2 PPs

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1
Telephone 01-~~930 7022~~ 218 2111/3

Prime Minister

This work was commissioned after last year's sterile and inconclusive argument about the defence RPE. MOD have been rather coy about circulating it – I can see why: it implies that no-one really knows what defence price movements, properly defined, are; and x is rather uncomfortable, too.

MO 8

8th October 1982

Dear Michael,

MCS 11/10

DEFENCE EXPENDITURE

I understand that you asked to see a copy of the "Unwin Report" - the joint review by the Treasury and Ministry of Defence of the methodology of calculating movements in defence prices which it was agreed should be set in hand last December.

I enclose a joint note by the Treasury and Ministry of Defence which records progress in the review so far, and indicates the direction which further work is taking. The work done so far covers the MOD procurement Vote (Vote 2) which is the part of the defence budget where the task of price measurement is most complex. The report points out that no major systematic errors of methodology have been found although a number of small errors and grey areas have been discovered which generally tend to inflate pay and price calculations. Guidance has been issued within the Department with the object of correcting these deficiencies.

For the longer term work is proceeding, in consultation with the Treasury as appropriate, towards the introduction of centrally calculated defence-specific price indices; paragraph 8 of the covering note describes other follow-up action. The need for external assistance is being kept under consideration.

The Defence Secretary has asked me to emphasise that this study, and the proposed new indices, take no account of the continuing growth of the costs of defence equipment which arise from increasing sophistication. This is a separate and most important problem on which this year's Defence White Paper contained a major discussion.

I am sending copies of this letter to the Private Secretaries to the Chancellor of the Exchequer, the Chief Secretary and to Sir Robert Armstrong.

Yours ever,

Richard Mottram

(R C MOTTRAM)

M C Scholar Esq

STUDY OF PAY AND PRICE METHODOLOGY

(Joint note by HM Treasury and Ministry of Defence)

Introduction

1. At the end of the 1981 Public Expenditure Survey, it was agreed that a joint study by the Treasury and the Ministry of Defence should examine the methodology of calculating movements in defence prices.

2. A report of progress to date is annexed. This note summarises that report, and indicates the directions further work is taking.

Present system

3. MOD finance branches are required to split their expenditure forecasts into "volume" (the cost of the work at an earlier price base) and "pay and price" (inflation since that price base). The precise calculation of "pay and price" (P&P) is extremely complex, if not impossible, because of a number of factors: the difficult in establishing the price base; the nature of the defence programme; and the manner in which prices are agreed and payments made.

4. For their calculation of P&P, finance branches use either direct data (eg wage and overhead rates etc) or price indices. Great skill and expertise is needed to translate "direct data" to an accurate price assessment; and the scope for subjectivity and misinterpretation among non-specialist finance staff is considerable. Many of the existing indices are not defence-specific, and are not acceptable to finance branches. Moreover, the extrapolation of indices or direct data by individual branches is again open to subjectivity which can lead to inconsistency and makes it difficult to determine centrally whether P&P has been overestimated or underestimated because of forecasting error.

5. The diversity of methodologies employed makes it impossible to verify or disprove P&P estimates from the current system. No major systematic errors common to all branches have been found. A number of small errors and grey areas have been discovered, which generally tend to inflate the P&P element.

Proposed system

6. Although it would be possible to strive for individual improvements, the only way of producing an agreed measure of defence inflation acceptable to both the Treasury and Ministry of Defence is the introduction of centrally calculated defence-specific price indices. Initial investigation shows that this would be practicable; a family of indices could be produced using information held within MOD for the major defence contractors.

7. Construction of the indices will take time (the first year of full use would be 1984-85) but limited manpower resources (about 3 to 4 man years). The longer term effect will be to save staff effort.

The Way Forward

8. Further exploration is being made, notably with PE finance branches of the practical implications of an index-based system. Other future work will address overheads (which present rather special problems) and the other MOD Votes (where the difficulties should be less intractable). Meanwhile internal instructions will be issued with the aim of improving the standard of the present system.

9. All the work so far has been undertaken from in-house resources; and the immediate way forward continues to be internal in emphasis. The possible need for external assistance however will be kept under continuing review.

