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Social Accounting and the study of Economic Structure

This working paper is an introductory statement of work about to be set in progress. This work will consist of a study of social accounting data in East Africa with two ends in mind. On the one hand it will form part of a large program of study and research, emanating from the Economic Growth Center at Yale University, which has as its purpose the collection and analysis of data from eighteen under-developed countries, initially in the form of a series of country study monographs, subsequently through cross-section analysis of the resulting set of comparable and evaluated data. The bias of these studies will be in the direction of the analysis of the historical patterns of growth, with a view to seeking some explanation of that history and understanding of the current structure; the bias of this project is therefore neither planning nor projection.

On the other hand, this piece of research will form a part of the Economic Development Research Project at the East African Institute of Social Research. As such, it will be interested in roughly the same sort of question - an analysis of economic structure - but it will take up those aspects particularly concerned with the needs of economic planning and will include some attempt at economic projection of a kind exceeding the terms of reference of the Yale project.

Because of the nature of these projects, with their concern with the collection and analysis of the existing aggregative data, this project can also perform a third possible function - it could provide something of a service to the rest of the East African Development Economics project, in providing and evaluating the social accounting material.

The purpose of attempting a working paper this early in the process is two-fold. An inventory of the existing published data, with a brief survey of methods and some critical comment will provide the initial perspective on the magnitude of the task to be performed. It will also give other members of the East African research project an opportunity to offer suggestions and advice on the planning of this research and suggest additional sources and methods whereby the many gaps might be filled.

The tentative nature of the paper will be readily apparent, but it is felt that no apology for this is necessary as the virtues of opening a discussion on these problems at the earliest possible stage must surely outweigh the embarrassment of any resulting gaucherie.

The paper is organized into:

- I. A description of the current East African national accounts;
 - II. An outline of some issues raised in recent discussions of African social accounting, particularly with reference to the subsistence sector;
 - III. A preliminary agenda for research into the quantitative aspects of the structure and growth of the East African economy.
- I. The East African national accounts.
 1. National accounting in Africa developed in the post-war period, either as the result of the efforts of visiting academics (Phyllis Deane in Rhodesias and Nyasaland, Prest and Stewart in Nigeria, Peacock and Dosser in Tanganyika), or as the product of government statistical offices (as was the case in Kenya and Uganda). The initial ambition was to measure aggregates which would be more or less comparable to those in use in the developed countries.
 2. It did not prove possible to tackle the problem using the full range of triple entry technique developed in the European and American context. The source of data was typically a melange of product, expenditure and income estimation, bolstered by a substantial amount of imputation and sheer guesswork.

3. So as to provide per capita welfare estimates, the accounts were usually made as comprehensive as possible. Comprehensiveness was also viewed as desirable for purposes of inter-temporal comparison. Therefore there were attempts to extend the boundaries of production for accounting purpose beyond those activities in fact involving cash transactions. There were also examples of attempts to include cash transactions which would not have entered the accounts in the developed countries for example, Prest & Stewart used bride price as a basis for estimating the economic services provided by wives in Nigeria, Phyllis Deane suggested that in Northern Rhodesia the value of prostitutes services should be included, whilst Okigbo in his recent estimates of Nigerian national product, excludes the services of wives on principle but only excludes those of prostitutes because of the statistical difficulties involved. Such notions represent a movement away from the ethnocentric towards the absurd.

4. The pattern of statistical development in East Africa was similar to that throughout British colonial Africa. Before the second world war there was an extensive compilation of foreign trade data, government financial data fragmentary crop data. In the case of Kenya there have been at least two subsequent attempts to utilize this data for estimates of inter-war national product. Robert West made such estimates in a Yale Ph.D. thesis (the results have been published in part in the East African Economic Review where he sets out his estimates of the inter-war Balance of Payments); C.J. Martin, ex-Director of the East African Statistical Department, informed me that he had also made such estimates, although it is likely that those are no longer in existence. Reference is made to these attempts so as to indicate the possibility of using available data to obtain rough indices of aggregate economic activity, particularly for the cash economy, for quite long periods of time.

5. The first estimates of income and product for Kenya were made by the East African Statistical Department for the year 1947, Uganda for 1950 and Tanganyika for 1954. Peacock and Dosser provided estimates for Tanganyika for 1952-1954. However, the current estimates are computed on a basis utilized only for the period since 1954 in each territory. The estimates for the years previous to 1954 for Uganda and Kenya are not comparable with those of the later years. The methods used in computing the post - 1954 series have been made available in three pamphlets, one for each territory, which set out in some detail the methods used in set of estimates. The methodology described in these pamphlets is still substantially that used for current estimates. This set of data is the basic material which can be used for the study of the development of economic structure; the pre-1954 estimates might also be utilizeble. However, they are not discussed in this paper. Because of the importance of this basic material, the paragraphs below set out to describe in some detail the main characteristics of the estimates.

