2009 UPDATE OF

REVIEW OF THE EXPORT MARKET

DEVELOPMENT GRANTS SCHEME 2008

1 Background and context

In 2008, Lateral Economics (LE) wrote a report on the Export Market Development Grants (EMDG) Scheme which informed a wider review of Australian Export Policies and Programs (the Mortimer Review).[1] The reports canvassed in detail the various rationales for the Scheme and its various estimated effects, including (positive) 'spillovers' to other exporters (or firms attempting to export) attributable to the experience EMD grant-recipient firms had gained as a result of the existence of this long-running Australian Government program.

The LE report on the EMDG Scheme included economic modelling of some of the effects of the Scheme, undertaken by Econtech (now part of KPMG). Deficiencies identified at the time in the availability of information on which modelling inputs were based, and as a consequence the less-than-ideal way the Scheme had to be modelled were noted in the LE report. In particular, data to quantify the extent of (positive) spillovers attributable to the Scheme were not available, so that modelling such effects had to rely on analogous work undertaken to quantify spillovers attributable to other, similar, government programs — in particular research and development (R&D) schemes. Similarly, in the absence of estimates of EMDG-attributable effects on firm's own use of resources, no attempt was made in the 2008 Review to quantify the extent of any productivity-enhancing effects attributable to the Scheme.

This (2009) update sets out to remedy these informational deficiencies/qualifications to the modelling of the main economic implications of the EMDG Scheme, and thus provides a more complete and reliable assessment of the program's effects.

2 2009 follow-up of selected respondents to the 2008 Survey

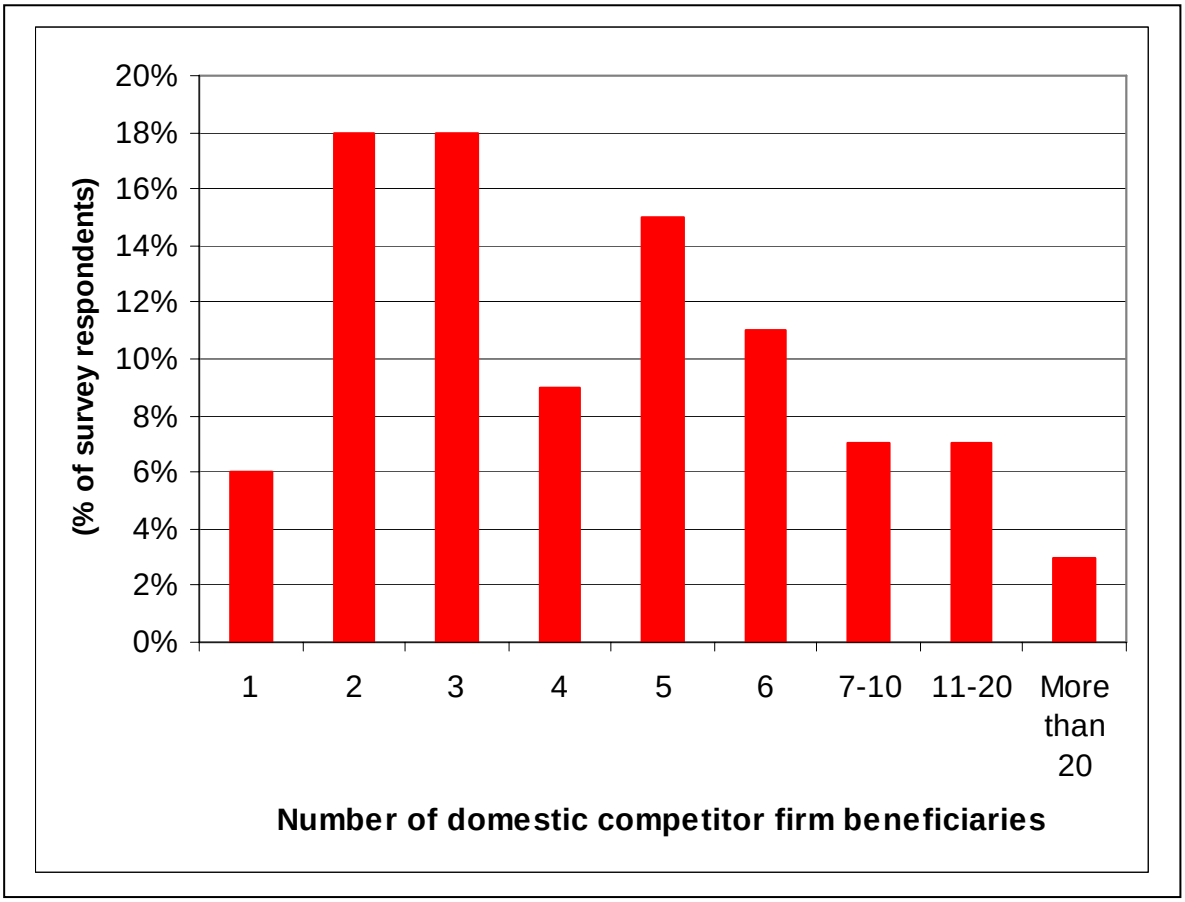
To remedy this situation in order to produce more authoritative modelling results, respondents who identified the existence of spillover and productivity-enhancing effects attributable to the Scheme in the 2008 Survey were followed-up and asked to quantify the magnitude of these effects.

[1] Both reports (titled *Review of the Export Market Development Grants (EMDG) Scheme 2008*, and *Winning in World Markets: Review of the Export Market Development Grants (EMDG) Scheme 2008* are available on the Austrade website (http://www.austrade.gov.au/default.aspx?FolderID=1433#2008review).