J E HANSFORD
Assistant Under Secretary of State
Defence and Materiel Division
HM Treasury

J D BRYARS
DUS(Finance and Budget)
Ministry of Defence

June 1982

JOINT TREASURY/MOD STUDY OF PAY AND PRICE METHODOLOGY

1. At the conclusion of the 1981 Public Expenditure Survey, it was agreed and recorded in Sir Robert Armstrong's minute of 2 December 1981:

> "there will be a joint review by the Treasury and the Ministry of Defence, with the assistance of suitable external advice, of the methodology of calculating movements in defence prices, on the lines proposed in the Defence Secretary's letter of 24 November to the Chancellor of the Exchequer; this review should also cover the possibility of devising arrangements which will enable the Ministry of Defence to live within cash limits without unacceptable consequences for the defence industries."

2. This paper reports on the way in which finance branches currently calculate their pay and price (P&P) estimates and puts forward proposals for a new system of P&P calculation.

3. Because of time constraints work to date has been confined to Vote 2. The fact-finding part of the study has been based on a questionnaire sent to all finance branches responsible for Vote 2 expenditure, and on visits to about twenty of them. DGDC, AS(PE) and TC have also been visited. The visits has been conducted by the Central Analytical Unit in GF4 and a Department of Industry statistician nominated by the Treasury, with help from Stats(G) and Technical Costs (TC).

Objective of pay and price work

4. Finance branches are required, when compiling internal forecasts of outturn, to split their expenditure into "volume" and "pay and price", where "volume" relates to the cost of the work at an earlier price base. There are 2 main purposes of this exercise. Firstly it provides an estimate of the overall effect of inflation on the Defence budget; this can be used to measure real growth and in negotiations with the Treasury. Secondly the P&P figures provide a potential management tool for measuring and attempting to control inflation at a project or finance branch level; they may also in the future form the basis for differential allocation of the cash uplift to Estimates.

The present system

5. The calculation of precise P&P figures is in most cases an extremely complex if not impossible exercise. There are 2 main complicating factors. Firstly the defence equipment programme does not in general consist of homogeneous articles bought on long production runs. In many cases MOD is buying sophisticated non-standard equipment which is subject to changes during both the development and production stages. This makes it difficult to separate quality changes and inflation in a nominal price movement.

6. The second complicating factor is the manner in which prices are agreed and payments are made. Prices are often not finalised until a production run is well under way. A large proportion of expenditure is incurred in the form of progress payments, the arrangements for which deliberately provide for retention of some part of the payment until satisfactory completion of the contract. In summary, MOD is not dealing with expenditure where each payment can be related to a known quantity of specific goods at a known price.

7. In the face of these difficulties, finance branches have 2 main methods by which they can calculate their P&P. They can either use the most appropriate price index available to them or they can attempt to estimate their own inflation by the use of what we shall call 'direct data' eg wage and overhead rates, unit price costings, development cost plans.

8. The price indices available are mostly calculated by Stats(C) with the exception of Air Systems where DPTCAn are the main supplier. The are usually based on indices provided by other government departments, mostly the Departments of Industry and Trade. They relate to the industries with which defence expenditure is incurred but they are not 'defence specific' in that they reflect cost movements in those industries as a whole and not specifically in the defence subsectors of them. The use of indices for P&P calculations is most common in branches which deal with a mass of relatively small projects, since in these cases the collection of 'direct data' would be very time consuming. It is also for this sort of expenditure that indices are usually most appropriate, particularly if the goods concerned are not specifically for defence purposes and are subject to market pressures. Examples of such goods are general stores, machinery and commercial vehicles.

9. 'Direct data' is more commonly used in branches dealing with a small number of large projects or at least with a small number of contractors. The actual information used is collected either from the contractors or from one of the costing branches within MOD such as contracts branches, AS(PE), TC, DPTCAn, DEng Costs, DAP Costs and naval technical cost branches. The most common method of using direct data is to calculate the movement in the charging rate is a combination of wage and overhead rates. Other methods include monitoring changes in unit price costings or development cost plans.

Defects in the present system

10. The first difficulties in pay and price work concern the establishment of a price base. Estimates for years up to and including 1981/82 were required to be submitted at a price base relating to 'quoted' prices in the previous September. For 1982/83 and future years the price base is 'forecast average outturn prices' for the previous financial year eg Estimates 1982/83 and LTC 82 were costed at 1981/82 forecast average outturn prices.