6. Techniques used in Tanganyika have been influenced by the original work done by Peacock and Dosser and therefore vary in some important particulars from those used in other parts of East Africa. As in the other two territories the estimates are of domestic rather than national product and are estimates built up on the product side at factor cost. There is a more detailed industrial classification than in the Uganda accounts but similar to the Kenyan. An unusually wide coverage of subsistence production is attempted; in particular subsistence construction activity and craft industry are both included. Estimates of reliability by C.J. Martin suggest that the estimates of manufacturing output are on a far weaker basis than in Kenya and that estimates of distribution and rent are extremely rough.

7. Kenya provides gross product estimates based on an industrial classification similar to that in the Tanganyikan accounts. In the Kenyan case the estimates and the non-African agriculture are built on a foundation of somewhat more reliable census data than that which exists elsewhere in East Africa. The subsistence sector estimates are restricted to primary output of agricultural produce and do not include subsistence construction or craft industries. In this case the weakest links are distribution, rents and the subsistence sector.

8. In the Uganda case the estimates of the manufacturing sector have to be constructed without the aid of the results of a census of industry, and therefore must rely on tax returns for estimates of the non-wage component of value added. In this case a larger part of the total of economic activity is represented by the cash crop industries serviced by marketing boards from which the basic and most reliable data used in the estimates are derived. Subsistence is estimated on a basis similar to that of the Kenyan estimates.

Detailed comparison.

A. Industrial activity

9. In Tanganyika manufacturing is estimated by multiplying the wage bill, obtained from the annual employment survey, by a factor derived from the results of the 1954 Industrial Production Survey of Dar-es-Salaam as checked against the results of an industrial survey in 1956. The results do not cover establishments of less than five employees. Mining is estimated using the output data from the annual report of the department of mines. Construction was valued from public accounts and questionnaires to the construction industry, with deductions of purchases estimated from import data. Own account construction outside the public sector is not included. Road transport is estimated by multiplying the number of vehicles by an assumed mileage and average cost per mile.

10. In Kenya Manufacturing, Mining and road transport are estimated by applying a fixed ratio derived from the censuses of industry (1954, 1956 and 1957) to an estimated wage bill derived from the annual survey of employment. Building and construction are estimated using government contracts, returns on buildings completed in the six main townships and information on non-African farm building derived from annual agricultural censuses. Own account building on non-African farms, by the government or elsewhere is not included under building and construction with the exception of the construction activity of the Ministry of Works and the African Land Development Organization. The value added estimates are made by taking 10% of gross turnover in construction and adding it to the wage bill estimate.

11. In Uganda non-African enterprises and public services are estimated by adding the wage bill estimates to the surplus component of value added which is estimated from the size of taxed profits. The industrial classification of the employment data (derived from the annual survey) and the profits tax data are different, resulting in crude re-allocation of the profits data. In addition a rough estimate is made of the contribution of self-employed non-Africans. African transport is estimated from information in the Hawkins report.

12. Transport and communication services supplied by the EACSO organizations are allocated between the three territories on the basis of the wage bill derived from the annual employment surveys within each territory and a three-way division of the surplus into equal parts.

B. Distribution, commerce and rents.

13. In Tanganyika, wholesale and retail trade is estimated by multiplying the number of licences in each category (e.g. wholesalers, retailers) by an assumed income for that category. Assumed incomes are adjusted to allow for changes in the cost of living and oscillations in the level of trade. Rents are estimated with the use of a combination of population data, house density estimates and rent data for Dar es Salaam, major and minor townships.

14. Kenyan estimates of the value added contribution of wholesale & retail trade are arrived at by applying to estimates of gross turnover derived from foreign and domestic output data, margins and proportion of final value attributed to gross surplus; to this is added the adjusted wage bill derived from the annual employment survey. The trading margins used are estimated on the basis of data derived from the 1952 South African Census of Distribution.

A Kenyan Survey of Distribution was carried out in 1960 but the results are not yet used in product estimates. This method provides significantly higher estimates than those to be derived with the use of income tax data. Rents are imputed at 10% of the original cost; of this 2% is assumed to go in maintenance and repair, leaving a net rent contribution of 7% of the original cost of the property. For non-residential property an 8% rent is imputed, for government buildings 5%.

15. In Uganda, the output of African shopkeepers, other than food retailers, is estimated from the number of trading licenses (which are multiplied by an assumed income; for food retailing an estimate of total surplus is made by applying an assumed margin to estimated food sales. Non-African distribution is estimated along with all other non-African enterprises in the manner set out in paragraph 11 above. Rent is imputed on government property at 7% of historical costs. Private rents were either taken from tax returns or imputed on the basis of the current taxable value of the property.

