DISCUSSION BY C. K. KHURY

Mr. Ferguson's paper is certainly timely as inflation and its effects have assumed a new prominence in our midst.

It has long been recognized, in literature as well as in practice, that proper accounting for inflationary trends is a necessity in maintaining the actuarial balance of the primary insurer's rate levels. This has also been recognized by the excess writer. Fixed retentions, however, have magnified the effects of inflation on the excess writer. This paper graphically demonstrates the magnification process.

It is of particular note that the problem of the excess writer as respecting fixed retentions is parallel to the primary insurer's problem with deductibles. Both situations translate a given inflation rate into a compound inflation rate on the respective aggregate pure premiums. Even though this problem has existed as long as inflation has, it is now of critical concern in view of the current magnitude of inflation rates. The proposed solution in terms of an indexed retention further suggests that the excess writer has heretofore lived with fixed retentions only through ever increasing [excess] insurance rates. Apparently, the rapidly increasing rates of underlying inflation will produce increases in excess rates of such magnitude that some new alternatives have to be sought. Mr. Ferguson has communicated and demonstrated the stabilizing effect which an indexed retention can produce. This reviewer endorses the concept and the manner in which it is applied. The remainder of this discussion addresses one critical technical aspect of the application of the indexed retention principle.

It would be helpful at first to delineate the ways in which the excess writer is exposed to the ravages of inflation vis-a-vis the primary writer:

- Let X denote a size of loss variable
- Let R denote a fixed retention
- Let i denote a rate of inflation
- Let the losses incurred during a given year of experience be distributed as follows:

Loss Interval	Loss Interval Number
$0 < X \leq R/(1+i)$	I
$R/(1+i) < X \leq R$	II
$R < X$	III

Then the passage of one year's time will generate the following effects on each loss of the various intervals:

Current	**Increase in Each Incurred Loss of**	
Interval	**Primary Insurer**	**Excess Writer**
I	$i(X)$	0
II	$(R - X)$	$(1+i)X - R$
III	0	$i(X)$

By way of added emphasis it should be noted that, under a fixed retention arrangement, losses currently falling in interval II will produce increased frequency for the excess writer, while losses currently falling in interval III will produce greater severity for the excess writer.

The reason for going to these lengths in delineating the nature of the problem is to demonstrate the need to base an indexed retention proposal on the underlying size-of-loss distribution. This would assure an equitable treatment for the primary insurer as well as the excess writer. This is especially true when the [originally] fixed retention is near a cluster point of the underlying size-of-loss distribution. While the percentage impact on losses in excess of R is directly measurable, the frequency impact on the excess writer (and therefore on the primary insurer's excess rate) is ascertainable only in terms of the underlying size-of-loss distribution. This works both ways, and I feel that the point should be carefully noted in understanding the application of indexed retentions. Mr. Ferguson's paper recognized the frequency impact by introducing Δ in Appendix II.

I hope that this paper will spark a parallel treatment in these Proceedings of the corresponding deductible problem. In these days of rampant inflation I am not sure that the day of the indexed deductible if very far away. In the meantime we should be grateful to Mr. Ferguson for a valuable addition to the reinsurance section of the Proceedings.