11. We have found that some branches have had difficulty in establishing a price base with any degree of accuracy, mostly because of the complications outlined in paragraphs 5 and 6 above. In particular we found that the term 'quoted' prices caused some confusion. A 'quoted' September price is a theoretical price which would be charged if a good was ordered, manufactured and paid for instantaneously in September, ie it relates to the costs of manufacture in September. If, for example, there were in reality a 3 month lag between work being done and payment being made then a September 'quoted' price would equate to a December 'paid' price. This distinction was not always understood in finance branches and some Estimates were submitted at a September 'paid' price base. The effect of this error was not always as serious as it might seem, since overhead rates, which govern a substantial proportion of expenditure, are normally only changed once a year and hence the difference between a September 'quoted' and a September 'paid' price would not always be a full 3 months inflation. However under the old, survey price, system it would in general cause Sketch Estimates figures to be lower than they should be and to require a greater allowance for inflation than the cash limits factor gave.

12. The 'quoted' price problem no longer exists with the introduction of cash planning and the compilation of sketch estimates at forecast average outturn prices. However there is still some confusion over how the new price base should be compiled and further guidance to branches would be helpful. DS1 have recently issued some instructions and these will be followed by a General Finance Memorandum (see paragraph 30). Nevertheless, however much guidance is given, the calculation of a price base will in some cases always be a difficult and imprecise exercise.

13. One final problem concerning the price base is the treatment of firm prices, by which we mean prices which have been agreed and which will not be increased to allow for inflation. If these are included at face value in the Estimates, then obviously no pay and price allowance is necessary. However we have found cases where such double counting takes place. Guidance will have to be given to finance branches to ensure that in future an adjustment to allow for firm prices is made to either the Estimates or the P&P claim.

14. Moving on to the way in which P&P claims are calculated, we have found great divergence in both the standard and methodology of P&P estimation from branch to branch. Several disadvantages arise from this, two of which stand out. Firstly, there is considerable duplication of effort in the gathering of cost information; DPTCAn, TC, individual finance branches and others are often all trying to derive cost data relating to the same contractors. Secondly the overall P&P figure which emerges from the exercise cannot be verified without checking in detail most of the individual components that make it up. This is not feasible since it would mean virtually redoing the whole job.

15. Hence we have found it very difficult to verify or disprove beyond doubt the overall 1981/82 P&P estimate. We have found no major systematic errors common to all branches but we have come across many small errors and areas of extreme uncertainty which, rather than cancelling each other out, tend almost always to increase the amount allocated to P&P. Examples of such errors are:-

a. the inclusion of estimating changes as P&P;

b. the inclusion of design changes as P&P;

c. under the old 'quoted' price system, the inclusion of 12 months inflation with no allowance for lags;

d. the inclusion of the increase in maintenance time as equipment ages as pay and price; and

e. some finance branches which claim they rely entirely on indices produce P&P estimates higher than the rise in the index they use.

16. But there are 2 fundamental deficiencies of the present hybrid system of indices and direct data which are probably more important than any of the above. Firstly, there will inevitably be a greater incentive for those branches experiencing higher than average inflation to investigate 'direct data' sources and use them. Indices are by definition averages and if they are correct overall, some branches will experience higher inflation than the indices suggest and others lower. If the former tend to use 'direct data' and the latter indices then there will be an upward bias in the total P&P estimate. Secondly, because of the difficulties outlined in paragraphs 5 and 6, there will inevitably be both an element of subjective judgement and scope for misinterpretation in the use of direct data.

17. Further subjectivity and inconsistency between branches is caused by the fact that most P&P calculations have to be made on the basis of extrapolated indices or direct data. Each branch makes their own judgements when extrapolating. During the year some revise them and others do not. Branches are probalby as well placed as anybody to forecast inflation in their area, but the result of the present system is that it is difficult to determine centrally whether there has been overprovision or under provision for inflation because of forecasting error.

Possible improvements

18. When considering how the present system could be improved, we have borne in mind that if the first objective of P&P work stated in paragraph 4 (namely the provision of an agreed measure of defence inflation) is to be met, then it will be necessary to devise a methodology which is more susceptible to central validation than the present one. We have considered whether this could be done by issuing improved central guidance on P&P work and in particular on the use of direct data. Our opinion is firstly that the correct identification and interpretation of direct data is too complex a task to be carried out properly in most finance branches without devoting a wasteful level of resources to it; and secondly that even in the few areas where this is not the case, it is extremely difficult to ensure consistency of methodology under a system similar to the present one.

