Albrecht, James W.

Working Paper

Documentation of the Planning Survey Data: Cross-Section and Panel

IUI Working Paper, No. 178

Provided in Cooperation with:
Research Institute of Industrial Economics (IFN), Stockholm

Suggested Citation: Albrecht, James W. (1987) : Documentation of the Planning Survey Data: Cross-Section and Panel, IUI Working Paper, No. 178, The Research Institute of Industrial Economics (IUI), Stockholm

This Version is available at:
https://hdl.handle.net/10419/95074

A list of Working Papers on the last pages

No. 178, 1987

DOCUMENTATION OF THE PLANNING SURVEY DATA: CROSS-SECTION AND PANEL

by

James W. Albrecht

August, 1987
Revised, June 1990

DOCUMENTATION OF THE PLANNING SURVEY DATA: CROSS–SECTION AND PANEL

James W Albrecht
June 1990

1. Introduction[1]

Since 1975 the Federation of Swedish Industries has collected data from Swedish production units through an annual Planning Survey. These data are available both as unlinked annual cross–sections for the years 1975–86 and as a pooled panel for that period. The cross–sections are available at IUI as APL–workspaces; the pooled panel is available as a SAS–dataset.[2]

My purpose in this paper is to provide a general description and documentation of these data. The Planning Survey data have been used at IUI in connection with the MOSES modeling project, and my primary aim here is to provide documentary background for this project.[3] In addition, I hope to make these data more accessible to other potential users and to provide a general reference source for papers based on the Planning Survey.

My presentation of this material will be straightforward. In the next section I give the basics: how the data are collected, the nature of the respondents, comparability with other data sources, etc. In Section 3 I go through the Planning Survey questionnaire. Then in Section 4 I provide information about how the panel dataset was created. Finally, the appendices provide (i) the basic questionnaires for the cross–sectional data and (ii) a listing of variables for the panel dataset.

2. Nature of the Sample

The Planning Survey questionnaires are distributed each year around February 1 to

---

[1]My work on this project and the work of several research assistants have been supported by IUI over a long period. Among those who helped with the programming and data manipulation, Tom Cunningham, Mercedes Grácia–Díez, and Hans–Erik Persson deserve particular thanks. I also thank Ola Virin and Kerstin Wallmark. They were responsible for the actual data collection at the Federation of Swedish Industries, and both provided encouragement and very helpful advice.

[2]Kent–Rune Sjöholm, formerly at the Federation of Swedish Industries and now at IUI, has done similar work with the Planning Survey. He has independently constructed a panel for the period 1980–88. A useful exercise would be to check the two panels for consistency; eventually, the two datasets could be merged.

[3]A general description of the model is given in Eliasson [1989], and Albrecht and Lindberg [1989] explain how the model is initialized using the Planning Survey data.

the largest firms in Swedish manufacturing.[4] Responses come back on a "product line basis." Thus, firms producing a single product or a single line of related products return a single questionnaire, whereas other, more complicated firms may return as many as ten responses. The basic unit of response should be regarded as an establishment or division or "production unit."

Respondents are classified into 5 sectors by the Federation: (i) Raw Materials Processing (R), (ii) Intermediate Goods (INS), (iii) Investment Goods (INV), (iv) Consumption Goods (K), and (v) Building Materials (B). The respondent units comprising a single firm are often classified into different sectors. The Planning Survey sectoral classification conforms with the grouping based on the end use of products suggested by the OECD and is based on the concept of a "product chain." (Raw Materials Processing is an input to Intermediate Goods production which is in turn an input to the production of finished goods.) This end use classification differs from the Standard Industrial Classification used by the Statistics Sweden (SCB) and by the Business Cycle Institute (KI) in connection with their "barometer data."

The coverage of the Planning Survey is quite extensive. Approximately 40–50% of all employment in Swedish manufacturing takes place in establishments covered by the Planning Survey. Significant differences in sectoral coverage reflect the greater importance of larger firms in the Raw Materials Processing and Investment Goods sectors and of smaller firms in Consumption Goods and Building Materials.

There are senses in which Planning Survey respondents are not typical of Swedish manufacturing. One problem is that the survey has a "large firm bias" since firm size is the

---

[4]The Federation of Swedish Industries refers to the surveys in their publications according to the year in which the questionnaires were sent to the respondent firms. Since the first two surveys were sent in December 1975 and December 1976 and the third survey was sent in February 1978, there is no 1977 Planning Survey according the the Federation's dating scheme. I will use the convention of dating the various Planning Surveys according to the year's operations to which they refer. Thus, the survey sent in February 1978 is the 1977 Planning Survey according to my nomenclature.

criterion for inclusion. (All companies with at least 500 employees are included in the survey plus some smaller companies in the Building Materials sectors and a few others of "special interest.") However, the basic units of response are establishments, and some of the production units comprising "large" firms are quite "small." Another problem is that over the sample period (especially during the late 1970's) some operations that might otherwise have been shut down have been taken over by state holding companies. To the extent that these operations are then excluded from the sample, there is a bias in the sample away from failing enterprises. However, I find it difficult to imagine that either of these potential biases is quantitatively very important in a sample that covers close to 50% of total employment in Swedish manufacturing.

3. Planning Survey Questionnaire

The Planning Survey questionnaire basically consists of a set of core questions that have been repeated each year plus a small number of extra questions that change from year to year. There are, however, two important caveats to the notion of an unchanging set of core questions. The first is that some core questions were not asked in 1975, the first survey year, and the second is that some core questions have been modified and extended in the later years of the survey.

The core questions cover eight areas:

a. Employment and Compensation

b. Sales

c. Purchases of Raw Materials and Input Goods

d. Investment Goods

e. Annual Percentage Change in Production Volume

f. Capacity Utilization

g. Orders

h. Inventories.

Questions for the first four categories are expressed in quantitative terms (number of employees, annual sales in million SEK, etc) and are generally asked both for the survey

year and retrospectively for the preceding year. Questions for the last four categories are expressed in qualitative terms (eg, responses are to be given in percentage ranges) and are not asked retrospectively. All data refer exclusively to the domestic operations of the respondent.

I now summarize the information available for each of these eight core areas. For a complete specification, see Appendix 1.

a. Employment and Compensation

Information is available on the total number of employees and on total compensation (in million SEK, including social fees) both for the year of the survey and retrospectively for the preceding year. Important exceptions to this pattern are (i) no data are available in 1975 on compensation and (ii) total manhours of work are given starting in 1980 in addition to total employment.

