re-instrumentation as they are extended or replaced with similar payments. A strong commitment to the reform process, and clarity about its objectives and benefits, can help build public support. Rhetoric that is defensive of past approaches and the benefits producers receive from them confuses the case for reform and undermines the ability to set and keep a definitive end date for compensation payments.

Lump-sum payments have long been seen as ideal for policies related to redistribution, as they do not affect marginal incentives and so lead to small deadweight losses.¹¹ However, compensation delivered in other forms may increase the durability of reform by changing institutional structures, the degree of homogeneity of pressure groups or public perceptions (Patashnik, 2003; Foster and Rausser, 1994; Skocpol, 1994).

Just as targeting compensation payments to subgroups can be effective in reducing the cost of compensation, a “divide and rule” strategy can also help the durability of reform. Just as targeted

11. Lump-sum transfers do impose deadweight losses on the economy in that they must be funded through tax revenue, which leads to distortions.

compensation can reduce the ability of groups to demand compensation it can limit their ability to roll back reform. Its effectiveness in the long run may be open to question, as actors may treat compensation as a “sunk benefit”. Moreover, this approach must not reduce the perceived fairness of the compensation. Otherwise, it may put the sustainability of reform at risk.

Durability of reform can also come from institutional changes that alter the political landscape. This includes winning the “battle of ideas” where the public’s conventional wisdom on an issue is changed. For example, the possibility of directly influencing planting decisions may no longer be a policy option, as the use of market signals to determine planting decisions has gained intellectual favour and farmers come to appreciate the income benefits of decoupled support. This change in public viewpoint can affect both the type of policies that are put in place and the relative power of groups.

Concepts such as the “power” or “influence” of groups need not have negative connotations. An important source of influence for pressure groups is to have the support of a large part of the population, such that a group’s influence can come from a general view that it merits special treatment. Compensation can alter that support by changing the fundamentals upon which it is based. For example, if current agricultural policy reflects a general public viewpoint that farmers deserve higher returns than what they receive from the market, then this can be addressed post-reform by demonstrating that the farmers have received a substantial amount of additional income from a compensation payment. For this to be effective in changing public perception, efforts must be made to demonstrate this fact to the public. Policy makers must be willing to make the point that farmers deserve the compensation payment, but no more. Falling back on familiar rhetoric such as “we must do all we can for our agricultural sector” will sabotage the durability of reform.

Glazer (2003) points out that reforms that are initially resisted may become more acceptable over time. One reason for this is that investments made after the reform commit people to the new status quo. Another reason is that it is difficult to identify the winners and losers of reform in advance, but after reform has taken place, the pattern of benefits becomes clear. Compensation payments will have an influence on this distribution, and can reinforce reform if they lead to a more acceptable distribution of benefits than held under the reformed policy.

Summary

- Lump-sum compensation can be a “sunk benefit” that does not influence calls to roll-back reform.
- Compensation can be targeted to a sub-group to reduce political support for the reformed policy.
- Compensation can alter the distribution of benefits in a way that changes public perception and thereby reinforce reform.

Examples of compensation

Case studies are chosen to illustrate a range of situations in which compensation issues have played a role. Some of these have already featured in OECD documents (Australian reform in AGR/CA/APM(2005)18/FINAL and US reform in TD/TC(2005)2/CHAP1/FINAL). This does not diminish their usefulness as case studies for this paper, as the issues considered are not identical and the comparisons between these reforms is enlightening. The following four cases will be investigated:

- Australia – dairy policy reforms introduced in 2000

- Netherlands – introduction of limits on the pig herd in 1998
- Sweden – agricultural policy reforms undertaken in the period 1989-95 prior to membership in the European Union
- United States – changes in the support programme for peanuts under the 2002 Farm Act.

The case studies will be examined with respect to the following issues:

- The factors that led up to the change in policy and to the decision to provide compensation.
- The policy changes made and their anticipated effects on those who were targeted for compensation.
- The nature of the compensation mechanisms adopted, including the amount of compensation relative to anticipated losses.
- The impact of the compensation provided on recipients, particularly in terms of their subsequent adjustment to the new economic circumstances created by the change in policy.

Australian dairy policy reforms

In common with many other major dairy producing countries, the Australian dairy industry has had a long history of price support (Dairy Australia n.d.). Until 2000, dairy markets were regulated through policies implemented at both the state and federal (Commonwealth Government) levels, allowing farmers to capture higher returns. In the mid 1980s there was a phased reduction in price support and export assistance provided for manufactured dairy products through federal programmes. With the implementation of the Uruguay Round Agreement export assistance was eliminated. A domestic market support scheme was introduced, involving levies on milk sold for fluid consumption and milk used in the manufacture of dairy products for domestic consumption.

Price support continued to be provided for fluid milk sales through programmes implemented at the state level. Statutory marketing authorities exerted monopoly rights over the marketing of fluid milk in each of the six states (New South Wales, Queensland, South Australia, Tasmania, Victoria, and Western Australia). Prices at each stage of the marketing chain were regulated. Some states used marketing quotas to limit supply to the fluid market. Other states had pooling arrangements through which farmers received a price premium for a certain proportion of their milk production. Regulations effectively prevented interstate trade in fluid milk. Because of these arrangements there were essentially six different markets for fluid milk in Australia with considerable variations in the price premium received by farmers for milk used for fluid purposes. This situation came to an abrupt end in July 2000 with the over-night elimination of all price support mechanisms for fluid and manufactured dairy products. As a result, Australia became one of the few major dairy producing countries in which producer returns are linked directly to developments in world dairy markets.

Factors leading to the change in policy

The immediate cause of the change in policy was a required review of the dairy support system under the National Competition Policy. This policy aims to remove regulations that unjustifiably restrict competition. Its guiding principle is that there should be no regulatory restrictions on competition unless it can be clearly demonstrated that these are in the public interest, and that regulation is the only effective means to guarantee that the public interest prevails. In 1999, four states (New South Wales,

Queensland, Western Australia and Tasmania) completed required reviews of their milk marketing arrangements and recommended that their existing measures be retained for a further five years. However, all placed caveats on their findings, recognising that the outcome of the review being undertaken in Victoria, the largest milk producing state in the Commonwealth, would be pivotal to their ability to continue to regulate their own markets. Victoria's review concluded that there was no justification for continuing to regulate the milk market in that state and recommended the removal of the existing system from 1 July 2000. The Victorian government accepted the recommendation. Its decision was subsequently confirmed after a plebiscite of farmers, in which a significant majority voted in favour of the elimination of the existing system, providing that there was transitional assistance. Victoria's dairy farmers, whose milk is primarily used to produce manufactured products, gained relatively little from the regulated system for fluid milk and expected to be highly competitive in domestic and international markets if the system was eliminated.

Victoria's decision meant that the regulatory systems in other states would not be sustainable (Harris, 2005). Victorian producers would no longer have to comply with interstate trading restrictions on milk. As the largest dairy producing state, Victoria's competitive position meant that it would be able to undercut higher cost supplies, particularly in neighbouring states. As a result, all states decided to eliminate their support systems for fluid milk with effect from 1 July 2000.

Although this might appear to be an abrupt change in policy, pressures for change had been building for some time. As indicated above, support for exports had been gradually eliminated. The domestic market support scheme for manufactured products was scheduled to be eliminated in June 2000. Growing pressure from imports, particularly duty-free imports of cheese from New Zealand, meant that domestic manufacturers of dairy products were finding it increasingly difficult to obtain higher prices on the domestic market.