19. We therefore feel that the only way of overcoming the problem is to extend the use of price indices. If P&P estimates were based on centrally calculated indices, then it would be relatively easy for the methodology of constructing the indices to be investigated and agreed with a central source. But the price indices, as well as being agreed with the Treasury, need to be seen as generally satisfactory by MOD finance branches. At present many branches claim that the current Stats(C) indices do not reflect their price rises accurately because they are too general and are not defence specific. However there is a wealth of information available within the department which could be used to make the indices more specific. TC, DEng, DAP Costs, DPTCAn, PDAS and naval technical costs officers all collect cost information from contractors. In addition price lists for spare parts for many Air Systems projects are held on magnetic tape.

20. We therefore recommend that resources should be devoted to using such information to construct new defence-specific indices. We have investigated with TC and AS(PE) what data are available or could be provided. The information collected by these 2 organisations is all on a contractor basis and so we feel that the basic building blocks of the new indices should be contractor indices or, if necessary, further sub-divisions of these into factory site indices. It would then be possible to create indices for projects, finance branches, ledgerheadings or defence equipment as a whole by taking weighted averages of these building blocks. The building block indices could theoretically be calculated for all contractors for which AS(PE) collect information but it would probably be sensible to restrict them to the largest 40 or so.

21. Although AS(PE) and TC collect a considerable amount of data from contractors ø it is not assimilated in a way which makes the calculation of price indices straightforward. Given the difficulties, we feel it would be best to calculate indices which aimed solely to measure the inflation in contractors' costs. The indices would therefore mostly be 'input' indices ie based on input costs rather than output prices. They would be calculated by breaking down a contractor's costs in a base year into items such as direct salaries, indirect salaries, bought out items, fuel, rates, materials etc and then creating an index which reflected the inflation in each of these items weighted by their relative importance to the contractor's total costs.

ø to assist in price fixing

Where appropriate and possible, different weightings of the components of the contractor's costs could be used to produce separate indices for development and production work. For some items, such as salaries, the inflation would be measured using information specific to the contractor. In other cases, such as bought-out items, if no such information were readily available within the Department, the most appropriate external index for the industry concerned would be used (although it may be possible to obtain some contractor-specific information from the Department of Industry). The indices would reflect overhead increases due to inflation in the constituent parts of overheads. But they would not reflect rises or falls in overheads due to changes in capacity utilisation. This point is discussed further in paragraphs 26 to 28.

Resource implications

22. We have had preliminary discussions with AUS(Stats) and with Stats(G), who would seem the logical branch to be charged with establishing the new indices, about the resources that would be required to do so. They feel that to create indices for the top 30 or 40 defence contractors would require approximately a Statistician (Principal level) and an SAS (HEO level) for about 18 months and an EO (ADP) for about 6 months. Once the indices were established only the EO (ADP) would be required on a permanent basis to help the present Stats(G) organisation maintain them. These estimates are obviously extremely tentative and will remain so until work on the indices is well under way.

23. There would of course be some extra work for staff in AS(PE), TC and finance branches in providing data for the indices. However two points need to be made. Firstly, we do not envisage any extra data being collected for the indices; it will merely be a case of assimilating what is at present available in an appropriate way. By doing this it would be possible to produce indices which, although not perfect, would enable considerable improvements in P&P work to be made. If the team constructing the indices felt that further potential improvement warranted the collection of new data, a case would have to be made for the extra resources required. The second point is that the central calculation of indices would save considerable effort in finance branches and elsewhere. At present there seems to be duplication of effort in the collection and analysis of cost information from industry. In the long term the resources saved should easily outweigh the effort required to set up the indices.