2.1 Quantifying EMDG spillover effects

Based on 169 respondents (representing the 32% of firms which identified spillover effects in the original 2008 survey), on average, some 6.3 (local) competitors were estimated to have benefited from EMD grant-recipients' exporting experiences (Chart 1).[2]

Chart 1: Estimated EMDG-related spillovers: number of domestic competitor firm beneficiaries, 2006-07



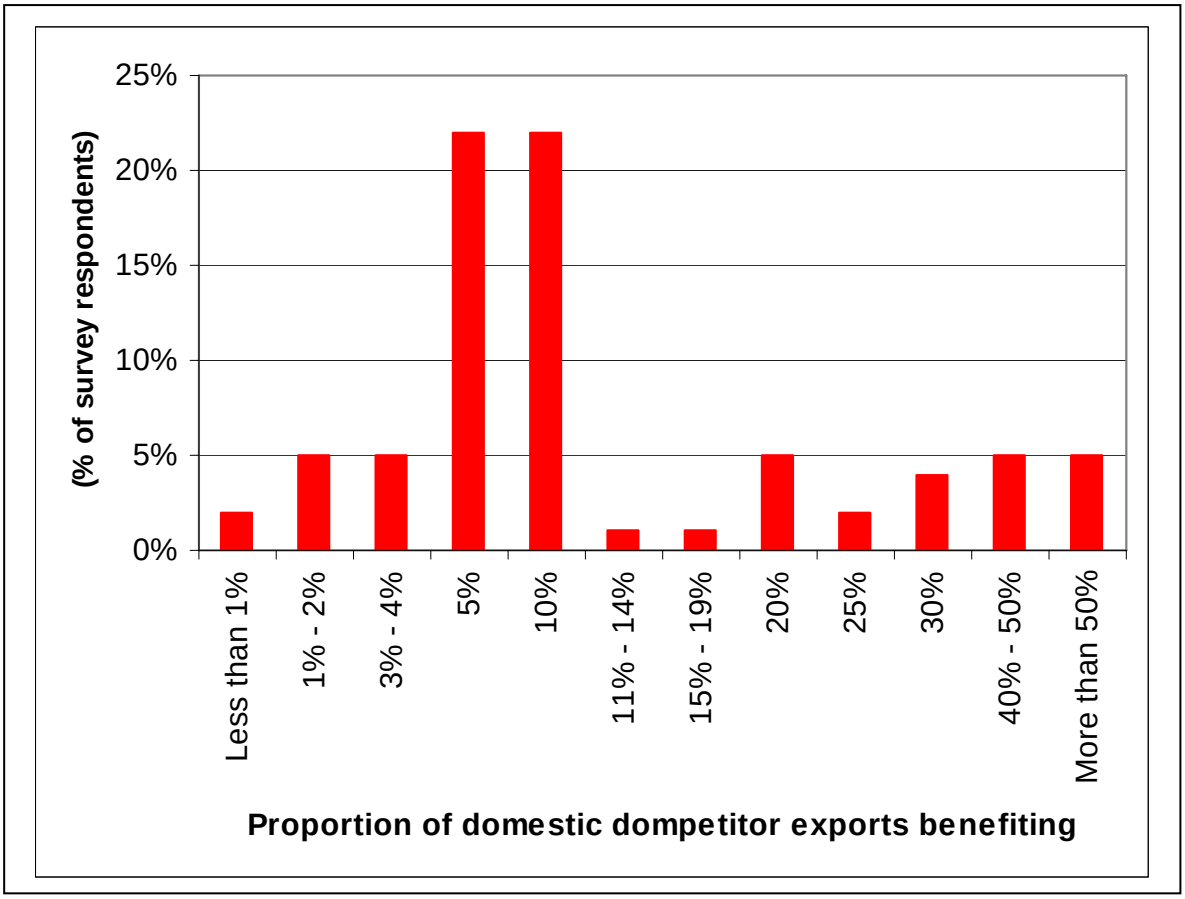
This distribution of answers exhibits wide variability, such that the mean (of 6.3) is particularly sensitive to respondents nominating 20 or more competitor firms as beneficiaries of respondents' export experiences. The median (or mid-point) of the distribution is less sensitive to outliers than the average, and this measure was preferred as the basis for inputs to the modelling. This preference has the additional advantage of representing a conservative approach to interpreting the quantitative evidence coming from the 2009 follow-up survey.

The median response was 4 competitor firms estimated as benefiting from each EMD grant-recipient firm indicating that their exporting experiences had helped others. Taking into account grant-recipient firms which had not identified spillovers in the original (2008) survey, the overall median value for the number of domestic competitor firm beneficiaries for each EMDG firm was calculated to be 2.4.

[2] See the Attachment for details on the methodology used to quantify the various effects.

These same respondents estimated that the proportion of competitor firms' exports attributable to EMDG-related spillovers was 16.4 per cent, again on average (Chart 2).

Chart 2: Estimated EMDG-related spillovers: proportion of domestic competitor firm exports benefiting, 2006-07



The median value was 10% of competitor firms' exports.

To summarise the follow-up survey evidence on spillovers, the median value of the distribution of grant-recipient firms' responses identifying spillover effects attributable to the EMDG Scheme was some 4 competitor firms benefiting from EMDG firms' exporting experiences, while the median value of spillovers to such firms attributable to the EMDG Scheme was 10 per cent of such competitors' exports. Taking into account other responses to the (2008) spillover question, the median value of 4 reduces to some 2.4 beneficiary firms for each EMDG firm overall.