This backdrop to the Australian reform illustrates the importance of the perception of declining benefits of a policy in enabling reform, as Orden and Diaz-Bonilla (2005) observe. Also, the difference in benefits across different subgroups of producers was a critical factor. Those states where producers were expected to continue to benefit from existing dairy policy recommended its continuation, while the state where producers perceived a potential advantage to reform was central to its elimination. Had the interests of Victorian producers been more aligned with those in other states (homogenous), the reform might have been prevented.

Policy changes and their anticipated effects

As indicated above, the elimination of state and federal support policies resulted in the complete liberalization of Australia's dairy market (with the exception of border measures affecting imports). Farmers' representatives predicted that the change in policy would result in the exit of up to one third of Australia's dairy farmers from the industry (Courtney, 2000). That would have translated into more than 4 000 farms. Significant rationalization, reflected by a sustained decline in the number of dairy farms, had been taking place for many years. An examination of data for the twenty five year period from 1974/75 to 1999/2000 shows that an average of 709 dairy farmers left the industry annually (Harris, 2005a). The rate over the four years from 2000/01 to 2003/04 averaged 821 farms (Harris, 2005b). This translates into an increase of 16% in the numbers exiting the industry each year.

Assessments published at the time of deregulation suggested that cow numbers might stay roughly the same and that production per cow might continue to rise, as those farmers who remained in the industry gained from efficiencies of scale and size. Total production was expected to remain roughly constant and then to increase (Courtney, 2000). Although production has been influenced by drought conditions, it appears that these expectations have broadly been confirmed (Harris, 2005b). In particular,

the number of cows per farm and the total milk output of farms remaining in the dairy industry have both increased since deregulation.

Compensation mechanism

Two packages of measures were introduced to aid adjustment to deregulation (Whetton, 2000). On 1 July 2000 an initial adjustment package totalling AUD 1.78 billion was announced by the Australian Government. A supplementary assistance package of AUD 159 million was announced in May 2001. Once other costs, such as administrative expenses are taken into account, total expenditure under the programme is expected to exceed AUD 2 billion (Harris, 2005b). This is the largest amount ever provided by the Commonwealth Government for rural adjustment. Funding for the deregulation package is provided through the imposition of a levy of AUD 0.11 per litre on retail sales of liquid milk. The levy was introduced on 8 July 2000, and is estimated to run until 2010. Since consumers are expected to be the principal beneficiaries of deregulation through lower prices for fresh milk, it was considered appropriate that they, rather than taxpayers, should pay the costs of the adjustment package (Department of Agriculture, Fisheries and Forestry, 2006).

The initial scheme, titled the Dairy Industry Adjustment Package (DIAP), had three components. These were the Dairy Structural Adjustment Programme (DSAP), the Dairy Exit Programme (DEP), and the Dairy Regional Adjustment Programme (DRAP). Of these, the DSAP was the largest component of the total package, amounting to AUD 1.63 billion, and the program most relevant to this paper.

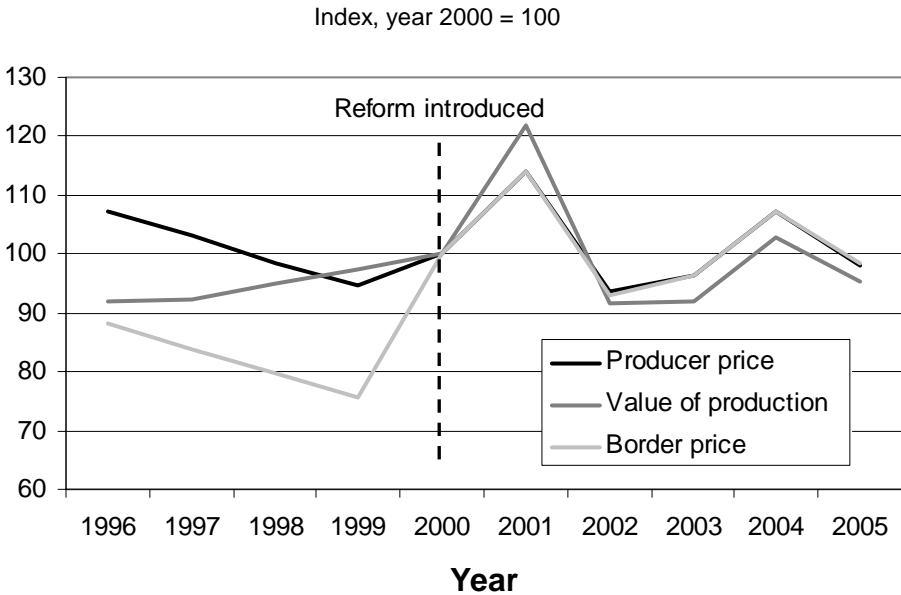
The DSAP provided transitional assistance to farmers based on the volume of actual production of fluid milk and manufacturing milk in 1998/99. The amount of assistance was calculated at the rate of 46.23 cents per litre for fluid milk deliveries and 8.96 cents per litre for manufacturing milk deliveries. The large differential between the rates for fluid and manufacturing milk was in recognition that fluid milk would fall considerably in price. Individual restructuring grants were provided based on the likely impact of deregulation on farm income. Estimates of impact ranged from roughly 10% for manufactured milk producers to over 25% for producers focusing on fluid milk sales. The grants provided were equivalent to an estimated loss of 2-3 years of income from the support measures, given the mix of milk production for fluid and manufacturing milk on each individual farm. In order to obtain a grant, producers had to complete a farm business assessment (a statement of net assets and an analysis of projections for annual income and expenditures). The aim of the assessment was to help farmers to consider their options – whether to continue in dairy production, to switch to alternative farm activities, or to exit farming altogether. The payment entitlement was split into instalments over an 8-year period, with a cap of AUD 350 000, unless an applicant's income from dairy farming exceeded 70% of gross farm income for a specified period. Several banks established facilities to convert the guaranteed stream of payments to a single lump sum payment (Commonwealth Bank, 2000). The option to take the entitlement through a single payment representing the discounted present value of the stream of future entitlements was a popular option.

The DSAP is an example of a compensation program where the amount required to compensate producers is estimated before the reform based on estimates of post-reform price changes. As noted earlier, this approach risks missing the mark if actual price changes differ from expectations. This is exactly what happened in the Australian case. An exogenous shift in export market returns, driven by higher export prices for skim and whole milk powder and cheddar cheese lead to a significant increase in both producer prices and the value of production for the sector in the years immediately following the reform, eventually moderating to approximately equal the pre-reform domestic price (Figure 1). Of course, the focus on the DSAP payments is on fluid producers, as can be seen by the differential between fluid and manufacturing milk in the payment structure, and indeed the price of fluid milk did decline over this period even if the manufacturing price increased. So while the program worked in

terms of delivering more payments to fluid producers who were disproportionately harmed by the reform, the change in world price calls into question the level of support required to meet the programme’s goals—in particular for producers of manufacturing milk.

The value of milk production was higher in most post-reform years, sometimes sharply higher. Post-reform adjustment, as defined by the number of farms leaving the sector, was somewhat higher than the pre-reform period, but as there were no strong market signals underlying this, it could well be that the compensation payments themselves increased exits by affecting the labour-leisure trade-off through a wealth effect, thereby promoting retirement, or by increasing the capacity of existing farms to expand and consolidate.