C. Agriculture. (non-subsistence)

16. The only detailed censuses of agricultural activity in E. Africa involved the European farming community of Kenya. Apart from that sector, the available reliable data consists of the sales figures of the major cash crops, particularly because of the role of the marketing boards. Only in the case of non-African agriculture is allowance made for the cost of inputs purchased - in the Kenyan case on the basis of assumptions regarding agricultural cost structures; in the Tanganyikan case from direct estimates of purchases. Estimates of food crops sold and livestock slaughtered are extremely crude. Basic livestock estimates are made by applying an assumed off-take ratio to the estimated herdsize, or from estimates of hides and skins sold. Thus the agricultural value added estimates in East Africa can only be looked upon as being at all reliable in the case of the major cash crops. Also, no attempt is made to estimate African capital accumulation in agricultural production, except for a crude estimate offered as an addendum to the Ugandan accounts.

D. Government

17. As the basic accounts are of value added product at factor cost, the government contribution is measured by the size of the government wage bill. As income outlay tables are not included, the basic national accounts do not contain very complete information on the size and composition of government expenditures more complete data are available, of course, from the annual appropriation accounts of the government.

E. Capital formation

18. Estimates of gross capital formation are available for all three territories. As with other items, procedures differ from territory to territory.

19. Construction estimates are based on the building and construction output data used to arrive at the value added estimates outlined in paragraphs 9 - 11. Some effort is made to allow for own account construction in the Kenyan case. (Public and parastatal organization investment is taken from the organizations' accounts.) In the Ugandan accounts, own account construction in private industry is not included.

20. African investment in agricultural activity is not measured (except for the Tanganyika estimates of subsistence house construction). In the Ugandan accounts a guess regarding the magnitude of this activity is offered as an addendum.

21. Machinery and equipment is estimated from import data with allowances for mark-ups and installation charges. In Tanganyika all automobiles are included within the definition of capital formation, in Uganda only vehicles purchased for commercial purposes while in Kenya automobiles are included but are also recorded as a separate sub-total.

22. Inventory changes are not measured and no estimates of inventory stocks are published.

F. Subsistence.

23. The definition and method of estimation of subsistence output varies as between the three territories. In Kenya, crops are estimated on basis of an acreage and yield estimate for one year, to which an assumed rate of change is applied each year, which may be varied according to conditions. Apparently the output is priced at local market prices. Livestock are measured by using an assumed off-take in combination with an estimated herd size. No measurement of subsistence construction, services or craft industry is attempted.

24. In Uganda, staple crop figures are arrived at by multiplying a population estimate by estimates of per capita commodity quantities and prices. Livestock production is estimated from the sale of hides. Beer production and firewood collection by Africans is included in both subsistence and cash output, beer being valued at town market prices and subsistence wood at an imputed estimated labor cost. House construction is not included. The Ugandan subsistence figures therefore cover a conceptually wider area than those of Kenya but are not as broad in scope as the Tanganyikan.

25. Tanganyikan estimates of subsistence activity include sizeable sums for craft industry and own account subsistence construction which would not be included in the accounts of the other two territories. Valuation of estimated staple outputs is at nearest market prices. The reason for the more inclusive production boundary in the Tanganyikan case is the influence of the early estimates for that territory by Peacock and Dosser; subsequent estimates are extrapolations of their results.

G. Foreign sector.

26. The Balance of payments figures, which have been estimated for the years since 1955, are not too informative, particularly during the past two years, because of the difficulty of tracing movement of funds between East Africa and the rest of the Sterling area. As a result in 1962 the largest single item in the accounts was the errors and omissions item. The territorial significance of the Balance of Trade data (i.e. flows of visible imports and exports) is not straightforward of problems of valuation; for example, most of Ugandan imports are valued at Mombasa. The data on inter-territorial trade of domestically produced goods are also incomplete, because of the difficulty of recording trade conducted via road or on the hoof.

H. Income and expenditure estimates.

27. As was pointed out above, it has not proved feasible to develop the East African National Accounts on a fully articulated entry system. However, each territory attempts some division of income by factor shares, derived as a side product of the methods of estimating value added. The major weakness of such figures is the estimate of surplus, which in every case is arrived at by imprecise methods and at times quite crude estimation. The use of these data in discussions of year to year fluctuations of factor shares or in international comparisons would be quite suspect. On the expenditure side, gross capital formation estimates are provided, categorized both by type and as between private and public sector. Government expenditure data are available.

Independent estimates of consumption expenditure are not available. Any estimates derived as residual from the other data would be subject to considerable error.

I. Estimates of real output.

28. Estimates of real domestic output are not available for any of the territories. There is some likelihood that official estimates will be available for Uganda in the near future. Indices of foreign trade and cost of living indices for Nairobi and Dar es Salaam are available.