My experience has been that some caution must be used in comparing employment figures from two different surveys for the same respondent. The problem is that within firms there may be employees who can plausibly be associated with more than one production unit. However, the survey year and retrospective employment and/or manhour figures within a single survey generally are comparable.

b. Sales

Information is available on total sales (more precisely, total invoicing) in current prices (million SEK) broken down into exports and domestic sales for the year of the survey, retrospectively for the preceding year, and expected (planned) for the year following the survey. Sales to subsidiaries at home and abroad are included.

c. Purchases of Raw Materials and Input Goods

Information is available on raw material and input goods purchases divided into purchases of (i) electricity, (ii) fuels (oil, coal, etc) and (iii) other raw materials and intermediate goods for the year of the survey, retrospectively for the preceding year, and expected (planned) for the year after the survey. Important exceptions are (i) no

information is available for 1975 and (ii) in 1976 and 1977 data are available for total purchases only, rather than for the three components. Starting in 1984, information is also available on "total costs," ie, labor costs plus raw material/input goods costs plus any other costs that fall into neither of the first two categories.

Purchases of raw materials and input goods seem to be systematically understated in these data due to the non–inclusion of the service component (eg, transport services) of such purchases in the survey responses. (A limited corrective based on a supplementary question in the 1981 survey is available. See p 10 below.) Another possible source of measurement error in these data is the existence of unrecorded intra–firm transfers of raw materials and input goods.

d. Investment

Information is available on total investment (million SEK, current prices) divided into expenditures on plant and equipment for the survey year, retrospectively for the preceding year, and expected (planned) for the year following the survey.

e. Production Volume

Information is available on production volume for the survey year as compared with the preceding year and for the year following the survey (expected or planned) as compared with the survey year. The answers are expressed in percent ranges. That is, the possible answers are "approximately unchanged" (change between + or − 5%), "increased by more than x percent (x = 5, 10, 15, 20, 25) or "decreased by more than x percent" (again, x = 5, 10, 15, 20, 25). If an increase or decrease of more than 25% is indicated, then the respondent is asked to provide a precise percentage figure.

f. Capacity Utilization

A spectacular amount of information about capacity utilization is available from the various surveys: eight different capacity utilization questions have been asked at different times over the sample period. Two questions have been asked each year and are

particularly important:[5]

(i) "By what percent could production volume have been increased during the survey year (as compared with the preceding year) had sufficient product demand and supply of labor been available?"

(ii) "By what percent could production volume have been increased during the survey year (as compared with the preceding year) had sufficient product demand existed but with the workforce actually employed?"

The answers to these questions take the form of "It could have been increased by more than x percent (x = 5, 10, 15, 20, 25) or "not at all" (0–5%). If an increase exceeding 25% is indicated, then the respondent is asked to specify a precise percentage figure. Note that to derive utilization figures the actual percent change in production volume needs to be subtracted from the answers to these questions.

The answer to the first question can be used to derive the usual capacity utilization figure, the ratio of actual output to capacity. The answer to the second can be used to derive the ratio of actual output to "potential output conditional on the existing workforce," ie, a measure of labor utilization. The ratio of capacity utilization to labor utilization, ie, the ratio of "potential output conditional on the existing workforce" to capacity, can be interpreted as a measure of the degree to which capital is utilized.

My experience with these data has been very encouraging. First, there seems to be much to be learned from how these utilization figures vary over establishments in the cross section and within establishments over the cycle. (I have made some first steps in this direction in Albrecht [1979].) Second, the obvious inconsistency that one would fear in such data, that the actual expansion in production volume would exceed what respondents

---

[5]These two questions were created with the data needs of MOSES in mind and are referred to as SUM and A21, respectively, in the model. Since 1980 Statistics Sweden has published directly analogous figures on "actual utilization" (FU) and "possible utilization" (MU) on a quarterly basis. The series are related as follows:

$$FU = \frac{1}{1 + SUM} \quad \text{and} \quad MU = \frac{1}{1 + A21}$$

reported as possible, almost never occurs.

Among the other capacity utilization information that is available, two questions that have been asked since 1980 are of particular interest:

(iii) "Could the survey year's output have been produced with a smaller workforce? If so, by how much could the workforce have been reduced as compared with actual employment?"

The answer is again of the form "It could have been reduced by more than x percent" (x = 5, 10, 15, 20, 25) with a precise percentage figure called for if a reduction exceeding 25% is indicated. The answer to this question gives a measure of labor redundancy.

(iv) "What increase in employment in the survey year (in percentage terms with actual employment that year as the base) would have been required to reach full capacity?"

The answer to this question, which is of the usual form, gives a measure of "marginal labor requirements."

An interesting exercise (which I haven't yet attempted) would be to use these utilization data to trace out ex post relationships between output and labor input at the establishment level. The accompanying figure shows how this could be done.

Data on actual output and labor input in the survey year provide a base point (A), and the first utilization question (SUM) locates the capacity level of output. The remaining three utilization questions then locate points on the ex post frontier. The second utilization question (A21) locates point B; the third utilization question (labor redundancy) locates point C; and the fourth utilization question (marginal labor requirements) together with knowledge of the level of capacity locates point D. These three points (B, C, and D) along with the origin suffice to sketch out the ex post frontier.

g. Orders

The same three orders questions have been asked in all three survey years. The questions refer to the "order situation" at the end of the survey year as compared with the end of the preceding year. I have no experience with these data.

h. Inventories

Information is available on (i) the stock of product inventories as of the end of the survey year as a percent of survey year sales, (ii) the "normal" ratio of the stock of product inventories to yearly sales, (iii) the stock of raw material and input good inventories as of the end of the survey year as a percent of survey year purchases, and (iv) the "normal" ratio of the stock of raw material and input good inventories to yearly purchases. Information is available for all years except 1975, and responses are given in percentage range terms.

The inventory data are probably the weakest link in the Planning Survey. A first problem is simply that the inventory measures are rather crude, being based on stock–to–flow ratios that are expressed in broad percentage ranges. A second problem has to do with the prices associated with the inventory stocks. Product inventories can be valued at the current price, at the price that is expected to prevail when the goods are to be sold, or at some other price that is advantageous for tax reasons. Likewise, raw material/input good inventories can be valued at purchase price or current price, a particular problem since raw materials prices, especially fuel prices, moved substantially

over the sample period. Third, no information on inventories of "goods in process" is explicitly asked for in the Planning Survey. Some respondents may include these inventories in their answers to the questions about finished goods inventories; others probably do not. Fourth, although I have no evidence to support this suspicion, there may be incompletely recorded intra–firm transfers of stocks in these data. Finally, even if the data were completely free of measurement error, there still would not be sufficient information to precisely compute changes in inventory stocks from year to year. To compute the change in product inventories using data from one questionnaire, the best one can do is to multiply current sales by the difference between the actual and "normal" ratios of product inventories to sales (divided by 100). This, of course, requires that the stock–to–flow ratio in the preceding year was "normal," an assumption that does not seem consonant with the significant movements in average stock–to–flow ratios over the sample period.