Figure 1. Australian dairy — evolution of prices and value of production



Source: OECD PSE database.

The DEP provided an alternative form of assistance to farmers who wished to retire from the industry. As an alternative to their DSAP entitlement, farmers with limited assets (less than AUD 90 000 after the sale of their farm) could elect to take a tax-free re-establishment grant of AUD 45 000 and a retraining grant of up to AUD 3 500. Most farmers who decided to exit dairy farming did not use this programme, either because they did not meet the eligibility requirements or because their DSAP payment, even after taxes, was more advantageous.

The DRAP was established because of concerns about the effect of lower farm incomes, farmer retirements and possible impacts of closures of dairy plants on some regional economies. An initial sum of AUD 45 million was allocated for expenditures over a three year period; the programme was subsequently expanded by an additional allocation of AUD 20 million. The funds were used to support local business development initiatives, infrastructure projects, and the provision of services such as retraining and job counselling. Funds were provided on a matching basis (50%) to local entities that applied for funding; most of the funds were used for business development activities. This is a good example of providing compensation for up- and downstream industries, as well as local labour. For these

sector participants, the consequences of reform usually involve adjustment costs, making a program like DRAP a reasonable approach for this constituency.

Impact of the mechanism

The compensation mechanisms embodied in the Dairy Industry Adjustment package facilitated an ongoing process of structural change in the Australian dairy industry. Farmers who received compensation and concluded that they were no longer able or willing to continue as dairy farmers were able to exit the industry. As noted earlier, there is evidence that the number of farmers exiting the industry increased following deregulation. Those who made the decision to remain in dairying were able to use the compensation they received to reduce their debts, or to fund restructuring of their operations. Some farmers used the grants to improve pastureland and increase productivity or purchased additional land in order to increase the scale of their operations (Harris and Rae, 2006).

The Australian programme, was conceived during a period of declining prices and with the expectation the reform would erode these further. As a result, it was clearly oriented towards facilitating adjustment to the new market environment that was created by the change in dairy policies at the federal and state levels.

Summary

- Compensation under DSAP provided a value equivalent to between two and three years of program continuation. “Program continuation” is different than “loss of income” because changes in external prices makes the latter difficult to estimate in advance. In this case, average revenues actually increased after reform.
- However, the payments were targeted at fluid producers who did see a price decline over the period; average revenues masks this distributional effect of the reform and related targeting of compensation.
- The relatively small amount of compensation (when compared with US peanut and tobacco buyouts) is an indicator of both the declining value of the reformed program benefits, and the reduced power of the producer lobby to obtain payments when a subset of the industry expects to benefit from the reform.
- Affordability of compensation was addressed by funding payments through a special consumer levy, and spreading payments over a period of time. The special levy addresses the problem of relative scarcity of public funds, and using a longer time period increases acceptability on the payer’s side. Producers clearly prefer a single payment at once, as evidenced by the use of financial institutions to convert the stream of payments into a lump-sum amount.
- Some regressivity in compensation is observed in the form of a cap on DSAP payments.
- Some measures were taken to address adjustment costs for sector participants other than producers.

Netherlands’ limitations on the pig herd

The Netherlands has one of the most intensive agricultural systems in the world and is a major net exporter of agricultural products. Livestock density, animal manure production and fertilizer use are among the highest of all the member states of the European Union (Oenema and Berentsen, 2005). The

intensification of Dutch agriculture was most marked during the period 1960-85. A large increase in cattle production was made possible by a fertilizer-induced expansion in animal feed production (mainly grass and maize silage) and in poultry and pigs through the large scale import of low-cost animal feedstuffs from outside the European Union. The location of the port of Rotterdam, until recently the world's largest port, facilitated the expansion of non-ruminant livestock production based on imported feed. Small mixed farms located in the sandy soil areas of the south (Noord-Brabant and Limburg) and the east (Gelderland and Overijssel) became increasingly specialized in pig production. Between 1960 and 1984, the number of pigs increased from under 3 million to over 11 million (Mallia and Wright, 2004). As a result, the manure that was produced from pig operations could no longer be absorbed on pig farms. Much of the surplus was applied to fodder maize and other crops on other farms.

Factors leading to the change in policy

Indications that the rapid intensification of animal agriculture might not be environmentally sustainable began to emerge by the end of the 1960s. Expressions of concern over the impact of the manure surplus intensified during the 1970s. There were increasing reports of nitrate leaching to groundwater, copper accumulation in soils treated with pig slurry, increasing concentrations of phosphorous in soils and soil acidification, eutrophication of surface waters, and forest dieback due to ammonia from animal manure. There was increasing pressure by environmental interest groups for changes in policy to address these issues.

An Interim Law on the Limitation of Hog and Poultry Production was enacted in 1984. This prohibited the establishment of new farms in these sectors and limited the expansion of existing farms in the south and southeast regions. However, the law did not manage to halt the increase in manure production. The excess of production over potential absorption by agriculture (national manure surplus) was estimated to be 19% in 1987 (Mallia and Wright, 2004). The Interim Law was replaced by the Soil Protection Act (SPA) and the Act on Manure and Fertilisers (Fertiliser Law) in that year. The SPA regulated the application of manure by time and place. The Fertiliser law established application standards based on kilograms of phosphate (P_2O_5) per hectare. Livestock farms were assigned manure quotas based on their animal numbers and land area and were required to keep records detailing land use, number of animals and manure output. Farms with manure production in excess of the phosphate application standards (surplus farms) were required to show that their surplus was disposed of off the farm and paid a tax on that surplus. In 1989 a National Environmental Policy Plan was introduced. The plan had the aim of achieving a balance in the production and utilization of manure by the year 2000. Despite these measures, manure production by the pig sector continued to expand. Animal numbers rose from 11 million in 1984 to just under 15 million in 1993.

In 1994, the system of phosphate rights was transformed into a system of 'manure production rights' which made a distinction between different livestock sectors. Manure quotas allocated to pigs and poultry could be used for the production of other animal categories, but the reverse was not possible. When transfers of manure production rights were made, 25% of the quota was retired. Farmers purchasing rights had to show that they had sufficient land to dispose of their manure or had a contract to dispose of it on a neighbouring farm. There was an attempt to reduce the manure quota for pigs and poultry by 30% in 1995; a further cut of 25% for pigs was planned for 1997. These measures elicited strong protests from farmers' groups, including the Dutch pig farmers union (Nederlandse Varkbond Varkenshouders – NVV) and the 30% cut was subsequently revoked.

A key development for the future development of manure policies in the Netherlands was the adoption of the Nitrates Directive (91/676/EC) by the European Union in 1991. This obliged EU member states to decrease the nitrate load from agricultural sources to ground and surface waters, and to avoid further pollution from these sources. An important requirement is that applications of nitrogen

from animal manure must not exceed 170 kg per ha per year from the year 2002, although higher application rates can be allowed when justified on the basis of objective criteria as laid down in Annex 3 of the Directive, providing that its overall objectives are achieved. The whole of the Netherlands was defined by the government as a nitrate-sensitive zone.