General comment.

29. So far this account has been largely a brief precis of the existing data. Having stated the facts some comment is in order. The picture which emerges from the detailed descriptions is of an understaffed statistical service attempting to conjure up comprehensive tables from quite fragmentary data. The verdict must be that although they have done surprisingly well they have, of necessity, been forced to use techniques which render the results quite suspect for some purposes. Thus, for example, the use of an assumed wage share in estimating value added, based on benchmark results, will mean that observed annual fluctuations in the aggregate share will be dependent on the changing industrial composition of output and not the changing size of the wage share within individual industries. The use of import data to estimate capital formation produces an observed statistical relationship between imports and investment resulting from the statistical assumptions, which could not be used as a test of hypotheses regarding the economic relationship between these two variables. Also, at certain points in the estimations, population data are used to derive aggregate from per capita estimates. The unwary might subsequently use the resulting aggregate data with later, and higher, population estimates to derive unjustifiably low per capita estimates. For such reasons it would be as well to avoid using any of these data, particularly the aggregate totals, without a detailed knowledge of the basis on which the data were originally compiled.

Another way of stating the same conclusion, is to clearly distinguish that part of the underlying data which can be considered "hard", the more solid part of the foundations on which the flimsy structure is built. Such an inventory of "hard" sources would include the annual employment surveys, the surveys of manufacturing in Kenya (and to a lesser extent Tanganyika), the sales data for the major cash crops, the government accounts and, for East Africa as a whole if not for the individual territories, the data on visible imports and exports. The aggregates built around this basis information are difficult to evaluate because of the manifold assumptions made in the many steps between the initial "hard" figure and the end-product totals.

II. The current state of African national accounting.

30. In this section note will be taken of recent discussions at the international level. This will provide a broader perspective against which to consider the East African accounts. It will provide information regarding a technical literature which is likely to have considerable influence on the development of accounts in East Africa. Also, it will provide the opportunity for considering the possibilities of comparative analysis with the use of data from a number of the African countries.

31. The literature on this subject is surprisingly extensive, consisting of the early case studies (Phyllis Deane, H.S. Frankel, Prest & Stewart, etc.), comments and working party notes from the various statistical offices, occasional comments and papers in the publications of the International Association for

Research in Income and Wealth and, in the last couple of years, the results of systematic attempts to consider the problems of African social accounting in co-operative ventures at the international level. In particular, the latter are represented by the International Association for Research in Income and Wealth's conference and subsequent publication of the proceedings (African Studies in Income and Wealth,) ed. L.H. Samuel) and by the work of the Economic Commission for Africa's Working Group on the Adaption of the U.N. System of National Accounts for use in Africa.

32. The report of the working committee on national accounts of the E.C.A. is particularly important, both because it resulted from the co-operation of a number of working statisticians and is likely to be very influential on the evolution of the techniques of official statisticians throughout Africa. This will be particularly so because of the need of inexperienced statisticians to lean on outside help.

33. A general impression which can be gained from the literature is that for all their faults the East African accounts are as well developed as anywhere in tropical Africa, except perhaps the Rhodesias and Egypt. The Rhodesian estimates have benefited from the existence of an able and experienced statistical department, plus considerable academic interest. The Egyptian data have been benefiting from considerable work by Bent Hansen during the last two years the results of which are just becoming available. Also there has been major re-calculation of the Nigerian national accounts extending back to 1950 (the work of P. Okigbo). South African accounts and censuses are available on a more reliable footing than the rest of Africa, but this is largely the result of the developed state of the South African economy, and does not indicate any particular success in dealing with those problems special to social accounting in Tropical Africa.

34. The evidence of African Studies in Income and Wealth suggest that there are a number of distinguishing features separating the problems of "African social accounting" from the variety in the U.S. and Europe. These are

- I. the extreme scarcity of statistical personnel, which imposes a necessity of choice and ruthless priority not necessary in countries with the luxury of large statistical offices;
- II. subsistence economic activity plays a much more important role in the lives of the populations in relative terms than is true in the more developed countries;
- III. in that part of economic activity involving cash transactions, foreign trade and international capital movements play a much more important role than in the developed economies (this is both an advantage as in means that an important part of cash activities are readily susceptible to measurement, and a disadvantage, because of the corresponding importance of the balance of payments, which is extremely difficult to measure);
- IV. the general lack of good ancillary data (e.g. population series of any reliability);
- V. the high rate of structural change which is planned, which will result in great difficulty of inter-temporal comparison even in the face of more complete data;
- VI. finally, the likelihood of considerable aggregative economic planning in the future which, of necessity, will have to be based upon assumptions about structure and trends of the categories about which so little is currently known.

The first five points render social accounting difficult, the final point makes it extremely necessary.