Supplementary Questions

Finally, some of the supplementary (non–core) questions are also worth discussing. First, it is possible to use supplementary questions to construct a capital stock time series for some respondents. In the 1979 survey respondents were asked to give the replacement value of their capital stocks broken down into plant and equipment as of the end of 1979, and in both the 1977 and 1986 surveys respondents were asked to give an economic life expectancy (in years) both for buildings and for the most recently installed piece of important machinery. For respondents with complete records we thus have a base capital stock figure from 1979, the means to estimate economic rates of depreciation from the 1977 and/or 1986 surveys[6], and annual gross investment series. Note, of course, that the possibility of constructing a capital stock series applies only to those units that can be

[6]Alternatively, one can use external estimates of depreciation, eg, those given in Södersten and Lindberg [1984].

linked with a respondent from the 1979 survey.[7]

The second set of supplementary questions of particular interest come from the 1981 survey. In that survey respondents were asked to provide information about the service component of total sales and of total raw material/input good purchases. Information about the service component of purchases is particularly important. Respondents were specifically asked to provide a figure for total purchases of services, including transport, and to indicate approximately what fraction of these purchases were reflected in their response to the core questions on raw material and input good purchases. Thus, the responses to the 1981 supplementary questions might be used to derive a correction factor that could then be applied to other years' data on purchases.

4. Creation of the Panel Dataset

The ability to follow individual production units through time, ie, to exploit the panel nature of the data, is an important feature of the Planning Survey. In this section I outline the procedure used to convert the data from a series of unlinked cross sections into a panel.

---

[7]The gross investment series are expressed in current prices. To convert investments to current prices the following implicit price deflators can be used (source: Kerstin Wallmark, 7 May 1984):

	Buildings	Machinery	Total
1973	46.8	47.7	47.5
1974	54.1	55.5	55.1
1975	59.3	63.4	62.1
1976	66.7	69.5	68.7
1977	75.7	76.2	76.1
1978	81.8	85.4	84.4
1979	90.5	92.1	91.7
1980	100.0	100.0	100.0
1981	109.0	108.6	108.7
1982	117.2	124.7	123.3
1983	124.0	141.1	138.1
1984	132.7	145.5	142.8
1985	138.8	150.9	148.3
1986	145.1	158.8	155.4

Note also that I am implicitly assuming in this discussion that investments "enter into" the capital stock in the same year as the investment expenditures are made.

There are three basic steps to this procedure. First, I took data from the cross–sectional APL matrices (these are the "inputs" to the procedure) and re–organized these data into "variable matrices." Second, I "expanded" these variable matrices to take into account those instances in which respondents with the same identification code are not comparable across years. Finally, I converted these expanded variable matrices from APL workspaces to ASCII files (these are the "outputs" from the procedure). I will discuss the re–organization and expansion steps in detail below; the conversion step, however, is straightforward.

Re–organization of the Data

The APL matrices R75, INS75, ... ,B86 are the input to this first stage. (R75 is the matrix with data from 1975's Raw Material Processing sector's respondents, etc.) Vectors C75, C76, ... , C86 are specified, where C75 gives the columns in the 1975 matrices (ie, R75, INS75, etc) corresponding to the variables of interest, C76 gives the columns in the 1976 matrices corresponding to variables of interest, etc. To carry out the procedures described below, the respondent identification codes (ID's) are required, so 1 (the column corresponding to the respondent ID) is the first element in all the C–vectors. In addition, despite the fact that some information is not available in all survey years (eg, manhour figures are available only from 1980 onwards), the procedure requires that all of the C–vectors have the same number of elements. A solution, explained in the next paragraph, is to set elements of the C–vectors equal to 1 for those cases in which a variable is not included in the survey year in question.[8]

The vectors C75, C76, etc are used to select columns from the basic data matrices. Define X75 as the columns C75 of R75 stacked on top of the columns C75 of INS75, ... , stacked on top of the columns C75 of B75; likewise X76 consists of the columns C76 of R76

[8]Example: C75 = 1 2 3 1 1 8 9 10 12 14 15 1 1 1 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 1 1 1 1 1 1 42 43 1 1 1 1 1 1 1 1 1 1 1 1 1

stacked on top of the columns C76 of INS76, ... , stacked on top of the columns C76 of B76; and so forth through X86. The various X–matrices need to be fixed to take missing variables into account. I adopt ¯99 as the missing data code. The columns of X75 corresponding to C75 = 1 (excepting the first column, ie, the respondent ID) are set equal to ¯99; likewise, the columns of X76 corresponding to C76 = 1 (excepting the first column) are set equal to ¯99; and so forth through X86. In addition, "check columns" are included in the C–vectors. These "check columns" correspond to "check variables" in the data matrices, ie, to variables indicating whether the respondent answered a particular question. At this point, these columns are used for an "APL compression" and then discarded.[9]

The final step in re–organizing the data is to combine the first columns of X75, X76, ... , X86 into a first variable matrix, the second columns of X75, X76, ... , X86 into a second variable matrix, etc. Using the first variable matrix as an example, this combination essentially results in a matrix the first column of which is the first column of X75, the second column of which is the first column of X76, etc. The only caveat is that not all respondent ID's occur in all years (so the X–matrices have different numbers of rows). To deal with this, define ID as the union of respondent ID's occurring in all years; ie, ID is the union of the first columns of X75, X76, ..., X86. Then define the "selection index" S75 as the position of the ID codes appearing in the 1975 matrices in the vector ID, similarly for selection indices S76, S77, ... ,S86. Each variable matrix is of dimension (# of elements in ID) by 12 (ie, the number of years in the cross–sections), and initially each element in each matrix is set to ¯99. In the first column of the first variable matrix in the

---

[9]Example: There is a check variable for "Production Volume — percent change in real terms" in each of the data matrices. This variable takes on the value one if the respondent answered the production volume question and the value zero if not. In the 1975 matrices the check variable is found in column 24 and the answer to the production volume question itself is found in column 25. The vector C75 thus includes the entries 24 and 25. These correspond in turn to columns 21 and 22 in X75. If an element of column 21 in X75 equals 0, then the corresponding element of column 22 X75 is set equal to –99; if an element of column 21 in X75 equals 1, then the corresponding element of column 22 in X75 is left as is. Once this compression is carried out, column 21 of X75 is discarded.

rows indicated by S75, ¯99 is then replaced by the first column of X75; in the second column of the first variable matrix in the rows indicated by S76, ¯99 is replaced by the first column of X76, and so forth.

Expansion of the Variable Matrices

The output of the above data re–organization is a collection of variable matrices. A row in a particular variable matrix gives a time series of responses on one variable for a single respondent ID. However, the problem with using the Planning Survey data as a time series is that, due to definitional changes, respondents with the same ID codes may not be comparable across years. The solution I have adopted is to treat definitionally different respondents with the same ID codes as separate entities. To do this "index matrices" identifying definitional changes are used. These index matrices are based on coding sheets constructed under Kerstin Wallmark's direction at the Federation of Swedish Industries.

The procedure can be illustrated by example. Consider the "respondent" with the APL identification code 1.01 in the cross–sectional data. (The code 1.01 means that this is the first respondent in Raw Materials Processing, the first sector.) There should be 12 years of data for this respondent; however, the unit is not comparable across the sample period. In particular, the unit was re–defined as of the beginning of 1979 to reflect organizational changes within the parent firm; that is, survey responses for respondent 1.01 before 1979 and after 1979 refer to fundamentally different entities, despite the common identification code. Another re–organization took place at the beginning of 1981. In this case the responses given in the 1981 survey to questions about 1981's operations of course refer to the new, re–defined entity; however, the responses to retrospective questions refer to the entity as it existed in 1980. This same type of re–definition, with a discrepancy between survey year and retrospective responses, also took place at the beginning of 1982 and then again at the beginning of 1983. Finally, in 1984 this "respondent" dropped out of the survey altogether.

