Hence,

$$w, = + /3,1n\ x, \tag{15}$$

for parameters a and /3, generally functions of prices, and this form was supported in later comparative tests by Leser (1963). From (14), the budget shares are the logarithmic derivatives of the cost function, so that (15) corresponds to differential equations of the form

$$\frac{dinr(u,p)}{in\ p,}\ (x(0+\quad p)lnc(u,p), \tag{16}$$

which give a solution of the general form

$$lne(u,p)\ u\ In\ b(p)\text{-}1\text{-} — u)ln\ a(p), \tag{17}$$

where *a,(p)— (On b — b$_i$lna)/(Inb* ln a) and *A(p) b,/(ln b* la *a)* for *a, = 01n a/ 0* In p_i and b_i= *a* In *b/a* In p_i. The form (17) gives the cost function as a utility-weighted geometric mean of the linear homogeneous functions *a(p)* and b (*p*) representing the cost functions of the very poor (*u* — 0) and the very rich (*u* —1) respectively. Such preferences have been called the PIGLOG class by Muellbauer (1975b), (1976a), (1976b). A full system of demand equations within the Working—Leser class can be generated by suitable choice of the functions *b(p)* and *a(p)*. For example, if

$$\begin{aligned} &1114/^9)= a\ o+ Eakin\ Pk + 1E\ E\ rtmln\ pkinp_{,,,}, \\ &\qquad\qquad\qquad k\ m \\ &In\ b(p) = In\ a(p)\text{-}F\ P_0/pfk, \end{aligned} \tag{18}$$

we reach the "almost ideal demand system" (AIDS) of Deaton and Muellbauer (1980b) viz

$$\begin{aligned} &w, — a, + /3,1n(x/P)+ Ey_{fi}ln\ p_i, \\ &In\ P = a_o + Ea_k in\ p_k + {}_i\ E\text{-}y_{k,,,}In\ p_k ln\ p_{,,,} \\ &\qquad\qquad m \end{aligned} \tag{19}$$

and y_{ij} = z(y;* + . A variation on the same theme is to replace the geometric mean (17) by a mean of order *E*

$$c(u,p)= tub(\qquad + (1 — u)a(p)1^{1/4} \tag{20}$$