35. Much of the discussion concerning African social accounting arises out the conflict between the desire for comprehensiveness and the need for reliability in the estimates. Two issues where these objectives conflict are in the treatment of subsistence activity and in the choice between attempting fully comprehensive aggregate accounts or being satisfied with sectoral accounts for the more strategic activities. A third criterion which is sometimes neglected in the discussion is the utility of the accounts as a tool for policy-makers and others.

Accounting for subsistence economic activity.

36. In the development of national accounting techniques in the context of the developed economies many of the decisions made about method have been made on a pragmatic basis rather than through the exercise of abstract principle. Much of the ease with which a consensus emerged was probably the results of the similarity of economic environments in which the principles were developed (although even in those circumstances competing systems emerged and issues were left unresolved). Moreover, the techniques were applied to economies with enough continuity of structure to make inter-temporal comparison on the basis of social accounts a sensible activity.

37. By and large, social accounting became an accounting system for cash transactions, although in some areas (e.g. rents) values were imputed. The section of the economy in which a large proportion of production was used directly in the sustenance of the actual producers was small enough for its treatment to be a marginal consideration. Of course, those occupied in full-time paid employment in such economies may engage in leisure time production for own consumption to such a degree that the absolute value of their out-put might be very considerable - greater in absolute per capita terms than subsistence output in those economies where such activity is the exclusive concern of a sizeable proportion of the population. In the developed economy there is some likelihood that such activities are proportionately only a small part of the total productive activity and a stable proportion at that. Neither of these two assumptions can be made about the importance of subsistence activity as a source of economic welfare in Tropical Africa. What is a marginal issue in the case of the developed countries becomes a potential source of serious difficulty in Africa.

In the face of this difficulty practise has varied. As has been pointed out above, different techniques of subsistence accounting are used in the three East African territories even although the accounts emerged under the auspices of the same statistical department. This is an area where no satisfactory consensus seems to be emerging.

38. The United Nations experts, in their system of National Accounts (1953) advised that:

"In the case of primary producers, that is those engaged in agriculture, hunting, fishing, mining and quarrying, all primary production whether exchanged or not and all other goods and services produced and exchanged are included in the total of production.... As a result of these rules there is omitted from production the net amount of all non-primary production performed by producers outside their own trades and consumed by themselves. Non-primary production may be defined broadly as the transformation and distribution of tangible commodities as well as the rendering of services."

This was a pragmatic set of criteria apparently designed for economies experiencing a high degree of division of labour in which the distinction between the activities conducted in the pursuit of a producer's trade other activities had a clear commonsense boundary. These criteria were adopted in the production of the Ugandan and Kenyan national accounts.

39. A number of economists have felt that such criteria are insufficient in dealing with economies with a low degree of division of labor, where the cash economy has only achieved very limited penetration into the lives of the populace. This is particularly the case when one of the purposes of the accounts is supposed to be the international or the inter-temporal comparison of welfare. This is the motivation of the decision made by Peacock and Dosser to include craft industries and subsistence construction in their estimation of Tanganyikan national product. G.H. Billington (for a number of years responsible to the Rhodesian accounts) opts for very inclusive estimation in the belief that it is necessary for planning purposes, suggesting that building construction, land works, processing, storage, transportation and distribution of won primary products in the subsistence sector should all be measured, so as to minimize the risk of under-counting. He accepts the neglect of processing of goods purchased and other household services. On the other hand, Okigbo, re-casting the Nigerian national accounts, feels that there has been an overconcern with welfare measures which has resulted in dubious techniques of estimation; he therefore opts for a very narrow definition of subsistence output.

40. Just as the removal of the cash criterion imposes the necessity of introducing other arbitrary definitions of the boundary of measured production, so also does it remove the straightforward basis of valuation. The choice is between valuation at some market price (the more inclusive measure) and valuation at exfarm prices. The difficulty also arises, if a broad definition of subsistence output is used, that there might be some items (e.g. rural huts) for which there are no comparable cash prices.

41. Faced with these differences, the E.C.A. working group advises that the boundary of production should include, in addition to all goods and services sold:

- "i) All other agricultural, forestry and fishing products;
- ii) Own account building, construction and land works by household;
- iii) Processing, storage, transportation and distribution of own primary output by rural households (as defined elsewhere in the same document)"

For the working group, the main interest of such estimates was to provide a record of resources which could be mobilized for development purposes.

42. In the discussions under review only one commentator, Miss Peter Ady, comes out against the measurement of the subsistence sector at all. She offers two arguments. On the one hand, the subsistence sector is self-balancing and can be expected to have minimal effects on the rest of the economy. On the other, she claims that even in African countries subsistence income is but a small percentage of total national income. However, the second claim is dependent on the validity of the very accounts the utility and meaning of which she is doubting.