Employment from 1975 to 1986 for respondent 1.01 (the first row of the third

variable matrix – note the missing data entries for the years 1984–86) is given by

1872 1812 1571 1476 12607 12728 3851 3336 2206 ¯99 ¯99 ¯99.

To accommodate definitional inconsistencies, this single time series of responses is expanded into five separate time series:

1872 1812 1571 1476 ¯99 ¯99 ¯99 ¯99 ¯99 ¯99 ¯99 ¯99
¯99 ¯99 ¯99 ¯99 12607 12728 ¯99 ¯99 ¯99 ¯99 ¯99 ¯99
¯99 ¯99 ¯99 ¯99 ¯99 ¯99 3851 ¯99 ¯99 ¯99 ¯99 ¯99
¯99 ¯99 ¯99 ¯99 ¯99 ¯99 ¯99 3336 ¯99 ¯99 ¯99 ¯99
¯99 ¯99 ¯99 ¯99 ¯99 ¯99 ¯99 ¯99 2206 ¯99 ¯99 ¯99

To carry out this expansion the index matrix

1.01 1 1 1 1 0 0 0 0 0 0 0 0
1.01 0 0 0 0 1 1 0 0 0 0 0 0
1.01 0 0 0 0 0 0 1 0 0 0 0 0
1.01 0 0 0 0 0 0 0 1 0 0 0 0
1.01 0 0 0 0 0 0 0 0 1 0 0 0

is used. If the raw data to be expanded were retrospective employment (or, in general, any lagged variable) a different index matrix would need to be used. For respondent 1.01 this would be

1.01 1 1 1 1 0 0 0 0 0 0 0 0 0
1.01 0 0 0 0 1 1 1 0 0 0 0 0 0
1.01 0 0 0 0 0 0 0 1 0 0 0 0 0
1.01 0 0 0 0 0 0 0 0 1 0 0 0 0
1.01 0 0 0 0 0 0 0 0 0 0 0 0 0

(Note that the last row of this matrix consists entirely of zeroes. The interpretation is that there is no Planning Survey that gives retrospective information valid for the "fifth respondent" with ID 1.01.)

The index matrices for all respondents taken together (ie, not just respondent 1.01) are denoted by IMAT and ILAG. IMAT, or ILAG in the case of retrospective data, are

used together with any pre–expansion variable matrix in a simple APL program to produce an expanded variable matrix. Although not all respondents are as chaotic as 1.01, this expansion process changes the nature of the data to a considerable degree. The number of "respondents" after expansion is approximately 3 times the number of respondent ID's.

5. Conclusion

The panel dataset described above should be used with caution. Despite our best efforts, there are doubtless instances in which noncomparable entities are incorrectly linked through time in the panel. Further, as I indicated in my discussion of the questionnaires, there are some variables that should be regarded with skepticism.

Having expressed these caveats, I nonetheless feel that this is a very rich and interesting dataset. The panel could provide useful information about productivity and technological change; and, as I suggested above, these data could shed considerable light on patterns of capacity utilization over the cycle. In addition, the Planning Survey data could be linked profitably with other datasets available at IUI, eg, with firm–level financial data. In short, this is a dataset that is ripe for exploitation.

References:

1. J Albrecht, "A Look at Capacity Utilization in Swedish Industry," Industrikonjunkturen, Federation of Swedish Industries, Spring 1979.

2. J Albrecht and T Lindberg, "The Micro Initialization of MOSES," Chapter 2 in J Albrecht, et al, eds, MOSES Code, Research Report #36, IUI, 1989.

3. G Eliasson, "Modeling the Experimentally Organized Economy," Chapter 1 in J Albrecht, et al, eds, MOSES Code, Research Report #36, IUI, 1989.

4. J Södersten and T Lindberg, "The Taxation of Income from Capital," Chapter 4 (Sweden) in M King and D Fullerton, eds, The Taxation of Income from Capital: A Comparative Study of the United States, the United Kingdom, Sweden, and West Germany, NBER and the University of Chicago Press, 1984.

Appendix 1: Cross–section Data — Storage and Coding

The Planning Survey data in cross sections are stored as APL workspaces. There is one workspace per year of data with PD75 containing the 1975 data, PD76 containing the 1976 data, etc. Within each PD workspace the data are stored in 5 matrices. These matrices are identified by a prefix (R = Raw Materials Processing,INS = Intermediate Goods, INV = Investment Goods, K = Consumption Goods, B = Building Materials) and by suffix according to the year. Thus, for example, the workspace PD76 contains the 5 variables (matrices) R76, INS76, INV76, K76, and B76.

Each matrix is of dimension (# of respondents) x (# of variables). With the exception of the 1975 matrices a standard format has been preserved for the first 50 columns of all matrices; that is, in each of the years 1976–86 one can find the respondent ID in column 1, data on employment and wages in columns 2–5, etc. This has been done to make it possible to write standardized programs to analyze data across different years. (The functions used to rearrange the data into this standard format can be found in some of the later PD–workspaces.) Columns 1–50 correspond to what I call the "core variables" in Section 3 of the main text. For columns 51 and beyond what can be found in any given column differs from year–to–year, reflecting additions to the questionnaire and special questions.

Presented below are the codes for each year of data. In reading these codes one finds the expression "check on xx." This variables takes on a value of 1 or 0 according to whether or not the respondent gave an answer to the question called for in column xx; ie, the check is for missing data.

1975 Planning Survey

1. ID
Number of Employees
2. 1974
3. 1975
4. 1976 (plan)
Number of production workers
5. 1974
6. 1975
7. 1976 (plan)
Sales (million SEK, current prices, excluding indirect taxes)
Abroad, including to affiliates
8. 1974
9. 1975
10 1976 (plan)
11. check on 12
12. percent change per year 1975–80 (plan), constant prices
Domestic, including to affiliates
13. 1974
14. 1975
15. 1976 (plan)
16. check on 17
17. percent change per year 1975–80 (plan), constant prices
Investment (million SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
18. 1974
19. 1975
20. 1976 (plan)

1975 Planning Survey, Continued

Machinery and equipment, including transport equipment
21. 1974
22. 1975
23. 1976 (plan)

Production volume (percent change, real terms)
24. check on 25
25. 1974–75
26. check on 27
27. 1975–76 (plan)

Capacity utilization
28. check on 29
29. "By what percent could 1975's production volume have increased (as compared with 1974), assuming labor supply and product demand imposed no restraint?"
30. check on 31
31. "By what percent could 1975's production volume have increased (as compared with 1974), assuming product demand available but with the existing labor force?"
32. check on 33
33. "By what percent can 1976 production volume increase (as compared with 1975), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"

Orders
34. check on 35
35. Percent increase or decrease in total volume of orders as compared with this time last year.
36. check on 37
37. Percent of planned 1976 production covered by existing orders.
38. check on 39–41

Order coverage for 1976 is
39. greater than normal
40. normal
41. less than normal

Inventories
42. check on 43
43. How much do product inventories as a percent of sales diverge from normal?