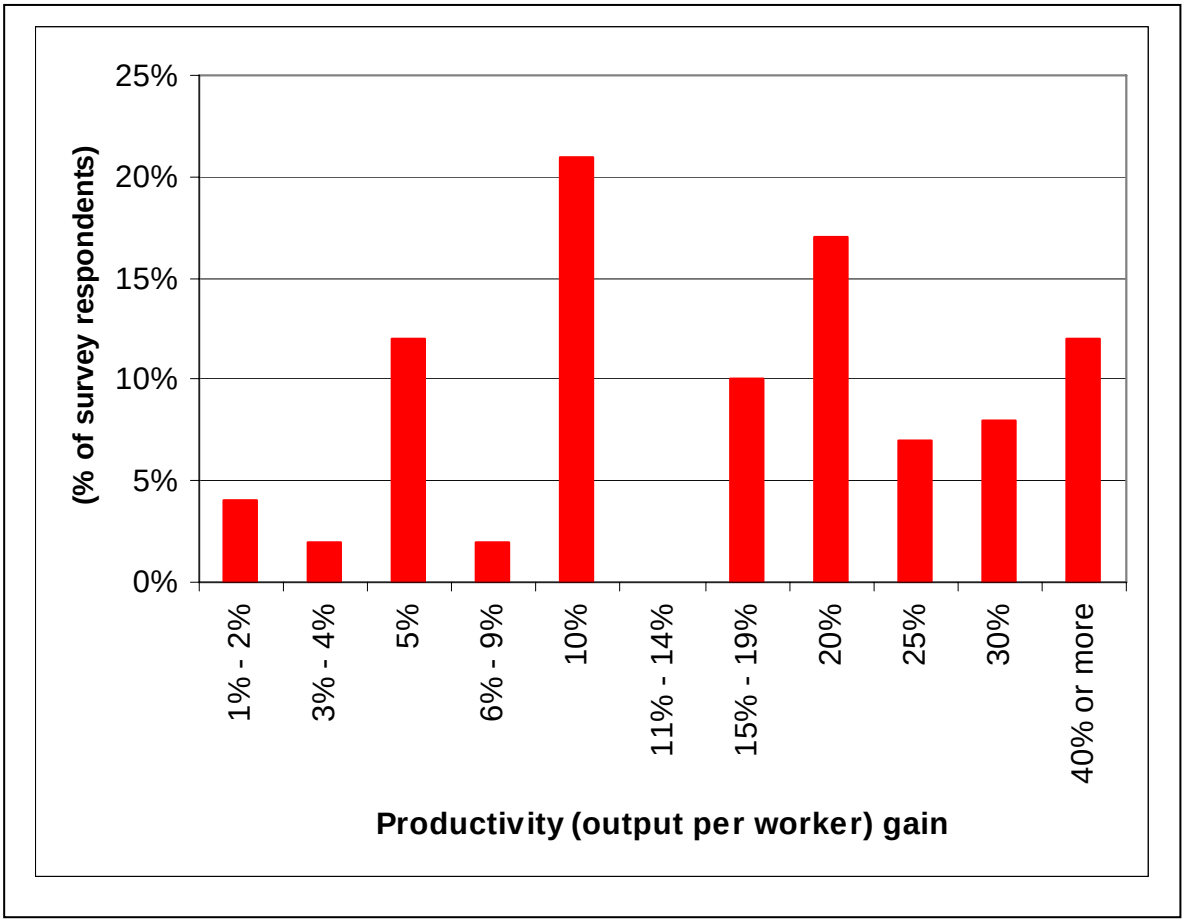
2.2 Quantifying EMDG productivity effects

The 2008 LE report highlighted the link between exports and productivity as an important one both for the future growth in living standards and for judging the effectiveness and efficiency of export-enhancement programs such as the EMDG Scheme (see p.45 of the LE report).

Based on 369 respondents (representing some 72% of firms which had indicated that there was a link between increasing exports and increased productivity), the average

productivity increase was estimated to be 20.7 per cent, with the median value at 15 per cent (Chart 3).

Chart 3: Estimated EMDG-related productivity improvements, 2006-07



Certainly the literature suggests that there is a large gap between Australian productivity levels and world best practice (as represented, for example, by output per worker levels achieved in the US). And increased export experience could be expected to contribute towards closing that gap.

To summarise, for grant-recipient firms which identified increased productivity effects attributable to the EMDG Scheme (measured as increased output per worker), the median response was 15 per cent. Taking into account those firms which did not identify flow-on productivity benefits to EMDG firms, the 15 per cent would reduce to 13.2 for EMD grant-recipient firms overall.

In its modelling of the productivity-enhancing effects of the Scheme, Econtech calculated that Scheme-induced productivity gains translated into an approximate economy-wide increase in labour productivity of some 0.06 per cent (for more detail see Econtech's report).

3 Improved Modelling of the main Effects of the EMDG Scheme

One of the challenges in attempting to assess the main economic effects of the EMDG Scheme is that, in any given grant year, the number of grant-recipient firms

can be very small in relation to the total number of firms represented in the breakdown of Australian industry structure used in economy-wide models such as Econtech's MM600+ model used to estimate Scheme effects.[3] It is therefore important to get model inputs as exact as possible. To achieve this end, information on key variables — such as the turnover and exports of EMD grant-recipient firms for 2006-07 — was compiled by Austrade to enable the proportions EMDG firms represented of the output and exports of each (parent) ANZIC industry to be calculated.

3.1 Modelling results

Austrade provided Econtech with EMD grants data by 4-digit ANZSIC code for the 2006-07 grant year. These data were allocated across ANZSIC codes according to the industry receiving grants.

Grants were used to calculate equivalent export subsidies by product, which were then fed into the MM600+ model to generate estimated effects associated with the EMGD Scheme compared with a base case of no such government program. This formed the 1st scenario — the results for which are labeled in the tables and charts below as 'EMDG Grants'. Apart from the need to finance the subsidy via increased taxation, the only other effects of the Scheme taken into account in this scenario were the estimated expansionary effects on EMDG firms' own exports (i.e. what might be termed the *direct* effects of the Scheme).

In this 2009 update, Econtech was able to improve its modeling of spillovers because of newly available, survey-based estimates of Scheme-induced additional export activity on the part of other (usually competitor) firms not in receipt of EMDG subsidies, but who nevertheless increase their exports in the wake of export success on the part of grant-recipient firms. Taking account of spillover effects attributable to the Scheme (as well as its *direct* effects) formed the basis of the 2nd scenario simulated by Econtech, labeled 'Grants + spillover' in the tables and charts below.

The updated modeling was also able to incorporate into the analysis of the main economic effects of the EMDG program Scheme-attributable increases in productivity (in the form of increased output per worker) — as estimated by grant-recipient firms. This represents an important advance on the 2008 analysis, since high and increasing productivity underpins high and increasing standards of living. Incorporating productivity-enhancing effects attributable to the Scheme — along with direct and (indirect) spillover effects — formed the basis of the 3rd scenario simulated by Econtech, labeled 'Grants, spillover & productivity' in the tables and charts below. Such productivity effects could also be regarded as a form of *indirect* effect of the Scheme.