43. These discussions suggest that the economic statisticians concerned with these questions are moving away from the attempt to measure levels of welfare; they state that they desire to produce figures which will be of utility in the planning process. However, there seems to be little clear idea of how the existing or suggested estimates could, in practice, be utilized by a planner.

44. If the issues of principle have been a source of conflict, the practical difficulties of estimation have been an even greater barrier to the achievement of meaningful estimates of subsistence product. The efforts so far have involved the manipulation of numerous estimates, each individually subject to errors the magnitude and direction of which can only be guessed.

There is no evidence that any of the component parts are adequate - neither the population estimates, nor the acreage, nor the productivity estimates used. Guess is multiplied by guess. If in principle subsistence estimates are desirable there is no evidence that there are yet means of achieving meaningful estimates in practice.

45. To conclude the discussion of this subject, it will be useful to consider a little more explicitly why these figures are needed and whether there are practical means whereby such needs can be met.

46. The easy answer to those who seek to conduct international or inter-temporal comparisons of welfare is to point out the dubious foundations on which any such project must rest, even in principle. Some years ago H.S. Frankel ably marshalled the case on the side of the sceptics. Nevertheless, it may well be that the statistician is not a free agent in this matter, in that willy-nilly his figures will be used for such purposes and that therefore he should make some effort to ensure that such comparisons are not subject to excessively gross distortion.

47. Insofar as the exercise of measurement is undertaken for the purposes of welfare comparison, the relevant measure would be an estimate of the money income that would be necessary to achieve comparable standards in a monetized economy, as in fact are achieved in the subsistence situation. For this purpose the cost of the subsistence output, either in terms of expenditure of effort or in opportunity cost terms, is irrelevant. If, for example food and shelter is a free good in a particular community they are not to be valued at zero for welfare comparisons. What is required is a measure of consumption standards, not inputs of factor services nor even a measure of the market value of the goods consumed if they were marketed in the existing conditions. Thus it might well be that a rural hut which provides an essentially similar service as the city dwelling of an African worker could command not even a nominal rent in the countryside. Now it could be argued that the market price criterion of value should result in both being valued at rents which could be obtained if the facilities were offered for rental; in the East African case a simple town dwelling would be valued at twenty pounds or so per annum, while the rural dwelling would be valued at a near zero value. This is the logic of the procedure most often adopted. However, to achieve full consistency with other social accounting practices another step should be included - the value figures should be adjusted for differences of price level; if commodities are valued at the low market price operating in the countryside, then for comparison the resulting series should be expanded by price indices allowing for the differentials in the level of prices between the rural and urban sectors.

48. It can be safely asserted that existing estimates of subsistence output in East Africa do not provide a basis for sensible welfare comparison. The implication of the accounts as they are currently produced is that for a large proportion of the population income levels are almost identical with the consumption of food, and even that is valued at very low prices. This may be a true estimate of the standard of welfare in some cases, but as a general picture it is certainly incorrect, undervaluing the welfare derived from self-constructed homes and numerous craft activities. This conclusion is derived without consideration the implications of the failure of social accounts to take account at all differences in the consumption of leisure; in an

economy predominantly given over to a 40 hour week and 50 week working year this is no serious problem; in comparing welfare in an industrial and a subsistence economy it is a very important issue.

49. The conclusion must be that it is the responsibility of the economic statistician to vigorously assert the impossibility of making meaningful comparisons of welfare in money value terms. More would be gained by short verbal descriptions of the character of life in the subsistence sector, supplemented maybe by crude indexes of health and food intake, than by attempts to conjure up monetary estimates of subsistence consumption standards.

50. In a sense, the argument above is fighting a battle already won, for the tendency now is to view the estimation of subsistence output as a task which may be of utility in some sense to the planner. Thus, one use of subsistence estimates might be complete the data necessary to make estimates of changes in productivity over time. Without estimates of subsistence output it would be impossible to distinguish improvements in productivity over time from the results of increased monetization. Unfortunately, the data currently available in no sense make this possible. For example, from the existing estimates of subsistence economic activity in East Africa it is not possible to tell whether the increases in African cash output are at the expense of subsistence production or the result of increased supply of effort or of improved productivity. Similarly, it is not possible to tell whether the movement of labour to the town has resulted in any diminution of subsistence output. This is because the current subsistence estimates are not based on any real information about subsistence activity, but are rather the result of assumptions and surmises concerning the very things about which it is desirable to have hard facts. If more information were available it would probably be of more use in its original state than in dubious transformations into monetary figures.