Supplementary Questions

Impediments to investment
44. check on 45–50
45. Already have sufficient capacity relative to product demand
46. Insufficient internal finance
47. Insufficient external finance
48. Lack of profitable investments
49. Lack of labor
50. Other, namely...

1976 Planning Survey

1. ID
Number of Employees
2. 1975
3. 1976
Total Wage Bill, including social fees
4. 1975
5. 1976
Sales (million SEK, current prices, excluding indirect taxes)
Abroad, including to affiliates
6. 1975
7. 1976
8. 1977 (plan)
9. check on 12
10. percent change per year 1975–80 (plan), constant prices
Domestic, including to affiliates
11. 1975
12. 1976
13. 1977 (plan)
14. check on 17
15. percent change per year 1975–80 (plan), constant prices
Raw Materials Costs, including fuels, million SEK, current prices
16. 1975
17. 1976
18. 1977 (plan)
Investment (million SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
19. 1975
20. 1976
21. 1977 (plan)
Machinery and equipment, including transport equipment
22. 1975
23. 1976
24. 1977 (plan)
Production volume (percent change, real terms)
25. check on 26
26. 1975–76
27. check on 28
28. 1976–77 (plan)
Capacity utilization
29. check on 30
30. "By what percent could 1976's production volume have increased (as compared with 1975), assuming labor supply and product demand imposed no restraint?"
31. check on 32
32. "By what percent could 1976's production volume have increased (as compared with 1975), assuming product demand available but with the existing labor force?"
33. check on 34
34. "By what percent can 1977 production volume increase (as compared with 1976), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"

1976 Planning Survvey, continued

Orders
35. check on 36
36. Percent increase or decrease in total volume of orders as compared with this time last year.
37. check on 38
38. Percent of planned 1977 production covered by existing orders.
39. check on 40–42
Order coverage for 1977 is
40. greater than normal
41. normal
42. less than normal

Inventories
43. check on 44
44. Raw material inventories as of 76–12–31 as a percent of total purchases of raw materials (including fuels) in 1976.
45. check on 46
46. Normal ratio of raw material inventories to purchases
47. check on 48
48. Product inventories as of 76–12–31 as a percent of total 1976 sales volume
49. check on 50
50. Normal ratio of product inventories to sales volume

Supplementary Questions
Impediments to investment
44. check on 45–50
45. Already have sufficient capacity relative to product demand
46. Insufficient internal finance
47. Insufficient external finance
48. Lack of profitable investments
49. Lack of labor
50. Other, namely...

1977 Planning Survey

1. ID

Number of Employees
2. 1976
3. 1977

Total Wage Bill, including social fees
4. 1976
5. 1977

Sales (million SEK, current prices, excluding indirect taxes)
Abroad, including to affiliates
6. 1976
7. 1977
8. 1978 (plan)
9. check on 10
10. percent change per year 1975–80 (plan), constant prices

1977 Planning Survey, continued

Domestic, including to affiliates
11. 1976
12. 1977
13. 1978 (plan)
14. check on 15
15. percent change per year 1975–80 (plan), constant prices

Raw Materials Costs, including fuels, million SEK, current prices
16. 1976
17. 1977
18. 1978 (plan)

Investment (milliion SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
19. 1976
20. 1977
21. 1978 (plan)
Machinery and equipment, including transport equipment
22. 1976
23. 1977
24. 1978 (plan)

Production volume (percent change, real terms)
25. check on 26
26. 1976–77
27. check on 28
28. 1977–78 (plan)

Capacity utilization
29. check on 30
30. "By what percent could 1977's production volume have increased (as compared with 1976), assuming labor supply and product demand imposed no restraint?"
31. check on 32
32. "By what percent could 1977's production volume have increased (as compared with 1976), assuming product demand available but with the existing labor force?"
33. check on 34
34. "By what percent can 1978 production volume increase (as compared with 1977), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"

Orders
35. check on 36
36. Percent increase or decrease in total volume of orders as compared with this time last year.
37. check on 38
38. Percent of planned 1978 production covered by existing orders.
39. check on 40–42
Order coverage for 1978 is
40. greater than normal
41. normal
42. less than normal

Inventories
43. check on 44
44. Raw material inventories as of 77–12–31 as a percent of total purchases of raw materials (including fuels) in 1977.
45. check on 46
46. Normal ratio of raw material inventories to purchases
47. check on 48
48. Product inventories as of 77–12–31 as a percent of total 1977 sales volume
49. check on 50
50. Normal ratio of product inventories to sales volume

Supplementary Questions
51. check on 52
52. Economic life expectancy (in years) of the most recently installed piece of important machinery
53. check on 54
54. Economic life expectancy (in years) for buildings
55. check on 56
56. Machinery as a percent of fixed capital assets (fire insurance value)
57. check on 58
58. How much investment (current prices) would be required to increase capacity by at least 25%?
59. check on 60
60. How many people would be required to man this new capacity?

1978 Planning Survey

1. ID

Number of Employees
2. 1977
3. 1978

Total Wage Bill, including social fees
4. 1977
5. 1978

Sales (million SEK, current prices, excluding indirect taxes)
Abroad, including to affiliates
6. 1977
7. 1978
8 1979 (plan)
9. check on 10
10. percent change per year 1977–83 (plan), constant prices

Domestic, including to affiliates
11. 1977
12. 1978
13. 1979 (plan)
14. check on 15
15. percent change per year 1977–83 (plan), constant prices

Raw Materials Costs, including fuels, million SEK, current prices
16. 1977
17. 1978
18. 1979 (plan)

1978 Planning Survey, continued

Investment (million SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
19. 1977
20. 1978
21. 1979 (plan)
Machinery and equipment, including transport equipment
22. 1977
23. 1978
24. 1979 (plan)
Production volume (percent change, real terms)
25. check on 26
26. 1977–78
27. check on 28
28. 1978–79 (plan)
Capacity utilization
29. check on 30
30. "By what percent could 1978's production volume have increased (as compared with 1977), assuming labor supply and product demand imposed no restraint?"
31. check on 32
32. "By what percent could 1978's production volume have increased (as compared with 1977), assuming product demand available but with the existing labor force?"
33. check on 34
34. "By what percent can 1979 production volume increase (as compared with 1978), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"
Orders
35. check on 36
36. Percent increase or decrease in total volume of orders as compared with this time last year.
37. check on 38
38. Percent of planned 1979 production covered by existing orders.
39. check on 40–42
Order coverage for 1979 is
40. greater than normal
41. normal
42. less than normal
Inventories
43. check on 44
44. Raw material inventories as of 78–12–31 as a percent of total purchases of raw materials (including fuels) in 1978.
45. check on 46
46. Normal ratio of raw material inventories to purchases
47. check on 48
48. Product inventories as of 78–12–31 as a percent of total 1978 sales volume
49. check on 50
50. Normal ratio of product inventories to sales volume