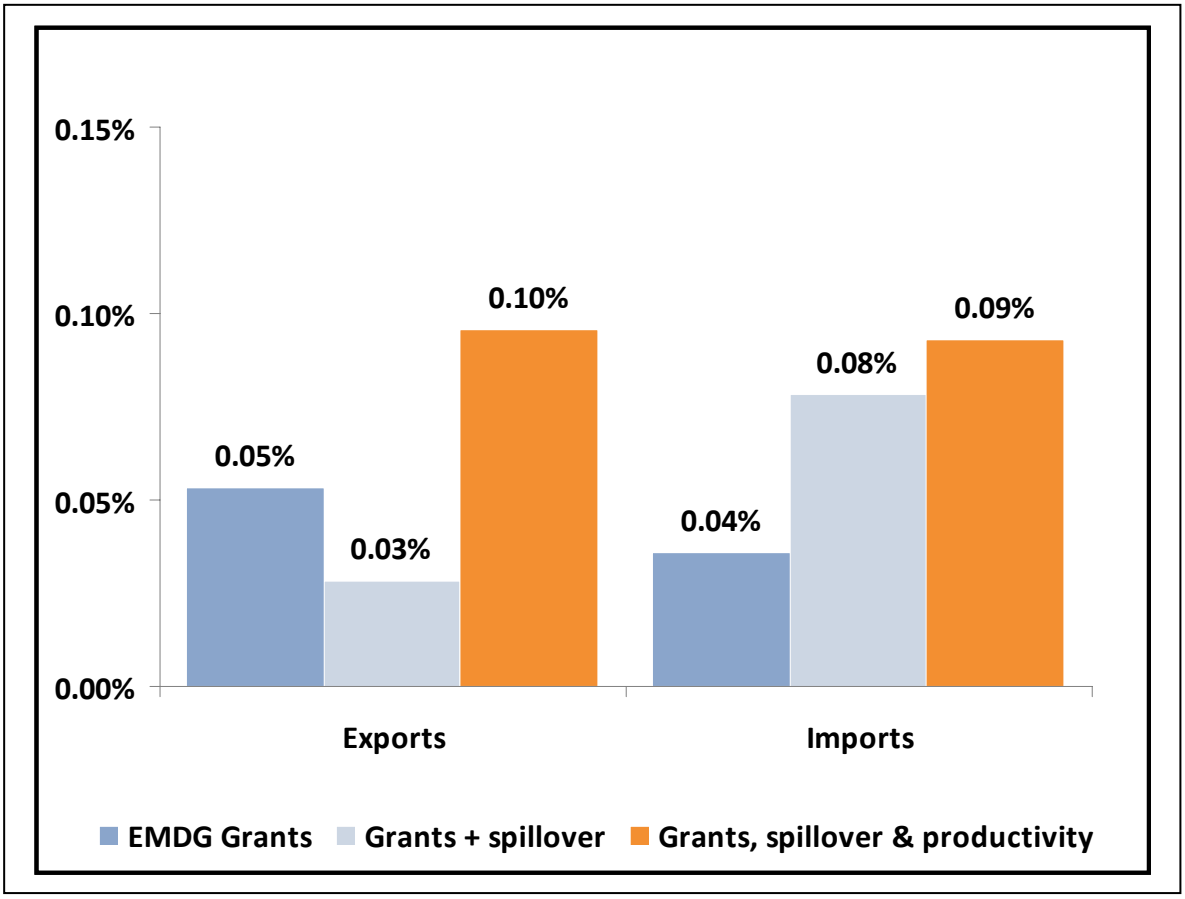
Trade effects

Estimated aggregate trade impacts of the EMDG Scheme are considered first. These modeling results refer to outcomes achieved after the economy has fully adjusted to

[3] Thus, the proportion of economic activity represented by EMDG firms of the (parent) 2-4 digit ANZIC classes to which they are mapped in MM600+ is typically quite small, albeit this proportion could in many cases be quite significant over the 30 plus life of the Scheme.

the economic effects attributable to the Scheme. Chart 4 shows the estimated eventual trade impacts of the Scheme. Specifically, Chart 4 shows the estimated annual contribution of the Scheme to aggregate exports and imports. Thus, compared with the (baseline) situation of no EMDG Scheme, when both the direct (i.e. increased exports on the part of grant-recipient firms) and indirect (spillover/productivity) effects of the Scheme are taken into account, aggregate exports are projected to expand by between 0.03 and 0.1 per cent, while aggregate imports expand by between 0.04 and 0.09 per cent.

Chart 4: Estimated trade effects of the EMDG Scheme (% deviations from baseline)



The principal mechanisms at work in the model to produce these trade effects are:

- By lowering the cost to firms of developing export markets, EMD grants stimulate exports on the part of recipient firms.
- Recipient-firms' export experiences spill over to benefit other (often competitor) firms, enabling them to also boost exports.
- The knowledge and experience gained by EMDG firms of overseas markets and products enables recipient firms to boost their productivity (typically affecting domestic as well as export sales), which further stimulates sales — including to foreigners (exports).
- Increased exports attributable to the Scheme improve Australia's terms of trade, leading to a higher exchange rate than would otherwise be the case.
- The change in the real value of the Australian dollar means that prices of

imported goods and services are lower than would otherwise be the case, leading to an increase in the demand for imports.

- The flow-on effects of a more open export market attributable to these spillover and productivity effects leads to a further improvement in Australia's terms of trade, which further stimulates imports, while dampening exports.

The net result of the interaction of these various effects is that aggregate exports are projected to increase by 0.1 per cent when spillover and productivity effects are included.[4] Given 2006-07 model exports of some $172 billion, this translates into a (ongoing) increase of $172 million in additional annual aggregate exports attributable to the Scheme once the economy has fully adjusted (i.e. which might take between 5 and 10 years according to Econtech). By making some assumptions, it is possible to use these comparative static modeling results[5] to undertake a rough calculation of how many dollars of exports could ultimately be attributable to $1 of grants under the Scheme. For example, if the adjustment process were to take 8 years (during which time aggregate exports rise linearly to the level of $172 million per annum), while treating the $152 million cost of the program as having occurred at the beginning of the period) — and adopting a real discount rate of 4 per cent per annum to approximate the time value of money, this 'export multiplier' turns out to be 24.8. That is, on the stated assumptions, the Scheme would eventually generate a stream of exports whose net present value is equivalent to $25 for every $1 of Scheme grants.

Industry effects

Scheme grants will have varying impacts on the level of activity in different Australian industries. Chart 5 illustrates these estimated industry impacts at a broad sectoral level.