In 1995, a mineral accounting system (MINAS) was introduced and manure application limits based on nitrogen were implemented in response to the Directive (Oenema, 2004). MINAS was a farm-level system that records all inputs and outputs of nitrogen and phosphorus. Farms are allowed a certain surplus production of these elements that is differentiated by land use and soil type, but a levy is applied for any production above that level. The levy-free surplus was decreased stepwise between 1998 and 2003.

In addition to these developments, an outbreak of swine fever in the Netherlands in 1997 was an important event. This resulted in the cull of 11 million pigs and triggered the search for radical solutions to perceived environmental and other problems (for example, animal welfare issues) associated with intensive pig farming. There was growing public pressure to address these issues.

Policy changes and their anticipated effects

Within this overall context of efforts to reduce the surplus of manure, particularly from the pig and poultry sectors, and growing public pressure to address issues associated with intensive animal agriculture a new law was written and accepted by parliament. This sought to regulate and reduce the total number of pigs in the country. The Pig Farm Restructuring Act (WHV: Wet Herstructureren Varkenshouderij) was enacted in September 1998. This replaced the system of farm manure production quotas for pig producers by a tradeable system of pig production quotas, based on the number of animals (Backus, 2005). By limiting the number of animals to a nationwide maximum this was a departure from earlier policies that targeted emissions (manure production).

The basis of the act was that production rights should be allocated on the basis of historical reference levels (for 1995 or 1996) for the average number of animals per year kept on each farm. The permitted number was to be reduced initially by 10% by 1998 from the reference level. A further reduction of 15% was planned by the year 2000, resulting in an overall decrease of pigs from the reference level of 25%. The pig production rights (animal quota) for individual farms were tradable, within certain limits of conditions that farmers had to fulfil, primarily relating to animal welfare conditions, such as housing.

Shortly after the new law became effective, a series of legal challenges was launched, spearheaded by the NVV. While farmers' representatives did not deny the need for some restructuring, the main interest group (Productschappen Vee-Vlees en Eieren. PVE – the Product Boards for Livestock Meat and Eggs) argued that a reduction of the number of animals of 15% would be sufficient to restore the nitrogen equilibrium, (the balance between production and uptake) and that a 25% reduction was going too far.

Furthermore, and more important in the context of this paper, farmers' interest groups argued that payments should be made to farmers for the reduced production quota in order to compensate them for the fact that the state was taking away a part of their production capacity, and hence reducing their income earning opportunities.

Compensation mechanism

The series of legal challenges ended on 16 November 2001 with a final judgment by the Dutch High Court (Hoge Raad). The final ruling of the High court is interesting in that it addresses a number of points relating to the payment of compensation for the change in policy.

The court decided that the 10% reduction of production rights was indeed lawful (on the basis of both Dutch and EU law) and that no compensation needed to be paid. The High Court ruled that the Pig Farm Restructuring Act strikes a fair balance between public and private interests in the light of the environmental objectives of the legislation. In essence, the judgement accepted the argument that the public interest in reducing environmentally harmful emissions from intensive pig farming is of greater weight than the private economic interests of pig farmers. The Court judged that there was no appropriation ('taking') of property rights, rather a regulation of property rights in the public interest. The ruling demonstrates that the legitimacy of policies needs to be assessed against their stated objectives.

Although the High Court did not support the argument for the general payment of compensation, it accepted the legitimacy of compensation for a sub-group of those affected by the policy change. The Court ruled that special cases needed to be taken into account, and, in particular, that some compensation should be offered to farmers who had made investments based on expectations created by previous policies. Farmers who had upgraded pig production facilities based on the expectation that they would not face a mandated reduction in the number of animals would be entitled to compensation. The compensation proposed by the court was an additional allocation (upward adjustment) of their production quota. The way in which eligibility for compensation would be determined was never defined, since no-one actually made a claim for compensation before the court. Nevertheless, the argument for not granting general compensation, but providing targeted compensation to those most affected by a change in policy is particularly interesting in this case.

Impact of the mechanism

It is difficult to determine the impact of the measures introduced to limit pig numbers on Dutch pig farms. This is because these were just one of a whole series of measures introduced to try to reduce the environmental impact of intensive pig farming. In a survey of 235 pig farmers in 2004, 58% of those questioned indicated that environmental permits were the major constraint on their development plans; 44% cited zoning restrictions as the next most important constraint. Production rights were ranked third (34% of the farmers questioned) as a constraint on development (Backus, 2005). Overall, the number of pigs in the Netherlands has fallen – from 14.4 million head in 1995 to 11.2 million in 2003 and at least some of this reduction must be attributable to increasing environmental constraints on pig farming. The current focus of regulation has shifted from the 1st of January 2006 to the enforcement of application standards for manure in line with the implementation of the EU Nitrates Directive. The MINAS system and the Pig Farm Restructuring act are abolished, but the animal quota system still exists for pigs and poultry and is described in the new fertiliser law. This quota system deals with a fixed amount of manure production based on 2002 levels. It seems unlikely that the issue of compensation will be raised in the context of these more recent policy developments.

Summary

- The reform was a change in regulatory approach to a longstanding problem of nutrient surpluses. In moving from controls on manure emissions to controls on output, the connection between the regulation and loss of income became sharper, leading to calls for compensation by the sector. However, ultimately no compensation was granted.

- The position of the court was not to ask whether the quota reductions harmed producers, but whether that harm was proportionate to the social benefit that resulted. That is, private individuals may bear the cost of a regulatory change if it yields large benefits relative to that cost.
- The court allowed that for some producers the costs would be high enough to merit compensation, but no claims were actually made. This could indicate that the producer group leading the demands for compensation miscalculated the amount of damages resulting from the regulation or the desire of their members to receive compensation. It could also indicate that the producer group in asking for compensation was acting strategically to establish a precedent of compensation for future policy reforms.

Sweden's agricultural policy reforms 1989-1995

Significant changes were made to Sweden's agricultural policies beginning in 1989. These resulted from a period of intense reflection and study in the late 1980s and the emergence of a consensus on the need to re-define the objectives of agricultural policies and to make changes in the means through which these were achieved. Prior to the implementation of the reforms there was a strong emphasis on food security – defined as self sufficiency plus a supply margin to meet Sweden's food aid commitments. The prices of all major agricultural commodities were regulated by the government and markets were controlled by a series of market regulation associations aided by a supervisory agency – the National Agricultural Market Board. Import levies were used to separate internal prices and those on world markets. Export subsidies (some of which were partly financed by producer levies) were used to dispose of products internationally when these could not be sold in Sweden at administered prices. Other measures were used to regulate markets, including production controls (quotas) for milk and sugar.

Factors leading to the change in policy

The changes in Swedish agricultural policy were partly driven by a movement towards structural reform in the economy as a whole and partly by the recognition that existing agricultural policies were not achieving the objectives that were ascribed to them. Although the Swedish economy grew at around 3% per annum in the 1980s and employment was low, inflation was persistently higher than in the country's main international competitors, necessitating several devaluations of the currency. It was recognised that if greater currency stability were to be achieved, inflationary pressures would have to be controlled. One of these pressures was the built-in tendency for food prices to increase as a result of annual price-setting reviews for agricultural products. The Ministry of Finance, which played an active role in the reform process, identified the high price policy for agriculture as a major structural problem in the Swedish economy. Food prices, which were high in Sweden relative to international standards rose in real terms during the 1980s, partly as a result of the removal of consumer subsidies that had been introduced in the 1970s. Consumers began to identify the price of food as a pressing social problem in public opinion polls. Political support for the continuation of existing policies weakened (Rabinowicz, 2006).