1978 Planning Survey, continued

Supplementary Questions
Energy and Fuel Costs
Electrical Energy, including internally generated
51. 1977
52. 1978
53. 1979 (plan)
Fuel (oil, coal, etc)
54. 1977
55. 1978
56. 1979 (plan)
More Capacity Utilization Questions
57. check on 58
58. Expected capacity utilization rate in first quarter 1979
59. check on 60
60. About how many months would it take to reach a preferred operating rate?
61. check on 62
62. What percent increase in employment is implicit in the answer to question 60?
New or Modernized Facilities
63. Have any new or modernized facilities been acquired in the last 5 years?
64. check on 65
65. What percent of total employment is working with these facilities?
66. check on 67
67. What percent of total production volume derives from these facilities?
68. check on 69
69. By what percent could output from these new facilities have been increased (relative to 1977), assuming product demand and labor supply imposed no constraint?
70. check on 71
71. By what percent could output from these new facilities have been increased (relative to 1977), assuming product demand imposed no constraint but with the existing workforce?
72. check on 73
73. What percent of total electrical energy consumption was used by these new facilities?
74. check on 75
75. What percent of total fuel consumption was used by these new facilities?

1979 Planning Survey

1. ID
Number of Employees
2. 1978
3. 1979
Total Wage Bill, including social fees
4. 1978
5. 1979

1979 Planning Survey, continued

Sales (million SEK, current prices, excluding indirect taxes)
Abroad, including to affiliates
6. 1978
7. 1979
8 1980 (plan)
9. coded as zero
10. coded as zero
Domestic, including to affiliates
11. 1978
12. 1979
13. 1980 (plan)
14. coded as zero
15. coded as zero
Raw Material and Input Goods Purchases, total
16. 1978
17. 1979
18. 1980 (plan)
Investment (milliion SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
19. 1978
20. 1979
21. 1980 (plan)
Machinery and equipment, including transport equipment
22. 1978
23. 1979
24. 1980 (plan)
Production volume (percent change, real terms)
25. check on 26
26. 1978–79
27. check on 28
28. 1979–80 (plan)
Capacity utilization
29. check on 30
30. "By what percent could 1979's production volume have increased (as compared with 1978), assuming labor supply and product demand imposed no restraint?"
31. check on 32
32. "By what percent could 1979's production volume have increased (as compared with 1978), assuming product demand available but with the existing labor force?"
33. check on 34
34. "By what percent can 1980 production volume increase (as compared with 1979), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"
Orders
35. check on 36
36. Percent increase or decrease in total volume of orders as compared with this time last year.
37. check on 38
38. Percent of planned 1980 production covered by existing orders.
39. check on 40–42

1979 Planning Survey, continued

Order coverage for 1980 is
40. greater than normal
41. normal
42. less than normal

Inventories
43. check on 44
44. Raw material inventories as of 79–12–31 as a percent of total purchases of raw materials (including fuels) in 1979.
45. check on 46
46. Normal ratio of raw material inventories to purchases
47. check on 48
48. Product inventories as of 79–12–31 as a percent of total 1979 sales volume
49. check on 50
50. Normal ratio of product inventories to sales volume

Supplementary Questions

Energy and Fuel Costs

Electrical Energy, including internally generated
51. 1978
52. 1979
53. 1980 (plan)

Fuel (oil, coal, etc)
54. 1978
55. 1979
56. 1980 (plan)

More Capacity Utilization Questions
57. check on 58
58. Expected capacity utilization rate in first quarter 1980
59. check on 60
60. About how many months would it take to reach a preferred operating rate?
61. check on 62
62. What percent increase in employment is implicit in the answer to question 60?

Capital Stock

Replacement value of capital stock as of 79–12–31
63. check on 64
64. Building and plant
65. check on 66
66. Machinery and equipment

1980 Planning Survey

1. ID

Number of Employees
2. 1979
3. 1980

Total Wage Bill, including social fees
4. 1979
5. 1980

1980 Planning Survey, continued

Sales (million SEK, current prices, excluding indirect taxes)
Abroad, including to affiliates
6. 1979
7. 1980
8. 1981 (plan)
9. coded as zero
10. coded as zero
Domestic, including to affiliates
11. 1979
12. 1980
13. 1981 (plan)
14. coded as zero
15. coded as zero
Raw Material and Input Goods Purchases, total
16. 1979
17. 1980
18. 1981 (plan)
Investment (milliion SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
19. 1979
20. 1980
21. 1981 (plan)
Machinery and equipment, including transport equipment
22. 1979
23. 1980
24. 1981 (plan)
Production volume (percent change, real terms)
25. check on 26
26. 1979–80
27. check on 28
28. 1980–81 (plan)
Capacity utilization
29. check on 30
30. "By what percent could 1980's production volume have increased (as compared with 1979), assuming labor supply and product demand imposed no restraint?"
31. check on 32
32. "By what percent could 1980's production volume have increased (as compared with 1979), assuming product demand available but with the existing labor force?"
33. check on 34
34. "By what percent can 1981 production volume increase (as compared with 1980), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"
Orders
35. check on 36
36. Percent increase or decrease in total volume of orders as compared with this time last year.
37. check on 38
38. Percent of planned 1981 production covered by existing orders.
39. check on 40–42

1981 Planning Survey, continued

Total Wage Bill, including social fees
4. 1980
5. 1981
Sales (million SEK, current prices, excluding indirect taxes)
Abroad, including to affiliates
6. 1980
7. 1981
8. 1982 (plan)
9. coded as zero
10. coded as zero
Domestic, including to affiliates
11. 1980
12. 1981
13. 1982 (plan)
14. coded as zero
15. coded as zero
Raw Material and Input Goods Purchases, total
16. 1980
17. 1981
18. 1982 (plan)
Investment (milliion SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
19. 1980
20. 1981
21. 1982 (plan)
Machinery and equipment, including transport equipment
22. 1980
23. 1981
24. 1982 (plan)
Production volume (percent change, real terms)
25. check on 26
26. 1980–81
27. check on 28
28. 1981–82 (plan)
Capacity utilization
29. check on 30
30. "By what percent could 1981's production volume have increased (as compared with 1980), assuming labor supply and product demand imposed no restraint?"
31. check on 32
32. "By what percent could 1981's production volume have increased (as compared with 1980), assuming product demand available but with the existing labor force?"
33. check on 34
34. "By what percent can 1982 production volume increase (as compared with 1981), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"

1981 Planning Survey, continued

Orders
35. check on 36
36. Percent increase or decrease in total volume of orders as compared with this time last year.
37. check on 38
38. Percent of planned 1982 production covered by existing orders.
39. check on 40–42

Order coverage for 1982 is
40. greater than normal
41. normal
42. less than normal