Again, the principal mechanisms at work in the model to produce these projected industry effects are:

- Grants boost the output of industries in which grant recipients are concentrated, at the expense of sectors containing relatively few grant recipients. For example, the Manufacturing sector of the economy contains industries where there are concentrations of grant-recipient firms, so that this sector expands relative to others — such as the Agriculture and Mining sectors.
- Elevated activity in areas of the Australian economy where grant recipients are concentrated will also stimulate additional activity in upstream industries (such as Wholesale trade and Business services), as well as downstream industries supplying inputs to expanding industries.

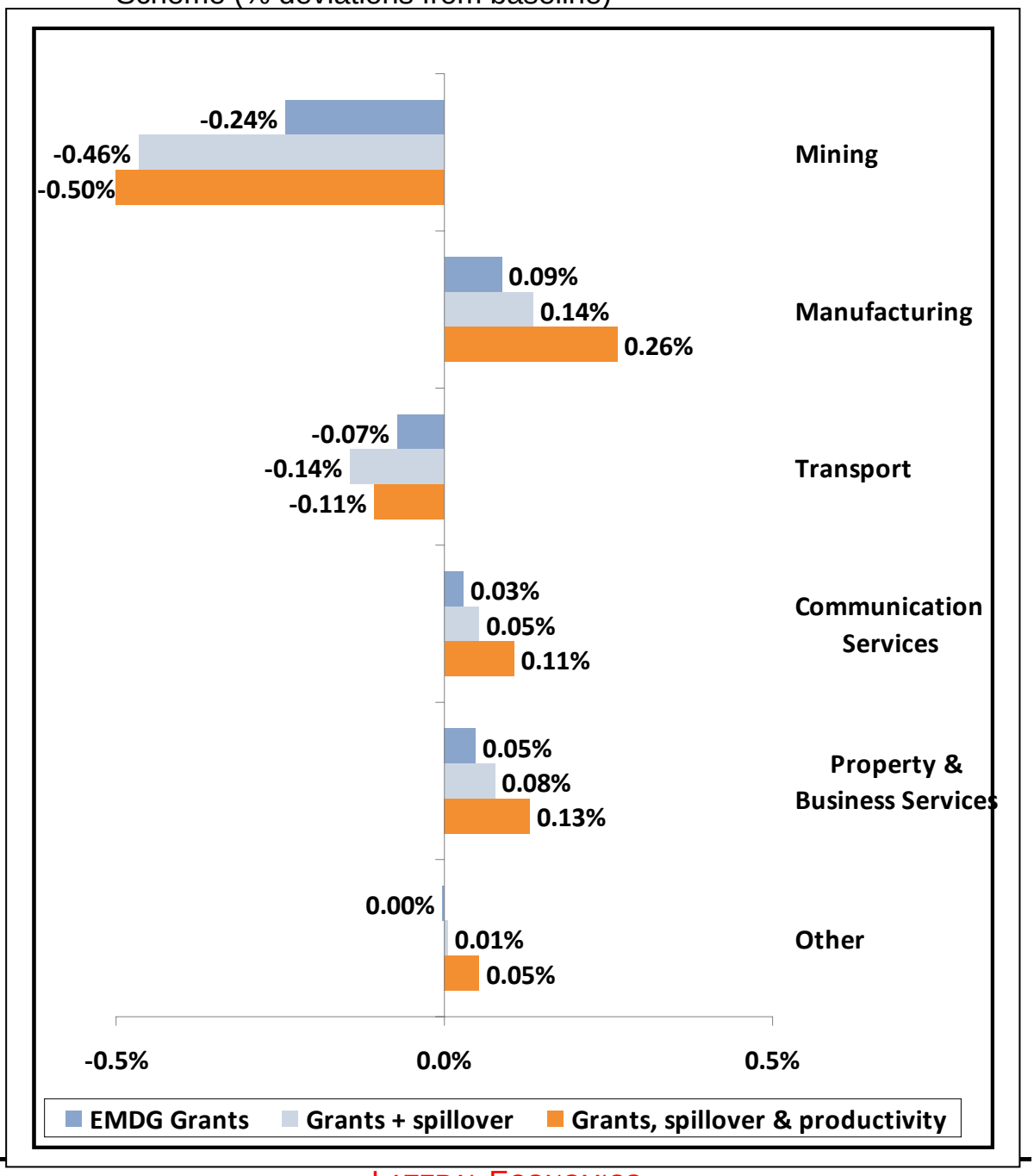
---

4 This compares with a much more modest 0.02 per cent (maximum) estimated in the 2008 review. The differences are attributable to the more accurate modelling of the direct and indirect trade effects (now based on new and updated information), plus the significant contribution now made by induced productivity effects (which were not modelled in the 2008 review).

5 The Econtech model has no time dimension. Rather it assumes the economy is in equilibrium initially, and calculates a new equilibrium once all economic actors have fully adjusted to some policy change (in this case the existence of the EMDG Scheme). As indicated above, in Econtech's view this adjustment process is likely to take between 5 and 10 years.

- Also, the additional industry activity stemming from EMDG-induced export activity generates additional incomes in the community. In turn, more income boosts demand for consumption goods and services, such as Cultural and recreational services.
- For industries that are trade-exposed, prices are (largely) determined on world markets, so that prevailing exchange rates play a pivotal role in determining growth in such industries. As mentioned above, increased export activity would lead to a higher value for the Australian dollar. A higher Australian dollar, in turn, lowers demand for other Australian exports. In this way production gains in the consumer-oriented industries, EMDG-assisted industries and related upstream/downstream industries are offset by reduced production in other trade-exposed industries.