51. However, after so much negative comment some positive suggestions are required. There are two possibilities which might be considered. Productivity is a relationship between inputs and outputs. The reason why the subsistence measure is of potential importance is because output per capita is a commonly used index of productivity improvement. The same result would be achieved by measuring productivity in the cash sector in relation to the labour force employed in that sector; this would not be possible for that part of cash output which is derived from peasant cultivation. Output per worker employed could be used as a measure of progress in non-peasant, non-subsistence economic activity. On the basis of current methods of computation such a series would move with the average wage level.

52. A second method would be to subtract from cash output that element of production which would have been produced as a subsistence activity - that is, an allowance for that part of cash output which goes into such things basic foodstuffs and minimal housing needs. In principle such an operation would be no less dubious than current attempts to estimate the output of the subsistence sector. In practice, however, such a procedure would have the virtue that the manipulations involve operation on known data and would demand less imputation and crude estimation than is now required in the measurement of the great unknown subsistence sector.

53. Any such judgements are very much second best solutions; what is needed for more complete information is reliable bench-mark data from a census of agriculture. Meanwhile it is unfortunately true that work to date in measuring subsistence activity has been neither useful for welfare comparison nor has it provided appropriate data for planning purposes. In the immediate future any elaborate schemes to achieve greater comprehensiveness will only be appropriate for the occasional benchmark year.

The Question of Priorities.

54. There are a number of other subjects which have interested those participating in recent debates of African income accounting. Some of these issues are of considerable practical interest to the working statistician e.g. whether gross domestic or national income is the relevant concept for African purposes, how subsidiaries should be treated, how interest payments on foreign held debt and indirect taxes on exports should be handled - these and similar questions have been raised in the discussions. These questions are not of great importance for the discussion at hand. However, there is a general theme which runs through much of the discussion which is worthy of comment. This involves the choice over the order of priorities in setting up accounts.

55. At its most extreme the debate over which accounts should be attempted first involves a division between those who favor attempts at comprehensive aggregate measures very early in the process of statistical development and those who claim that many of these attempts at comprehensiveness result only in confusion. The latter claim that understanding will be furthered more by exclusive concentration on those sectors for which reliable information can be derived, which are also, it is claimed, the strategic sectors from the policy point of view. The claim is made that utility and accuracy will be increased at the expense of comprehensiveness. Thus, in the East African case, it has been shown that the aggregate results are built on a narrow foundation of "hard" data expanded by extrapolations from bench-mark years, expansion by estimated or assumed ratios and completed through the imputation of unmeasurable values. Do these aggregates add anything to the skeleton of solid data, or does the tissue of such flimsy construction not obscure more than it reveals?

56. A position on this issue is implicit in the discussion of subsistence estimates above, and in the comments on the East African data. Accurate analysis is probably better served by concentrating on those pieces of data which have some claim to be facts, rather than on the loosely compiled aggregates. Nevertheless, there is a case to be made for sketching out a comprehensive framework of accounts very early in the development of a system of statistics; by so doing, the gaps to be filled are made apparent and potential inter-relationships are suggested.

57. The sensible way out of this dilemma, which is suggested by the proposals of the E.C.A. working group, is to set up a full comprehensive framework of accounts as the eventual ambitious goal for a statistical system, but along with it to suggest a set of priorities, ordered both according to importance and ease of achievement, whereby the goal can be achieved through a sequence of forward steps. It is not relevant in this draft to discuss these proposals in detail; it might be the case that such a discussion would be demanded by any later paper which contained practical suggestions to the statistical services.

58. Finally, it is interesting to note that the recent discussions of African social accounting have concentrated excessively on time series computation of the national income accounts to the neglect of problems which in some senses might be considered previous to the achievement of reasonable time series - namely, the periodical surveys and censuses of industry, distribution and agriculture which provide a

lot of the solid detail on which the time series estimation is based. The inadequacy of such data is the basis of the dubious nature of the end-product social accounts.

111. A program of action.

59. Having described and criticized the existing data, the much more difficult task of formulating a program of action must be tackled. The emphasis for this project must be on the attempt to squeeze the maximum possible information from existing data, rather than attempting original projects of data collection. The degree to which the tasks set out below can in fact be achieved will only become apparent as they are attempted.

60. The emphasis at this stage is on mapping out the main lines of attack rather than the details; the analytical framework within which the data will be utilized is not made explicit. This is something which must be developed pari passu with increasing familiarity with the facts. For the moment therefore the agenda of statistical organization is derived from some very general notions of the data necessary in economic analysis plus a preliminary idea of the sectoral breakdown which will prove useful.

61. The program of work can be divided, at this preparatory stage, into three major subdivisions:

- A. The time series description of output and input flows, income shares, expenditures and relationships with the foreign sector;
- B. A bench mark study of structure, in terms of inter-industry relationships, the structure of costs, the stock of manpower skills and capital, and the level of capacity;
- C. A framework of projection.

Such objectives involve a counsel of perfection; limitations on the achievement of such objectives derive both from the availability of basic data and the manpower costs of manipulating the existing data.