Inventories
43. check on 44
44. Raw material inventories as of 81–12–31 as a percent of total purchases of raw materials (including fuels) in 1981.
45. check on 46
46. Normal ratio of raw material inventories to purchases
47. check on 48
48. Product inventories as of 81–12–31 as a percent of total 1981 sales volume
49. check on 50
50. Normal ratio of product inventories to sales volume

Supplementary Questions
51. Number of employees 1982 (plan)

Total Manhours (1000's)
52. 1980
53. 1981
54. 1982 (plan)
55. Expected Wage Bill, including social fees, 1982

Energy and Fuel Costs

Electrical Energy, including internally generated
56. 1980
57. 1981
58. 1982 (plan)

Fuel (oil, coal, etc)
59. 1980
60. 1981
61. 1982 (plan)

More Capacity Utilization Questions
62. check on 63
63. What percent increase in employment (using 1981's actual employment as base) would have been required to reach full capacity in 1981?
64. check on 66
65. Could 1981's production level have been achieved with less employment? If so, by how much less compared with actual employment?
66. check on 67
67. How high is production activity now (first quarter 1982) as a percent of practically achievable capacity?
68. check on 69
69. How many months would be required (for technical or labor market reasons) to increase capacity utilization to 100%?

1981 Planning Survey, continued

70. check on 71
71. How large an increase in employment would be required to reach full capacity utilization?

Purchases of Raw Materials/Input Goods Abroad

72. check on 73–75

Has the fraction of input goods and raw materials purchased abroad changed from 1980 to 1981?

73. Increased
74. Unchanged
75. Decreased
76. check on 77–79

Do you expect the fraction of input goods and raw materials purchased abroad to change from 1981 to 1982?

77. Increase
78. Not change
79. Decrease

Service components

80. check on 81
81. What fraction of total sales consists of a service component (including transport)?
82. Total purchases of services (including transport), million SEK
83. check on 84
84. Approximately what fraction of service purchases is reflected in your answers to questions 16–18 above?

1982 Planning Survey

1. ID

Number of Employees

2. 1981
3. 1982

Total Wage Bill, including social fees

4. 1981
5. 1982

Sales (million SEK, current prices, excluding indirect taxes)

Abroad, including to affiliates

6. 1981
7. 1982
8. 1983 (plan)
9. coded as zero
10. coded as zero

Domestic, including to affiliates

11. 1981
12. 1982
13. 1983 (plan)
14. coded as zero
15. coded as zero

Raw Material and Input Goods Purchases, total

16. 1981
17. 1982
18. 1983 (plan)

1982 Planning Survey, continued

Investment (milliion SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
19. 1981
20. 1982
21. 1983 (plan)
Machinery and equipment, including transport equipment
22. 1981
23. 1982
24. 1983 (plan)
Production volume (percent change, real terms)
25. check on 26
26. 1981–82
27. check on 28
28. 1982–83 (plan)
Capacity utilization
29. check on 30
30. "By what percent could 1982's production volume have increased (as compared with 1981), assuming labor supply and product demand imposed no restraint?"
31. check on 32
32. "By what percent could 1982's production volume have increased (as compared with 1981), assuming product demand available but with the existing labor force?"
33. check on 34
34. "By what percent can 1983 production volume increase (as compared with 1982), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"
Orders
35. check on 36
36. Percent increase or decrease in total volume of orders as compared with this time last year.
37. check on 38
38. Percent of planned 1983 production covered by existing orders.
39. check on 40–42
Order coverage for 1983 is
40. greater than normal
41. normal
42. less than normal
Inventories
43. check on 44
44. Raw material inventories as of 82–12–31 as a percent of total purchases of raw materials (including fuels) in 1982.
45. check on 46
46. Normal ratio of raw material inventories to purchases
47. check on 48
48. Product inventories as of 82–12–31 as a percent of total 1982 sales volume
49. check on 50
50. Normal ratio of product inventories to sales volume

1982 Planning Survey, continued

Supplementary Questions
51. Number of employees 1983 (plan)
Total Manhours (1000's)
52. 1981
53. 1982
54. 1983 (plan)
55. Expected Wage Bill, including social fees, 1983
Wage costs attributable to R&D work
56. 1981
57. 1982
58. 1983 (plan)
Wage costs attributable to marketing
59. 1981
60. 1982
61. 1983
Energy and Fuel Costs
Electrical Energy, including internally generated
62. 1981
63. 1982
64. 1983 (plan)
Fuel (oil, coal, etc)
65. 1981
66. 1982
67. 1983 (plan)
More Capacity Utilization Questions
68. check on 69
69. What percent increase in employment (using 1982's actual employment as base) would have been required to reach full capacity in 1982?
70. check on 71
71. Could 1982's production level have been achieved with less employment? If so, by how much less compared with actual employment?
72. check on 73
73. How high is production activity now (first quarter 1983) as a percent of practically achievable capacity?
74. check on 75
75. How many months would be required (for technical or labor market reasons) to increase capacity utilization to 100%?
76. check on 77
77. How large an increase in employment would be required to reach full capacity utilization?
Prices
Expected percent change in average product price 1982–83
78. check on 79
79. Domestic sales
80. check on 81
81. Exports
More Questions on Input Purchases
82. check on 83–85
Has the percent of input purchases coming from abroad (1982 vs 1981)
83. Increased
84. Been approximately unchanged
85. Decreased

1982 Planning Survey, continued

86. check on 87–89
Will the percent of planned input purchases from abroad (1983 vs 1982)
87. Increase
88. Be approximately unchanged
89. Decrease
Effects of Devaluation
90. check on 91
91. By what percent do you estimate the average selling price (in SEK) for your product would have changed on foreign markets between 1982 and 1983 had there been no devaluation?
92. check on 93
93. By what percent do you estimate your average sales (in SEK) would have changed on foreign markets between 1982 and 1983 had there been no devaluation?
94. check on 95
95. By what percent do you estimate that international demand (in volume) for the type of goods you produce will change on avreage between 1982 and 1983?
About how large a percentage cost savings do you think the devaluation (19% reduction in production cost increases as a result of the devaluation in October 1982) will imply for your firm?
96. check on 97
97. By the beginning of 1983?
98. check on 99.
99. By mid–1983?
100. check on 101.
101. By the beginning of 1984?
102. check on 103
103. By mid–1984?