A number of studies, some initiated by the government, some conducted by academics, and work originating from international organisations, such as the OECD, began to cast doubt on the efficiency of existing Swedish agricultural policies in achieving several key objectives (OECD, 1995). The issues can be summarised briefly as follows:

- Food security: the excess of production over consumption, necessitating the use of export subsidies, raised concern about the impact of the price support policy on other countries, particularly those in the developing world. It was argued that security objectives could be met

in a cheaper and less disruptive manner by other means, such as through the storage of inputs and commodities.

- **Efficiency:** in addition to inefficiencies associated with the use of price support, concerns were raised about the impact of a high degree of regulation on the efficiency of the food sector. This concern also relates to the continuous increase in food prices through what amounted to a cost-plus pricing approach and its implications for inflationary expectations.
- **Income objectives:** in addition to the untargeted nature of price support and the fact that the highest amount of support goes to the largest and most efficient producers, there were concerns about the low transfer efficiency of this approach. Analysis also indicated that increases in farm household incomes were mainly attributable to increased earnings from non-farm activities rather than to price support programmes.
- **Consumer welfare:** analysis concluded that price support mechanisms made little contribution to hygiene, health and nutrition objectives that were a part of the justification for agricultural policies. It was also concluded that the administered price system had a negative impact on improving product quality and retarded innovation in the food system. The high price level for food meant that the objective for “reasonable” prices was not being met.
- **Regional objectives:** studies concluded that price support was an ineffective instrument for sustaining agricultural production in remote and less-favoured areas in Sweden, since most of the benefits of price support were captured by efficient producers in more-favoured areas. Moreover, it was recognised that targeted approaches, such as that represented by the deficiency payment applied to products from farmers in disadvantaged areas, could play a role in addressing regional income disparities.
- **Environment:** it was recognised that agricultural activities can have both positive and negative environmental implications. Positive effects such as the maintenance of landscape and biodiversity must be balanced against potentially negative effects of changes in production practices (removal of landscape features and increasing specialisation) and the leakage of agrochemicals and nitrates into groundwater, lakes and coastal waters. An ad hoc Parliamentary committee on Agricultural Policy Reform concluded that price support had, on balance, had a negative impact on environmental aims primarily by promoting more intensive production practices.

In addition to these individual criticisms of the efficiency and effectiveness of existing price support policies in achieving these individual aims, it was recognised that it is virtually impossible for a single policy instrument such as price support to achieve simultaneously a multiple set of objectives, and hence that more targeted measures are required.

Policy changes made and their anticipated effects

The change in policy began in 1989 with the removal of the milk quotas that had been introduced in 1984-85, and the abolition of the annual price-setting deliberations between the farmers and a governmental body representing consumer interests (Konsumentdelegationen). A bill adopted by the Swedish parliament in 1990 solidified the deregulation of domestic markets for major agricultural commodities. Intervention prices, export subsidies and their associated administrative structures were to be abolished within five years. Import protection would be reduced in line with the Uruguay Round Agreement of the General Agreement on Tariffs and Trade (GATT) that was in the process of being negotiated. The decision not to continue with the normal pattern of annual negotiated prices in 1990 was

driven by the call for a standstill on increases in support that resulted from the mid-term review of the Round in 1989.

The policy decisions made in 1990 were followed in 1991 by a unilateral reduction in protection at the border to reduce internal market prices by an average of 10%. Further measures were taken, most notably in the area of competition policy, in an attempt to increase competition in the upstream and downstream segments of the agricultural sector and to help to contain price increases.

Compensation mechanisms

No transitional measures were introduced as a result of the abolition of the milk quotas, but direct payments were introduced in 1989 to provide temporary compensation for dairy farmers for the lack of negotiated price increases in that year. These payments were made on a headage basis with respect to herd numbers in 1988. It was anticipated that direct payments would only be needed for a single year since significant price reductions were not foreseen in the dairy sector. However an additional appropriation of SKr 600 million was made for payments in 1990/91 on equity grounds, in recognition of relatively low incomes of many dairy farmers. Compensation was limited in recognition of the fact that dairy farmers would benefit from the impact of lower crop prices on the cost of animal feed. It was also anticipated that payments would be abolished in 1990 following the completion of the Uruguay Round, but the prolongation of the negotiations resulted in their extension until 1993-94.

Payments to the crops sector began in 1990 and were scheduled to provide temporary compensation for a reduction in prices until 1992/93. The payments were linked to historical yields in production regions on a declining schedule from SKr 1 100 per hectare in the first year to SKr 700 in the third year. The intention was that payments should approximately equal the losses induced by lower prices during the first year of the reform programme, but that subsequent adjustment by farmers (reductions in input use and shifts of land to alternative uses) would mean that lower levels of compensation would be necessary. In anticipation of Sweden's membership of the European Union a new scheme was introduced in 1993/94.

Following the adoption of the reform programme in 1990, land conversion and investment grants were introduced. Grants were made available to convert land that had previously been used to produce price-supported crops to other uses. The grants were paid as a lump-sum on a regionally differentiated, per hectare basis. As for the direct payments, they were set on a schedule depending when land was enrolled – from a maximum of SKr 9 000 per hectare in 1991/92, declining to SKr 4 000 in 1993/94. Payments were to be repaid if land enrolled in the scheme was not converted by 1 July 1996. Initially the aim was to convert land to non-agricultural uses, but the programme was subsequently extended to include pasturage, the production of energy crops, and land set-aside for an undefined period of time. Less than 15% of the land involved was permanently converted to other uses; 53% was placed in set-aside, and 36% was converted to pasture. Prior to 1991 farm land could not be taken out of production permanently without government consent. This requirement was abolished, but a scheme was introduced to keep the landscape open (preventing conversion to forestry) in environmentally sensitive areas. Compensation payments of up to SKr 2 000 per hectare were made to farmers who contracted to keep eligible land under tillage or pasture in order to preserve culturally and biologically important areas. A farmer with land enrolled in the conversion scheme could also apply for an investment grant to restore wetlands, or to plant energy forests of broadleaf trees on land that was not judged to be environmentally sensitive.

In addition to the programme for cropland, a milk conversion programme was introduced. This involved either farmer retirement or the conversion of milk producing herds into extensive beef

production using suckler cows. It operated in parallel with a previous programme that was oriented towards farmer retirement.

Impact of the mechanisms

Roughly SKr 13 billion was appropriated to cover the costs of conversion payments and temporary income support over the five-year implementation period of the reform programme. Roughly SKr 3.2 billion was paid in the form of conversion grants for arable land between 1991 and 1993. A total of SKr 500 million was appropriated for investment grants in 1990 and 1991.

A relatively short time elapsed between the introduction of the reform programme and Sweden's membership of the European Union in 1995. It seems clear that the impact of the programme at the farm level was affected by strengthening expectations that Sweden would adopt the Common Agricultural Policy (CAP). However, the principal outcomes of the mechanisms adopted under the reform programme appear to be the following (OECD, 1995):

- Farm gate prices decreased in real terms (by about 6% on average).
- Although there were annual variations, the total nominal income of the farm sector appears to have been relatively unaffected.
- Because of a reduction in the number of farmers during the reform period, total income per farm increased.
- The significance of off-farm activities increased; part-time farming expanded.
- The rate of investment in agriculture declined. This translated into a decline in the demand for farm inputs, such as tractors, with a consequent decline in employment in upstream (input-supplying) industries.
- There were significant structural changes in downstream industries, particularly a reduction in the number of processing firms and a consequent decline in employment. The share of total value added by downstream industries increased.
- Taxpayer cost of agricultural policy was reduced.