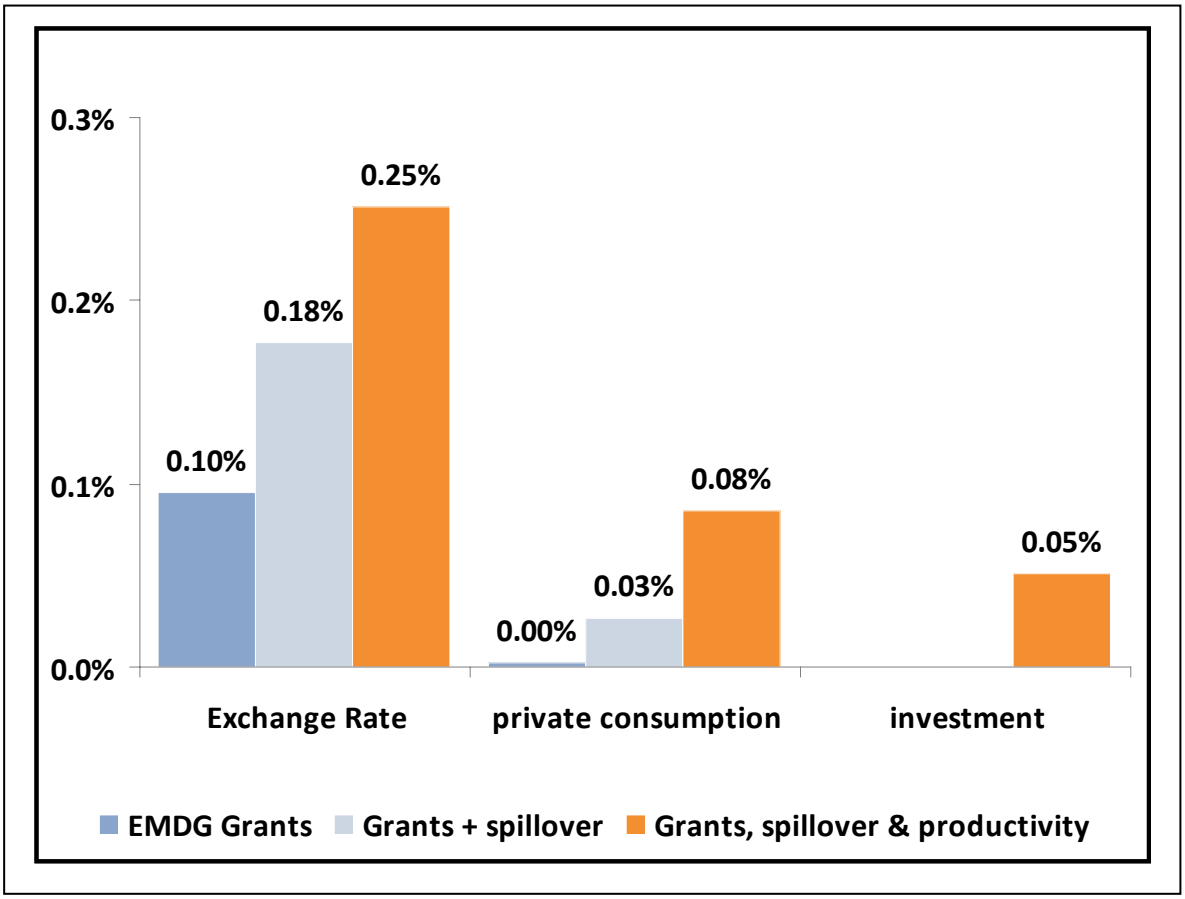
Chart 5: Estimated average annual industry-production effects of the EMDG Scheme (% deviations from baseline)



Long-term national macroeconomic effects

To round out this summary of the estimated effects of the EMDG Scheme, Chart 6 sets out the estimated long-term impacts on the macro-economy.

Chart 6: Estimated national macroeconomic effects of the EMDG Scheme (% deviations from baseline)



Specifically, Chart 6 shows the estimated effects of the EMDG Scheme on private consumption, investment and the exchange rate — compared to the baseline scenario (of no EMDG Scheme).

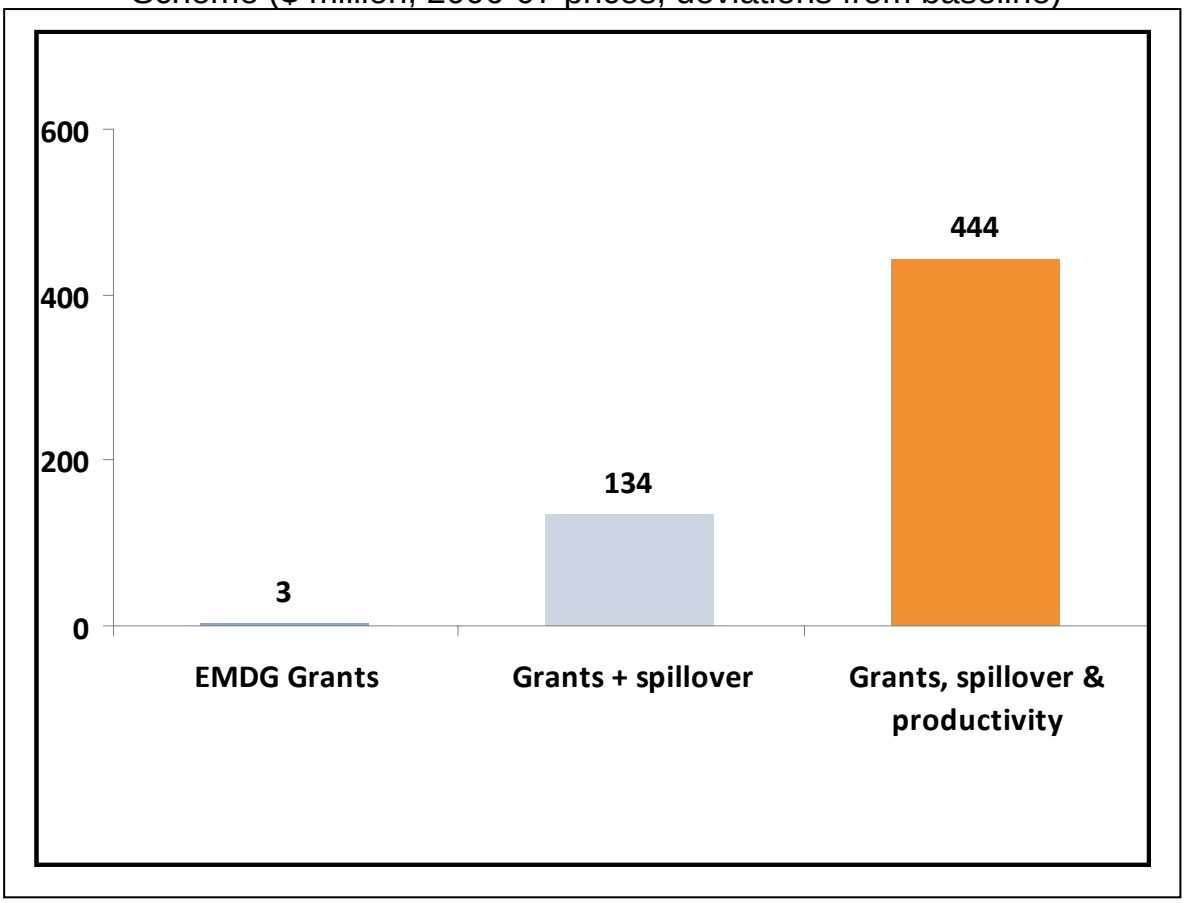
Thus:

- The Scheme alone (without taking account of either the productivity-enhancing or spillover effects attributable to the program) is not projected to have a significant impact on any of these macro aggregates. (This is basically because the direct benefits of the additional export marketing activity are very nearly offset by the cost of raising the revenue necessary to finance the grants.)
- However, taking into account both the productivity-enhancing and spillover effects attributable to the Scheme changes the situation substantially — into one characterised by modest/even significant gains in community welfare (as measured by increased real consumption).

In sum, the information depicted in Chart 6 suggests that, when the analysis of effects is restricted to what might be termed the *direct* effects of the EMDG Scheme — i.e. increased exports associated with EMDG firms increasing exports as a result of EMD grants — the *net* effects are only projected to be slightly welfare-enhancing once the need to finance the grants via increased taxation is taken into account. However, the situation changes to one of significantly positive projected increases in welfare (characterised by higher levels of production in the economy, leading to higher annual national income, and hence to increased private consumption) once the productivity-enhancing and spillover effects attributable to the EMDG Scheme — i.e. what might be termed the *indirect* effects of the Scheme — are incorporated into the modeling.

Finally, Chart 7 looks at indicative impacts on consumer welfare (where the living standards measure adopted here is considered to be a better measure of the welfare implications of the EMDG Scheme than estimated GDP effects).

Chart 7: Estimated annual consumer living standard effects of the EMDG Scheme ($ million, 2006-07 prices, deviations from baseline)



In sum, Chart 7 shows that the direct effects of the EMDG Scheme alone are largely offset by the cost to taxpayers of financing this government program. However, once the Scheme's indirect effects, based on new quantitative estimates of both spillover and productivity gains attributed by EMDG firms to the Scheme are taken into account, consumer welfare turns significantly positive.[6]

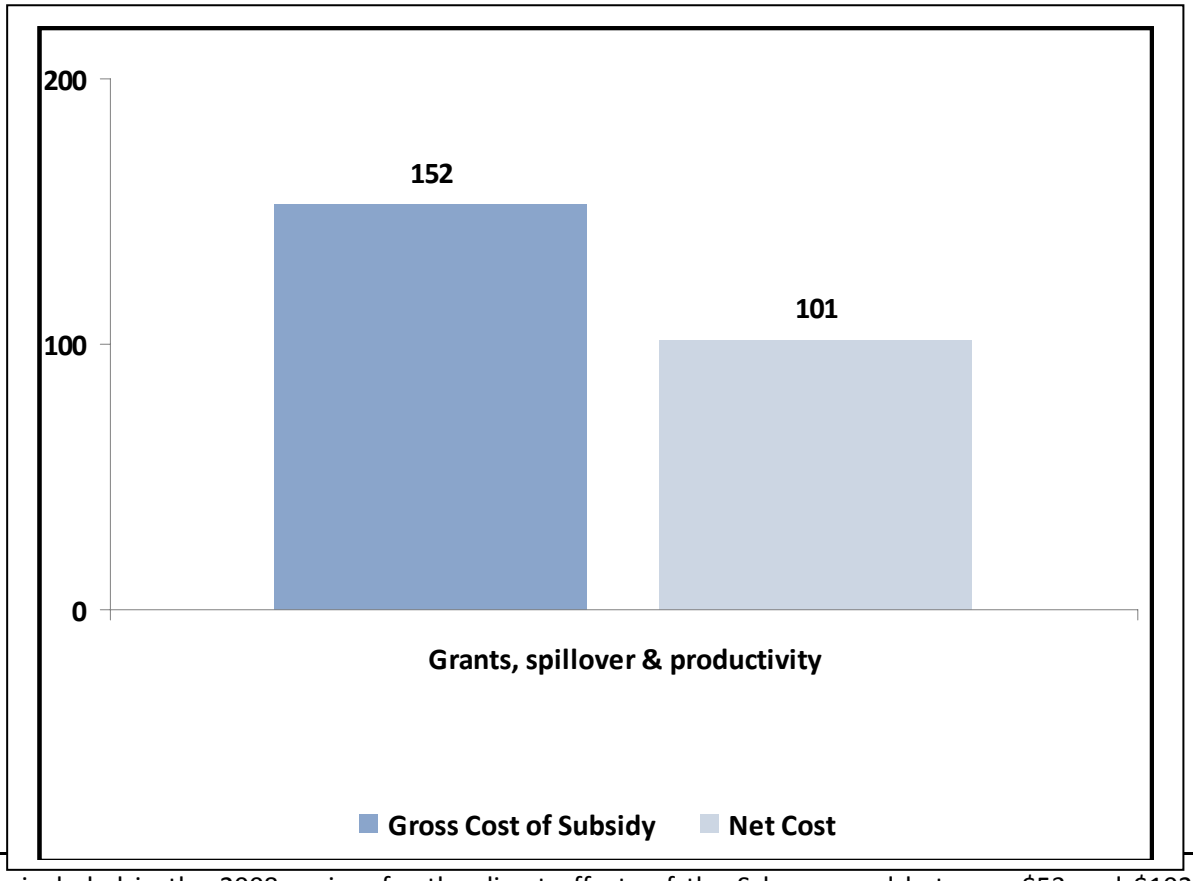
[6] These new estimates compare with an estimated $5 million (2004-05 prices) in modelling results

Net budgetary implications of the EMDG Scheme

Finally, the modeling can calculate the implications of the EMDG Scheme for Australian Government finances (i.e. the federal budget). Here, the gross and net costs of the EMDG Scheme are calculated and compared. Under each scenario, the *gross* cost to taxpayers remains unchanged (at an estimated $152 million in 2006-07 prices). On the other hand the *net* cost to taxpayers needs to take into account additional incomes attributable to the Scheme and the fact that they will lead to additional tax revenues. When account is taken of Scheme-attributed spillover and productivity effects the net cost falls significantly (Chart 8). Here, additional economic activity leads to additional tax revenues — thereby lessening financing requirements. Indeed, under this scenario the net financing requirement falls to some $101.