24. As well as the short term resource implications, two other possible disadvantages of the proposed index system have been put to us. Firstly would they be accepted by finance branches, especially if they were made the "official" measure of P&P? Although they would be defence specific, it is inevitable that in certain areas they would be too general, and, as with any indices, they would be averages and would not therefore reflect inflation exactly for every individual contract. Secondly, it could be argued that by taking P&P calculations out of finance branches we were weakening the second objective outlined in paragraph 4, namely the control of inflation at project or finance branch level. We would argue that these disadvantages were not serious. Although the indices would not be ideal in every case, it has to be remembered that the system they would replace is far from perfect. If a finance branch really felt its index was inappropriate it should be reasonably easy to identify the reason for this by examination of the data which had been used to construct it. This could in some cases lead to the indices being revised because of information supplied by the finance branch. If, however, the difference reflected unusual circumstances relating to one particular project and not the contractor as a whole, then of course when figures for that project were being considered the finance branch could point it out as a special case.

and explain the circumstances. As for the second point on the control of inflation, accurate assessments of inflation on a contractor basis could lead to better, rather than worse, control. And finally one further advantage of the proposal is that the indices could also be extrapolated centrally; although this would give no guarantee of improved forecasting, it would solve the difficulty of monitoring the effect of forecasting error mentioned in paragraph 17.

25. In summary we argue strongly that the establishment of the indices would be worthwhile. It would provide an agreed measure of defence inflation for expenditure of some £7billion at a relatively low and mostly temporary cost and at the same time would release resources in finance branches from P&P work to more constructive tasks.

Overheads

26. The treatment of overheads is a major cause of the discrepancy between finance branches P&P estimates and evidence provided by indices. At present they are treated inconsistently, with some finance branches ignoring overheads information and others including all overhead rises as P&P.

27. The major reasons for changes in overhead costs are:

a. changes in the price of the components of overheads, eg indirect labour, fuel, rates etc;

b. changes in quantities ordered by MOD;

c. changes in capacity utilisation caused by non-MOD work;

d. maintenance of spare capacity for use on future projects; and

e. changes in companies' costing structures.

28. Of the above, only (a) would be reflected in the proposed indices; (e) would in many cases have no effect on MOD expenditure but may merely reflect a shift from direct costs to overheads or vice versa. The other 3 reasons are the most difficult to estimate and cause the most controversy over whether they should be treated as P&P or not. Ideally we feel they should be identified separately from both volume and P&P It would be possible to obtain a crude measure of the effect of (b) to (e) in aggregate by comparing the movement in the charging rate, which includes all overhead changes, with the movement in the proposed indices, which would only include those due to (a). In cases where this difference was substantial, we feel that further work would be justified to identify precisely where the cause lay; and, indeed, it would seem to be good management to aim to have a system where the effects of (b), (c), (d) and (e) could be identified individually as a matter of course. The question of the scope and extent of further work in this area will be separately addressed as a matter of priority.

Further work

29. This study has only considered Vote 2. Further consideration will have to be given to Votes 1, 4 and 5. Our impression is that the problems of P&P work on those votes will be less intractable than those on Vote 2.

If it were agreed to proceed with the establishment of the new indices, they would not be available for at least 18 months and the first year in which they were likely to be in full use would be 1984/85. We therefore recommend that instructions should be circulated as soon as possible to attempt to improve and standarise the present methodology of constructing the price base for Estimates and calculating P&P. GF4 are drafting a General Finance Memorandum to do this.

DEFENCE: THE DEFENCE BUDGET

PART 9.

Regency

CHIEF SECRETARY TO THE TREASURY

Treasury Chambers, Parliament Street, SW1P 3AG

PA

Dear Michael

I attach a copy of the "Unwin Report" as requested. I have not told Mo[illegible] - no doubt you will let them know if the PM does see it since it is more a report to Mr NSH than to the CST.

Yours sincerely

JSt. Grieve

5/1982

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(Joint note by HM Treasury and Ministry of Defence)

Introduction

1. At the end of the 1981 Public Expenditure Survey, it was agreed that a joint study by the Treasury and the Ministry of Defence should examine the methodology of calculating movements in defence prices.

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a. the inclusion of estimating changes as P&P;

b. the inclusion of design changes as P&P;

c. under the old 'quoted' price system, the inclusion of 12 months inflation with no allowance for lags;

d. the inclusion of the increase in maintenance time as equipment ages as pay and price; and

e. some finance branches which claim they rely entirely on indices produce P&P estimates higher than the rise in the index they use.