Finally, the compensation provided to producers was greater than the losses incurred. Swedish experience could be interpreted as demonstrating the disadvantages of determining the magnitude of compensation *ex ante*, rather than *ex post*. The latter approach would have been cheaper and would have enabled compensation to be targeted to those who were particularly affected by reform. That said, provision of this amount of compensation to producers was likely required to gain political support for the reform and is not simply an error in forecasting.

Summary

- The policy reforms undertaken occurred because of changing objectives for agricultural policy, and general recognition that current policy was ineffective and unsustainable. This is a very stable basis for reform, indicating that compensation payments were not made to obtain reform, and were not required to consolidate it, but rather were made on the basis of social choice (equity and fairness concerns).

- The compensation programme possessed several positive elements; it was intended to be temporary, and the amount paid was reduced over time to take into account the income effect of producers' adjustment to changes in the marketplace.
- However, once again, an ex ante approach to compensation resulted in overcompensation. In the case of Sweden, this was likely intentional in order to obtain the political support necessary for the desired reforms. This possibility was discussed in the section on the political economy of reform.

United States' changes in the support programme for peanuts

The Farm Security and Rural Investment Act of 2002 (referred to subsequently as the 2002 Farm Act), which governs US federal farm programmes until 2007, was signed into law on May 13, 2002. Under the Act major changes were made to the peanut programme whose origins dated back to the Great Depression of the 1930s. Prior to the new legislation, peanuts were part of a small group of commodities (tobacco and sugar were the others) whose supply was regulated by marketing quotas. Production for domestic edible consumption (*e.g.* peanut butter, snacks and peanut confectionery) was limited to an annually established quota designed to maintain prices at a USD 610 per ton support price. Those who were entitled to quotas did not actually have to produce quota peanuts. They could rent out their quota to other farmers. Non-quota (additional) peanut production was permitted only for export or domestic crush (for production of peanut oil and meal) and was eligible for a lower support price of USD 132 per ton (in 2001). Under the 2002 Farm Act, peanuts are treated similarly to "programme" crops, such as grains and cotton. Marketing quotas were eliminated and a Marketing Loan Rate (MLR) of USD 355 per ton was established.¹² Farmers no longer have to own or rent peanut marketing quota rights to produce for domestic edible consumption. Compensation was provided through a 'buy-out' system to quota holders. All farmers with a history of peanut production during 1998-2001, whether quota holders or not, are eligible for fixed direct payments and counter-cyclical payments based on an established target price.

Factors leading to the change in policy

The support price provided for quota peanuts was well above average production costs, providing a strong incentive for production to match the total annual quota set by the US Department of Agriculture (USDA) on the basis of anticipated edible domestic demand. Producers who grew non-quota peanuts typically produced under contract for export at world prices, which were typically well above the price support level for these peanuts. Although the quota system was opposed by several groups, including some representing consumers and users of peanuts in the food industry, the changes in the programme made in 2002 were supported by peanut producers who recognized that policy change was unavoidable, given the tendency towards import liberalization for edible peanuts (Dohlman *et al.*, 2004).

Under the quota system, imports of edible peanuts had to be regulated so that these did not enter the domestic market in sufficient quantities to put downward pressure on the support price. Prior to 1994, imports were capped at a low level, equivalent to less than 1% of domestic edible consumption. However, the signing of the North American Free Trade Agreement (NAFTA) at the end of 1992 and the conclusion of the Uruguay Round negotiations under the General Agreement on Tariffs and Trade in

12. The Marketing Assistance Loan Programme allow producers of designated crops to receive a loan from the government at a commodity-specific loan rate per unit of production by pledging production as loan collateral. After harvest, a farmer may obtain a loan for all or part of the new commodity production. Commodity loans may be repaid in three ways: At the loan rate plus interest costs, by forfeiting the pledged crop to the CCC at loan maturity or at the alternative loan repayment rate.

1994 began a process of gradual opening of the US market to peanut imports through the use of tariff-rate quotas (TRQs). Under the Uruguay Round Agreement (URA) imports under TRQs subject to tariffs ranging from USD 66 – 93 per metric ton, depending on the level of processing, were increased to roughly 6% of domestic edible use. A separate TRQ for Mexico established under NAFTA resulted in modest increases in imports, but, of considerably greater importance, US peanut imports from Mexico will become tariff and quota free in 2008.

Growing pressure to liberalise peanut imports would inevitably have imposed considerable strains on the operation of the quota system. With higher imports, the domestic quota would have had to be reduced in order to prevent the accumulation of stocks under the MLR programme. This would have reduced the value of the quota. Quota holders were aware that the future of the quota system was in doubt, and this stimulated a change in policy.

Policy changes and their anticipated effects

As noted above, the major change in policy was the conversion of the peanut programme to a 'standard' commodity programme, *i.e.* one whose structure parallels that for the majority of other supported crops in the United States.

The anticipated impact of the change in policy was summarized in an assessment by the Economic Research Service of the USDA shortly after the legislation was passed (ERS/USDA, 2002). This concluded that:

- Previous holders of quotas who produced peanuts but whose production costs were high relative to the new lower marketing loan rate would cease peanut production and move to other crops or activities.
- Producers who previously rented quota rights from quota-holders were expected to maintain some peanut production, if market prices or the peanut loan rate exceed their variable costs (which would no longer include a rental fee for the right to sell quota peanuts).
- Those producers who were growing non-quota peanuts were expected to increase production if domestic prices or the new marketing loan rate exceeded the price for non-quota peanuts under the old system. Revenues for these producers would be increased by direct payments and (depending on market prices) by counter-cyclical payments, since they have a production history upon which such payments are based.
- Some farmers who had not previously produced peanuts might be encouraged to do so if market prices or support levels resulted in higher net returns compared with other crops. Some of these producers would also receive direct and (depending on market prices) counter-cyclical payments on other crops for which they have an established base acreage.¹³

Compensation mechanisms

The abolition of the peanut marketing quotas under the new Farm Act meant that those who had previously owned quotas experienced a financial loss. As noted above, quota holders who produced their own peanuts could sell these at the high support price. Those that rented the quotas to others received a

13. Production of peanuts is not required to receive direct and counter-cyclical payments paid on base acreage.

rental payment. Quotas had value to their owners, and this value was eliminated when the quotas were abolished.

In recognition of this, the new act authorised a quota buyout programme for those who owned peanut quotas in 2001, regardless of whether the owner actually used the quota to produce peanuts or rented it to others. A total of USD 1.3 billion was allocated for the buyout. Owners could elect to receive payments in five annual instalments of USD 220 per short ton of quota during the fiscal years (year beginning October) 2002-06, or could elect to take a payment as a lump sum during any of the fiscal years of their choice during this period. The majority of the quota owners elected to take the payment as a lump sum during the first fiscal year. As a result, USD 1.2 billion was disbursed to approximately 70 000 eligible participants. The US Internal Revenue Service decided that the buyout payments were linked to an interest in land (a capital asset) and would generally be subject to capital gains taxes, rather than ordinary income taxes (because of this the payment was also not subject to self-employment tax). The IRS ruling meant that the buyout payments were taxed at roughly half the rate that would have been applied if the payments had been treated as income. In addition any costs incurred in acquiring the quota could be deducted in calculating the capital gain attributable to the buyout. This case study indicates that there can be important tax implications of compensation payments for farmers.