Another way of summarizing this results is that, once the claw back effects on increasing tax takings on expanded economic activity are taken into account, the stream of exports generated has a net present value of $37 for every $1 of (net) taxes needed to finance the Scheme (based on the same assumptions used to estimate the eventual export multiplier — see above).

Chart 8: Estimated gross and net government financing requirements of the EMDG Scheme ($ million, 2006-07 prices)



included in the 2008 review for the direct effects of the Scheme, and between $53 and $102 million taking into account spillover effects (now an estimated $134 million (2006-07 prices)). The notable change in the new modelling, however, is the significant gains in living standards associated with the Scheme (of $444 million in 2006-07 prices) once explicit account is taken of productivity increases attributable to the Scheme reported by grant-recipient firms.

5 Conclusions

As a way of boosting spending on export market development on the part of aspiring, new and emerging exporters, the EMDG Scheme can be judged a success. Evidence that EMDG firms increase their spending on export market development comes from surveying grant-recipient firms about their investments in developing overseas markets for their goods and services. There is also survey evidence that EMD grant recipients increase their exports compared to non-recipient firms (see original LE report). Thus, the EMDG Scheme should be judged a successful program in terms of achieving its immediate aims of developing export markets for Australian products, and boosting exports.

Modeling results suggest that, after allowing for the need to finance the EMDG program from tax revenues, the welfare effects of the Scheme are estimated to be (modestly) positive. These economy-wide results were obtained when modeling of the Scheme's main economic effects was restricted to what might be termed the *direct* (export-enhancing) effects of the program. Such relatively small effects — particularly at the level of the macro-economy — are to be expected from what is after all a modest ($152 million a year) government program (especially when only some of the program's effects are taken into account). When the Scheme's indirect (spillovers and increased productivity) effects are taken into account in the modeling, the macroeconomic impact of the Scheme is projected to be much more positive — for example living standards are estimated to rise be some $444 million (2006-07 prices).

The 2008 review concluded its assessment of the effectiveness and efficiency of the EMDG Scheme by comparing it with other business-related government programs. The following table, compiled by Econtech, updates this comparison.

Table 2: Updated comparison with business-related government programs

	benefit:cost ratio
EMDG	1.02:1
EMDG + spillovers + productivity	5.38:1
Backing Australia's Ability	1.12:1
Strategic Investment Program	0.98:1
E-Government programs	0.61 to 0.92:1
R&D tax concession	0.7 to 1.98:1

The EMDG Scheme fairs remarkably well in comparison with other government programs included in Table 2, especially when the program's indirect effects (spillovers plus increased productivity) are taken into account.

In summary, the EMDG Scheme:

- Encourages firms to boost export-promotional activities beyond levels that would otherwise occur.

When surveyed, EMDG firms confirm that this is the case, and that while the resources needed to develop export markets mainly came from retained earnings, Scheme grants were the next most important source of funding. This is the immediate objective of the Scheme.

- Generates exports of Australian goods and services beyond levels that would otherwise occur.

Again, EMDG firms confirm that exports would be lower without the Scheme (if, indeed, they would have become exporters at in the Scheme's absence). This is the Scheme's ultimate objective.

Thus, the Scheme

- Can be judged to be effective, since it achieves both its short- and longer-term objectives (i.e. it accomplishes what it sets out to do).
- Increases community welfare by increasing consumer living standards (a comprehensive measure of the program's efficiency) — by an estimated $444 million a year (2006-07 prices).

Thus not only is the Scheme effective but it is also an efficient government program since modelling its effects suggests that the Scheme is welfare-enhancing (i.e. the Australian community is better off with the Scheme than without it).

- Has a (net) budgetary impact which is much less than its apparent $152 per annum budgetary cost once the claw-back effect on tax revenues of higher incomes attributable to the Scheme are taken into account — with Econtech modelling estimating the net cost to the federal budget at some $101 million.
- Compares favourably with other business-related government programs (including government R&D initiatives) in terms of assessed benefits versus costs.

ATTACHMENT

Quantifying EMDG spillover effects

The 2008 survey asked EMD grant recipients about the existence of positive spillovers *to* and *from* EMDG firms, without asking respondents to quantify their extent (in other than descriptive terms). Thus, Question 5.4 of that survey asked:

> Have you learnt and/or benefited from the exporting experiences of other firms in Australia who export similar products or services?

(with possible responses of *Not beneficial*, *Slightly beneficial*, *Very beneficial*, and *Don't know*);

While Question 5.5 asked:

> Do you think any of your competitors in Australia have learnt and/or benefited from your exporting activities?

(with possible responses of *Yes*, *No*, and *Don't know*).

In an attempt to quantify the estimated extent of positive spillovers flowing *to* non-EMD grant recipients, the following question was asked of those respondents who answered *Yes* to Question 5.5:

> How many competitors (in Australia) would you estimate have benefited from your exporting experience?

As well as attempting to quantify the extent of positive spillovers in terms of the number of competitor firms benefiting from the exporting experiences of EMDG firms, the same firms were asked:

> What proportion of these competitors' exports, on average, would you attribute to their learning from your company?

Quantifying EMDG productivity effects

The 2008 survey asked EMD grant recipients about a link between increased exports attributable to the EMDG Scheme and increased firm productivity, without asking respondents to quantify their extent. Thus, Question 5.2 of that survey asked:

> Since becoming an exporter, or attempting to commence exporting, has your company become more efficient due to your exporting and export promotion activities?

(with possible responses of *No more efficient*, *Moderate improvement in efficiency*, *Much more efficient*, *Don't know*, and *Always been an exporter so can't tell*).

In an attempt to quantify the productivity-enhancing effects of the EMDG Scheme, the following question was asked of those respondents indicating that such a link did exist in their responses to Question 5.2:

> By what proportion would you estimate that your productivity in terms of output per worker has increased as a result of your firm's increased export orientation?