16. But there are 2 fundamental deficiencies of the present hybrid system of indices and direct data which are probably more important than any of the above. Firstly, there will inevitably be a greater incentive for those branches experiencing higher than average inflation to investigate 'direct data' sources and use them. Indices are by definition averages and if they are correct overall, some branches will experience higher inflation than the indices suggest and others lower. If the former tend to use 'direct data' and the latter indices then there will be an upward bias in the total P&P estimate. Secondly, because of the difficulties outlined in paragraphs 5 and 6, there will inevitably be both an element of subjective judgement and scope for misinterpretation in the use of direct data.

17. Further subjectivity and inconsistency between branches is caused by the fact that most P&P calculations have to be made on the basis of extrapolated indices or direct data. Each branch makes their own judgements when extrapolating. During the year some revise them and others do not. Branches are probalby as well placed as anybody to forecast inflation in their area, but the result of the present system is that it is difficult to determine centrally whether there has been overprovision or under provision for inflation because of forecasting error.

Possible improvements

18. When considering how the present system could be improved, we have borne in mind that if the first objective of P&P work stated in paragraph 4 (namely the provision of an agreed measure of defence inflation) is to be met, then it will be necessary to devise a methodology which is more susceptible to central validation than the present one. We have considered whether this could be done by issuing improved central guidance on P&P work and in particular on the use of direct data. Our opinion is firstly that the correct identification and interpretation of direct data is too complex a task to be carried out properly in most finance branches without devoting a wasteful level of resources to it; and secondly that even in the few areas where this is not the case, it is extremely difficult to ensure consistency of methodology under a system similar to the present one.

19. We therefore feel that the only way of overcoming the problem is to extend the use of price indices. If P&P estimates were based on centrally calculated indices, then it would be relatively easy for the methodology of constructing the indices to be investigated and agreed with a central source. But the price indices, as well as being agreed with the Treasury, need to be seen as generally satisfactory by MOD finance branches. At present many branches claim that the current Stats(G) indices do not reflect their price rises accurately because they are too general and are not defence specific. However there is a wealth of information available within the department which could be used to make the indices more specific. TC, DFng, DAP Costs, DPTCAn, PDAS and naval technical costs officers all collect cost information from contractors. In addition price lists for spare parts for many Air Systems projects are held on magnetic tape.

20. We therefore recommend that resources should be devoted to using such information to construct new defence-specific indices. We have investigated with TC and AS(PE) what data are available or could be provided. The information collected by these 2 organisations is all on a contractor basis and so we feel that the basic building blocks of the new indices should be contractor indices or, if necessary, further sub-divisions of these into factory site indices. It would then be possible to create indices for projects, finance branches, ledgerheadings or defence equipment as a whole by taking weighted averages of these building blocks. The building block indices could theoretically be calculated for all contractors for which AS(PE) collect information but it would probably be sensible to restrict them to the largest 40 or so.

21. Although AS(PE) and TC collect a considerable amount of data from contractors ø it is not assimilated in a way which makes the calculation of price indices straightforward. Given the difficulties, we feel it would be best to calculate indices which aimed solely to measure the inflation in contractors' costs. The indices would therefore mostly be 'input' indices ie based on input costs rather than output prices. They would be calculated by breaking down a contractor's costs in a base year into items such as direct salaries, indirect salaries, bought out items, fuel, rates, materials etc and then creating an index which reflected the inflation in each of these items weighted by their relative importance to the contractor's total costs.

ø to assist in price fixing

Where appropriate and possible, different weightings of the components of the contracto costs could be used to produce separate indices for development and production work. For some items, such as salaries, the inflation would be measured using information specific to the contractor. In other cases, such as bought-out items, if no such information were readily available within the Department, the most appropriate external index for the industry concerned would be used (although it may be possible to obtain some contractor-specific information from the Department of Industry). The indices would reflect overhead increases due to inflation in the constituent parts of overheads. But they would not reflect rises or falls in overheads due to changes in capacity utilisation. This point is discussed further in paragraphs 26 to 28.

Resource implications

22. We have had preliminary discussions with AUS(Stats) and with Stats(G), who would seem the logical branch to be charged with establishing the new indices, about the resources that would be required to do so. They feel that to create indices for the top 30 or 40 defence contractors would require approximately a Statistician (Principal level) and an SAS (HEO level) for about 18 months and an EO (ADP) for about 6 months. Once the indices were established only the EO (ADP) would be required on a permanent basis to help the present Stats(G) organisation maintain them. These estimates are obviously extremely tentative and will remain so until work on the indices is well under way.