62. Besides the using industrial and factor input classifications already used in the accounts it seems likely that for the purposes of analysis it will prove necessary to build a sectoral model with a number of subdivisions. A suggested sectoral framework is set out as follows:-

		Large scale	
	i. Private	foreign	Expatriate needs
1. Industrial		Local	
	ii. Government		
	quasi-govt.		African needs
2. Government services		Development	
		Routine.	
3. Agriculture	African	Food staple	
		Cash export crops	
	European	Mixed farming	
		Cash export crops.	

This is suggested in a tentative fashion, leaving the way open for suggestions of alternatives.

A. Time series.

63. A list of times series to be collected or constructed is set out under this heading.

- i. Value added output by major industry - the behaviour of the basic series, 1954-1962, with emphasis of these sectors for whom the estimates are built on a more solid basis.
- ii. Foreign trade - exports and imports - categorization by stage of manufacture, type of product and industrial use.
- iii. Gross expenditures - the use of the data in (i) and (ii), along with gross output data from the surveys of industry and the estimates of gross investment and the government accounts to construct crude table for expenditures, divided into the usual categories of investment, exports, government expenditures and consumption.
- iv. Division of income by racial group.
- v. Division of income by factor share.
- vi. Labour inputs, by racial group & educational qualification, with a sector and industry breakdown.
- vii. The flows of inter-territorial trade.
- viii. The balance of payments.
- ix. The sources of capital finance.
- x. Spending by racial and income groups - categorization by sector origin. (This is unlikely to be achievable - it is suggested in case someone can offer suggestions on how it might be handled.)

64. This list mainly includes data already available, although subject to the criticisms already mentioned. The really major gap, which there will be some crude attempt to fill, is represented by (iii). (viii) does not exist at present in a very informative fashion and is a gap which can be filled only as a result of official action.

This program will be achievable in a much more complete fashion for Kenya than for the other two territories.

65. The estimates of value added output will attempt to measure the growth of output outside the subsistence sector with some attempt to net out the affect of increased monetization.

An index of real output.

66. This list leaves out the possibility of producing estimates of output in real terms; as was mentioned above there is some hope of official estimates appearing in the Ugandan case. Such estimation is a major undertaking, best shouldered by the official statistical services. There is a possibility, however, that a crude production index could be produced based on the scattered series of physical output available (e.g. agricultural output,

fuel inputs, transport activities, physical import quantities). Indices of economic activity based on selective information have proved of some use in interpreting cyclical and growth patterns in more advanced economies. This possibility is thrown out as a suggestion rather than a proposal, so as to see whether there is a feeling that it has any merit.

B. Bench-mark analysis of structure.

67. Perfectly, what are required are input-output tables exposing the relationships between the various industries, data on the cost structure of firms according to size within industries and data on labour/output/capital ratios. In practice, it would be a considerable achievement to complete a far more modest agenda. Initially, the emphasis must be on the industrial structure of Kenya, with attempts to construct crude input-output tables based on the 1956-1957 industrial surveys. Some work can be done on projection of this data with the use of the results of the annual employment surveys and then checking to see if the input-output relationships resulting are roughly consistent with the 1956-1957 patterns. In relation to this subject, there is some possibility that the East African Common Services Organization will undertake work on Input-output relationships,

C. Projection.

68. Projection will be part of the work of each component study of the Economic Development Research Project. To a greater or lesser extent each study is concerned with quantitative prospects for particular sections of the East African economy. Insofar as this particular study involves a more aggregative approach it must lean to some extent on the other studies for information about the separate parts. Its primary concern must be with inter-relationships between industries and sectors rather than questions of feasibility and efficiency within any sector. It must draw together the available data on patterns of demand, local and foreign evidence of income elasticities, patterns of output increase and the resulting inputs demanded, patterns of income generated by development process and supplies of factors forthcoming, and fit the pieces together into a comprehensive model - at best an analytical and explanatory model which provides insights into the historical process, at the minimum some crude tests of consistency. This is neither an easy nor an obvious task. It is a task that should probably only be started at the point when the project as a whole is beginning to reap the benefits of economies of scale.

Summary.

69. This has been a discursive discussion of existing sources with a very broadly conceived agenda for research appended. It would help to focus the nature of the research planned if, to conclude, a note were made of activity to be undertaken during the coming few months. Research will consist primarily of data collection and manipulation at this stage. It will consist of three major undertakings - the third of which is essentially tentative.

1. The construction of expenditure tables for East Africa, 1954 - 1962;
2. An investigation of the structure of inter-industry relationships in the Kenyan economy, 1956-1957;
3. Work on an index of economic activity.

The other elements in the data program will, at this stage, not be the subject of any work other than transferral from official sources and a minimum manipulation.

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