In terms of the magnitude of compensation provided, Womach (2003) determines that the discounted annual value of the compensatory payment (with a 5% discount rate) amounted to 2.8 US cents per pound of quota. This may be compared to average quota rental rates for the period 1995-2001 of 3.7 cents per pound. On this basis, the compensation rate was 74% of the quota value. Orden and Diaz-Bonilla (2005) note that the buyout payment of USD 220 per ton compares favourably with sales prices of quota in the final years of the former peanut programme, although they note that such prices might have been heavily discounted due to uncertainties about the continuation of the provisions of the programme. They also note that the payment was equivalent to a 24-year stream of average quota rental payments (also based on the average for 1995-2001), discounted at 5% per year.

Impact of the mechanisms

With the introduction of the new policy and the reduction in prices for edible peanuts the area planted and production fell sharply. The area planted in 2003 was the second lowest on record since 1915 (Dohlman and Livezey, 2005). However, strong growth in peanut demand and a shift in production to lower-cost production areas have resulted in a rebound in area and yields. Production in 2005/6 (year beginning 1 August) was 48% higher than in 2002/03 and domestic food use was at record levels. Production in the south-eastern states of Alabama, Florida and Georgia, in particular, has grown substantially (Dohlman and Livezey, 2005). Under the pre-reform regime, there were restrictions on transferring quota peanut production to farmers in other states, and quotas confined a large share of production to areas that were originally allocated allotments. These factors, combined with the costs of renting quotas, limited the expansion of production in areas more suited to peanut production (Dohlman *et al.*, 2004). The removal of the quotas eliminated these impediments to expansion in those areas.

Another implication of the change in policy is that as domestic production has become more competitive and market prices have declined, imports of peanuts have fallen sharply. From a peak of 216 million pounds in 2000/01, imports had declined to just 20 million pounds in 2005/06. Exports have also tended to fall somewhat as US producers focus on supplying the domestic market. These changes cannot be directly attributed to the compensation provided to the former owners of peanut quotas. They are clearly the outcome of the overall changes in policy under the current Farm Act.

Summary

- The policy reform involved re-instrumentation—the replacement of one form of support with another. In this case, a price support system and associated quota was replaced with Farm Act programs. Compensation was paid for the loss of the quota as an asset.
- The amount of compensation was estimated to be equal to 24 years of continuation of the quota program at a 5% discount rate. This is nearly equivalent to the full net present value of quota assuming constant value, and ignores the income effect of added eligibility for Farm Bill programs such as marketing loans. If predictions of declining quota value over time are accurate, it then likely is another example of overcompensation.
- As in the Australian case, farmers showed a clear preference for a single lump sum payment over a stream of payments over time. The use of payments over time seems to be more to help fiscal affordability of the program than an approach preferred by producers.

Feasible compensation for alternative reforms—a PEM analysis

In this section the OECD Policy Evaluation Model (PEM) is used to illustrate some aspects of policy reform and compensation. The PEM is a partial equilibrium model of major agricultural commodities in six OECD regions. The model is designed to represent a medium-run adjustment in agricultural production, trade and welfare subsequent to a simulated policy change.

In this case, the policy simulation is a USD 500 million reduction in either market price support (MPS) or area payments (AP) made to coarse grains producers in the United States in the year 1992. That is, the policy experiment in both cases affects a single commodity group, having first incidence in the output market in the case of MPS (as a wedge between the world and domestic price of coarse grains) and in the land market for the AP (as a wedge between the supply and demand price of land used in coarse grain production). This year was chosen as significant levels of both MPS and AP for crops were observed. After the policy experiment, changes in overall welfare, income to producers of coarse grains, asset values of landowners, and income of farm workers are observed (Table 2). The model provides single-year estimates of the change in return to farm-owned inputs (mostly farmer labour), which is a measure of the income loss to farmers, and the change in rental rate of land, a measure of the reduction in the value of assets owned by landowners. The losses to farm workers are relatively small due to the higher elasticity of supply. Reduction of area payments actually leads to income gains for farm workers as a result of cross-effects on the demand for labour in the production of other commodities.

Table 2. Policy experiment: USD 500 million reduction in transfers
Change in welfare, USD millions

	Market Price support	Area Payments
	<i>Annualized change in welfare, USD millions</i>	
Farm Households	-146.06	-341.78
...of which coarse grain farmers	-79.05	-19.91
...of which coarse grain landowners	-140.61	-364.27
Consumers	208.36	-27.42
Taxpayers	136.50	473.76
Input Suppliers	-45.20	3.72

...of which farm workers	-1.39		0.92	
		NPV (10%)		NPV (10%)
Net welfare change	153.60	1 535.98	108.28	1 082.81

NPV: Net Present Value

Source: OECD Policy Evaluation Model.

Change in net welfare is the net gain from the reform *including the losses to farmers, landowners and farm workers*. The annualized stream of net welfare benefits is converted to a present value assuming a 10% discount rate and infinite horizon. In both policy experiments, the net welfare change of the policy reform is positive, indicating a potential Pareto improvement from policy reform. ‘Potential Pareto improvement’ in standard usage refers to the *theoretical* possibility of making a compensating transfer such that no-one is worse off and at least one person is better off by making the policy change.

The objective of the policy simulation is to identify the *feasibility* of using a compensation payment to obtain reform and still preserve a net benefit. Because of deadweight losses that arise from any transfer — market distortions and the costs of public funds — the amount of the transfer from payers (consumers or taxpayers) is greater than the amount received by payment recipients.¹⁴ The difference is the *cost of the transfer*.¹⁵ When the cost of making a compensation payment is greater than the net welfare gain available from the policy reform, using compensation to achieve policy reform is not welfare-enhancing (Stiglitz and Charlton, 2006).

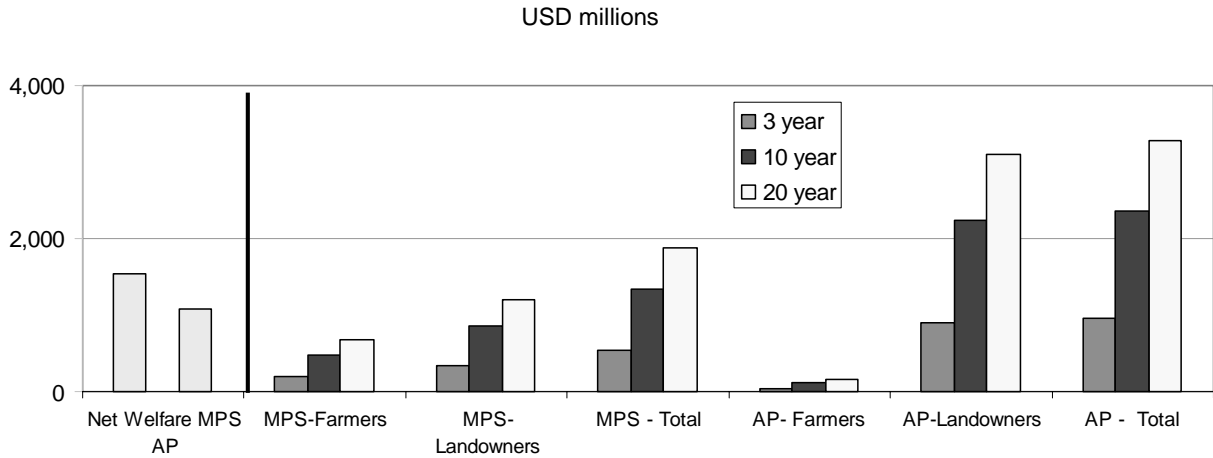
Some points of caution are required: the model represents a medium term adjustment, and so when results are converted to net present values, these *underestimate* the required compensation and *overestimate* the net welfare gain. This is because in the short term, the elasticity of input supply would be less elastic, increasing the welfare losses to factor owners (farmers and landowners). This also implies that adjustment would initially be smaller, reducing the welfare gain. This makes the results of the model overly optimistic about the potential for compensation.