23. There would of course be some extra work for staff in AS(PE), TC and finance branches in providing data for the indices. However two points need to be made. Firstly, we do not envisage any extra data being collected for the indices; it will merely be a case of assimilating what is at present available in an appropriate way. By doing this it would be possible to produce indices which, although not perfect, would enable considerable improvements in P&P work to be made. If the team constructing the indices felt that further potential improvement warranted the collection of new data, a case would have to be made for the extra resources required. The second point is that the central calculation of indices would save considerable effort in finance branches and elsewhere. At present there seems to be duplication of effort in the collection and analysis of cost information from industry. In the long term the resources saved should easily outweigh the effort required to set up the indices.

24. As well as the short term resource implications, two other possible disadvantages of the proposed index system have been put to us. Firstly would they be accepted by finance branches, especially if they were made the "official" measure of P&P? Although they would be defence specific, it is inevitable that in certain areas they would be too general, and, as with any indices, they would be averages and would not therefore reflect inflation exactly for every individual contract. Secondly, it could be argued that by taking P&P calculations out of finance branches we were weakening the second objective outlined in paragraph 4, namely the control of inflation at project or finance branch level. We would argue that these disadvantages were not serious. Although the indices would not be ideal in every case, it has to be remembered that the system they would replace is far from perfect. If a finance branch really felt its index was inappropriate it should be reasonably easy to identify the reason for this by examination of the data which had been used to construct it. This could in some cases lead to the indices being revised because of information supplied by the finance branch. If, however, the difference reflected unusual circumstances relating to one particular project and not the contractor as a whole, then of course when figures for that project were being considered the finance branch could point it out as a special case

and explain the circumstances. As for the second point on the control of inflation, accurate assessments of inflation on a contractor basis could lead to better, rather than worse, control. And finally one further advantage of the proposal is that the indices could also be extrapolated centrally; although this would give no guarantee of improved forecasting, it would solve the difficulty of monitoring the effect of forecasting error mentioned in paragraph 17.

25. In summary we argue strongly that the establishment of the indices would be worthwhile. It would provide an agreed measure of defence inflation for expenditure of some £7billion at a relatively low and mostly temporary cost and at the same time would release resources in finance branches from P&P work to more constructive tasks.

Overheads

26. The treatment of overheads is a major cause of the discrepancy between finance branches P&P estimates and evidence provided by indices. At present they are treated inconsistently, with some finance branches ignoring overheads information and others including all overhead rises as P&P.

27. The major reasons for changes in overhead costs are:

a. changes in the price of the components of overheads, eg indirect labour, fuel, rates etc;

b. changes in quantities ordered by MOD;

c. changes in capacity utilisation caused by non-MOD work;

d. maintenance of spare capacity for use on future projects; and

e. changes in companies' costing structures.

28. Of the above, only (a) would be reflected in the proposed indices; (e) would in many cases have no effect on MOD expenditure but may merely reflect a shift from direct costs to overheads or vice versa. The other 3 reasons are the most difficult to estimate and cause the most controversy over whether they should be treated as P&P or not. Ideally we feel they should be identified separately from both volume and P&P It would be possible to obtain a crude measure of the effect of (b) to (e) in aggregate by comparing the movement in the charging rate, which includes all overhead changes, with the movement in the proposed indices, which would only include those due to (a). In cases where this difference was substantial, we feel that further work would be justified to identify precisely where the cause lay; and, indeed, it would seem to be good management to aim to have a system where the effects of (b), (c), (d) and (e) could be identified individually as a matter of course. The question of the scope and extent of further work in this area will be separately addressed as a matter of priority.

Further work

29. This study has only considered Vote 2. Further consideration will have to be given to Votes 1, 4 and 5. Our impression is that the problems of P&P work on those votes will be less intractable than those on Vote 2.

30. If it were agreed to proceed with the establishment of the new indices, they would not be available for at least 18 months and the first year in which they were likely to be in full use would be 1984/85. We therefore recommend that instructions should be circulated as soon as possible to attempt to improve and standarise the present methodology of constructing the price base for Estimates and calculating P&P. GF4 are drafting a General Finance Memorandum to do this.