The result of the policy experiment shows that a reduction in MPS results in a higher net welfare gain and a smaller loss of income to farmers and landowners when compared with area payments (Figure 2). The distribution of losses for the area payment change is, as expected, more strongly skewed towards landowners by virtue of its first incidence in the land market.

14. This was discussed earlier in the paper in the context of the work by Becker (1983).

15. For example, if the total value of the transfer *from* consumers and taxpayers is 100 million and the value of the transfer *received* by farmers is 90 million, then the *cost* of the transfer is 10 million, or 11% of the transfer, that cost being made up of deadweight and other costs of public funds as described in section 4.

Figure 2. Net Welfare and Compensation



Source: OECD Policy Evaluation Model.

The transfer required to fully compensate farmers and landowners for the loss of the area payments were the program to be continued for 20 years is USD 3 271 million. This is over three times the net welfare gain from the reform, USD 1 082 million. A net welfare gain would be preserved if the cost of making the compensation payment to farmers and landowners is less than the net welfare gain. In this case, the cost of the compensation payment must be less than 33% of the value of the transfer if a net welfare gain of reform is to be preserved (Table 3, last row).¹⁶

Table 3. Compensation paid to farmers and landowners

	Market Price Support		Area Payments	
	Amount of compensation payment, USD millions	Allowable deadweight loss, % of payment	Amount of compensation payment, USD millions	Allowable deadweight loss, % of payment
Payment equal to...				
3 years of program continuation	546	281 %	955	113 %
10 years of program continuation	1 350	114 %	2 361	46 %
20 years of program continuation	1 870	82 %	3 271	33 %

Source: OECD Policy Evaluation Model.

In the MPS policy experiment, the amount of the 20-year compensation transfer is 1.2 times the net welfare gain. In this case, the cost of the compensation payment would have to be over 82% of the value of the transfer before this cost would exhaust the welfare gains from reform. This result reflects the relatively lower transfer efficiency of MPS policies and their relatively high effect on production, which gives greater scope for welfare gains when they are removed. This means that there is much greater potential for using compensation payments to obtain policy reform in the case of MPS than for area payments. Compensation payments equal to the value of the reformed program for three years (as was

16. The welfare gain is USD 1 082 million and the compensating transfer is USD 3 271 million. 3 271 times 0.33 equals 1 082, the value of the welfare gain. Costs of transfers arise from deadweight losses and cost of public funds, which should scale proportionally with the size of the transfer.

done for Australian dairy) or ten years lead to correspondingly smaller payments and increase the potential for preserving a net welfare gain accordingly, as the benefits of reform do not share the limited time horizon of the compensation payment calculation.

The policy experiment using PEM is a specific example of a general result: Transfer efficiency will dictate cost of compensation.¹⁷ This is true by virtue of the definition of transfer efficiency, which indicates the welfare effect of a programme. Also, transfer efficiency is closely related to the degree of decoupling, such that the reform of less transfer efficient programmes yields greater welfare gains. This exercise puts these two elements together in the context of a numerical example. Carrying out the same experiment for different countries or years could lead to very different numerical results without changing this essential point.

Summary

- Policies that are relatively more distorting and have relatively low transfer efficiency offer greater scope for the use of compensation payments as a tool to obtain reform. This is because low transfer efficiency means that less compensation need be offered to recipients, and more distortions imply more scope for welfare gains from reform.
- Compensation for the full value of a reformed program is higher than compensation equal to the continuation of the policy for a limited period.

Conclusion

Compensation policy has been applied to a wide variety of policy reforms and has had several different objectives. The four case studies considered here involve reforms motivated by changing domestic priorities, environmental concerns, or trade pressures, and payments have been directed at mitigating changes in incomes of individuals or asset values and to speed adjustment. They demonstrate that designing and delivering good compensation policy has many challenges — unpredictable changes in prices and producers' often-underestimated capacity to adjust to name two. Finding a way to match compensation payments to a measurable policy target and not to inaccurate forecasts is a key challenge.

When the goal of compensation as a part of policy reform is to relieve the income or wealth effects of the reform on harmed groups, the objective of the policy should be to effectively target that compensation to the affected groups, as well as avoiding over- or under-compensation. In particular, the guidance given in the Positive Reform Agenda (OECD, 2002) represents a prudent approach to this objective.

If it is recognised that the political economy situation is such that compensation is required to enable the possibility of policy reform, then ways must be sought to deliver that compensation at minimum cost and maximum benefit. The costs here are deadweight losses and other costs related to funding the payments. The benefits are the welfare gains that come from the policy reform.

Compensation whose primary intent is to increase the political acceptability of reform depends primarily on the relative influence of political groups. Under the standard view, reform generates a pool of benefits over which competing groups vie for their share. This means that over- or under-compensation are both possibly optimal. The amount of compensation required may be reduced if it can be targeted in such a way as to break up the homogeneity and therefore influence of a particular group.

17. When the objective of the policy is to compensate for losses in income and asset values.

For example, offering compensation to small farmers could remove their voices from the call for additional compensation, leaving large farms less able to effectively lobby for compensation.

One important way in which the benefits of reform are maximised is when reforms are made durable. That is, when the inevitable pressure to roll back reform is resisted effectively. Compensation can aid in reinforcing the durability of reform when it changes the power and incentives of different groups, as with the divide-and-rule strategy described above. Compensation can also be used to alter public perceptions of how deserving the pressure group is of exceptional policy treatment. Clearly explaining the purpose of reform and the objectives of compensation can help win public support that is crucial to resisting pressure from interest groups to turn compensation into re-instrumentation.

Compensation as frequently observed in the past has been neither certain in removing calls for additional transfers, nor inexpensive. Moreover, the case studies investigated here demonstrate that avoiding overcompensation seems to be difficult in practice. For this reason compensation should not be seen as an inevitable component of policy reform, but rather a tool to be taken up with some care. Compensation would appear to be a more practical alternative when the policy being reformed is highly distorting and has low transfer efficiency.¹⁸ Compensating the reform of already highly decoupled policies is expensive and has an uncertain policy rationale or effect considering the low amount of distortions of such policies and the correspondingly small welfare gain from further reform. It can nevertheless sometimes be necessary in order to facilitate the acceptance of reform. For such policies, when the negative effects of reform on harmed groups is a concern, a gradual reform process on a definite schedule would minimise dislocation and provide policy certainty to those affected.

18. Setting aside for the moment the (perhaps dominant) political economy considerations.

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