1983 Planning Survey

1. ID
Number of Employees
2. 1982
3. 1983
Total Wage Bill, including social fees
4. 1982
5. 1983
Sales (million SEK, current prices, excluding indirect taxes)
Abroad, including to affiliates
6. 1982
7. 1983
8. 1984 (plan)
9. coded as zero
10. coded as zero
Domestic, including to affiliates
11. 1982
12. 1983
13. 1984 (plan)
14. coded as zero
15. coded as zero

1983 Planning Survey, continued

Raw Material and Input Goods Purchases, total
16. 1982
17. 1983
18. 1984 (plan)
Investment (milliion SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
19. 1982
20. 1983
21. 1984 (plan)
Machinery and equipment, including transport equipment
22. 1982
23. 1983
24. 1984 (plan)
Production volume (percent change, real terms)
25. check on 26
26. 1982–83
27. check on 28
28. 1983–84 (plan)
Capacity utilization
29. check on 30
30. "By what percent could 1983's production volume have increased (as compared with 1982), assuming labor supply and product demand imposed no restraint?"
31. check on 32
32. "By what percent could 1983's production volume have increased (as compared with 1982), assuming product demand available but with the existing labor force?"
33. check on 34
34. "By what percent can 1984 production volume increase (as compared with 1983), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"
Orders
35. check on 36
36. Percent increase or decrease in total volume of orders as compared with this time last year.
37. check on 38
38. Percent of planned 1983 production covered by existing orders.
39. check on 40–42
Order coverage for 1984 is
40. greater than normal
41. normal
42. less than normal
Inventories
43. check on 44
44. Raw material inventories as of 83–12–31 as a percent of total purchases of raw materials (including fuels) in 1983.
45. check on 46
46. Normal ratio of raw material inventories to purchases
47. check on 48
48. Product inventories as of 83–12–31 as a percent of total 1983 sales volume

1983 Planning Survey, continued

49. check on 50
50. Normal ratio of product inventories to sales volume

Supplementary Questions

51. Number of employees 1984 (plan)

Total Manhours (1000's)

52. 1982
53. 1983
54. 1984 (plan)
55. Expected Wage Bill, including social fees, 1984

Energy and Fuel Costs

Electrical Energy, including internally generated

56. 1982
57. 1983
58. 1984 (plan)

Fuel (oil, coal, etc)

59. 1982
60. 1983
61. 1984 (plan)

More Capacity Utilization Questions

62. check on 63
63. What percent increase in employment (using 1983's actual employment as base) would have been required to reach full capacity in 1983?
64. check on 65
65. Could 1983's production level have been achieved with less employment? If so, by how much less compared with actual employment?
66. check on 67
67. How high is production activity now (first quarter 1984) as a percent of practically achievable capacity?
68. check on 69
69. How many months would be required (for technical or labor market reasons) to increase capacity utilization to 100%?
70. check on 71
71. How large an increase in employment would be required to reach full capacity utilization?

Prices

Expected percent change in average product price 1983–84

72. check on 73
73. Domestic sales
74. check on 75
75. Exports

More Questions on Input Purchases

76. check on 77–79

Has the percent of input purchases coming from abroad (1983 vs 1982)

77. Increased
78. Been approximately unchanged
79. Decreased
80. check on 81–83

Will the percent of planned input purchases from abroad (1984 vs 1983)

81. Increase
82. Be approximately unchanged
83. Decrease

1983 Planning Survey, continued

Labor Shortages
84. check on 85
85. Do you currently have a shortage of labor in any occupational category?
86. check on 87–89
If so, is this shortage
87. Very large
88. Large
89. Moderate
Indicate occupational categories (yes/no)
90. Production worker
91. Other blue–collar worker
92. Technical white–collar worker
93. Other white–collar worker

Training
Does your firm give new employees any formal training or education?
94. check on 95
95. Blue–collar workers
96. check on 97
97. White–collar workers
If so, approximately how long does such training last for a typical new employee?
98. check on 99
99. Blue–collar worker
100. check on 101.
101. White–collar worker

Service component of sales
What percent of invoicing consists of services?
102. check on 103
103. 1983
104. check on 105
105. 1978
What percent of service invoicing was bought through other firms?
106. check on 107
107. 1983
108. check on 109
109. 1978.

1984 Planning Survey

1. ID

Number of Employees
2. 1983
3. 1984

Total Wage Bill, including social fees
4. 1983
5. 1984

1984 Planning Survey, continued

Sales (million SEK, current prices, excluding indirect taxes)
Abroad, including to affiliates
6. 1983
7. 1984
8. 1985 (plan)
9. coded as zero
10. coded as zero
Domestic, including to affiliates
11. 1983
12. 1984
13. 1985 (plan)
14. coded as zero
15. coded as zero
Raw Material and Input Goods Purchases, total
16. 1983
17. 1984
18. 1985 (plan)
Investment (milliion SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
19. 1983
20. 1984
21. 1985 (plan)
Machinery and equipment, including transport equipment
22. 1983
23. 1984
24. 1985 (plan)
Production volume (percent change, real terms)
25. check on 26
26. 1983–84
27. check on 28
28. 1984–85 (plan)
Capacity utilization
29. check on 30
30. "By what percent could 1984's production volume have increased (as compared with 1983), assuming labor supply and product demand imposed no restraint?"
31. check on 32
32. "By what percent could 1984's production volume have increased (as compared with 1983), assuming product demand available but with the existing labor force?"
33. check on 34
34. "By what percent can 1985 production volume increase (as compared with 1984), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"
Orders
35. check on 36
36. Percent increase or decrease in total volume of orders as compared with this time last year.
37. check on 38
38. Percent of planned 1985 production covered by existing orders.

1984 Planning Survey, continued

39. check on 40–42
Order coverage for 1985 is
40. greater than normal
41. normal
42. less than normal

Inventories

43. check on 44
44. Raw material inventories as of 84–12–31 as a percent of total purchases of raw materials (including fuels) in 1984.
45. check on 46
46. Normal ratio of raw material inventories to purchases
47. check on 48
48. Product inventories as of 84–12–31 as a percent of total 1984 sales volume
49. check on 50
50. Normal ratio of product inventories to sales volume

Supplementary Questions

51. Number of employees 1985 (plan)

Total Manhours (1000's)

52. 1983
53. 1984
54. 1985 (plan)
55. Expected Wage Bill, including social fees, 1985

Other costs

56. 1983
57. 1984

Energy and Fuel Costs

Electrical Energy, including internally generated

58. 1983
59. 1984
60. 1985 (plan)

Fuel (oil, coal, etc)

61. 1983
62. 1984
63. 1985 (plan)

More Capacity Utilization Questions

64. check on 65
65. What percent increase in employment (using 1984's actual employment as base) would have been required to reach full capacity in 1984?
66. check on 67
67. Could 1984's production level have been achieved with less employment? If so, by how much less compared with actual employment?
68. check on 69
69. How high is production activity now (first quarter 1985) as a percent of practically achievable capacity?
70. check on 71
71. How many months would be required (for technical or labor market reasons) to increase capacity utilization to 100%?
72. check on 73
73. How large an increase in employment would be required to reach full capacity utilization?

1984 Planning Survey, continued

Prices
Expected percent change in average product price 1984–85
74. check on 75
75. Domestic sales
76. check on 77
77. Exports
More Questions on Input Goods Purchases
78. check on 79–81
Has the percent of input purchases coming from abroad (1984 vs 1983)
79. Increased
80. Been approximately unchanged
81. Decreased
82. check on 83–85
Will the percent of planned input purchases from abroad (1985 vs 1984)
83. Increase
84. Be approximately unchanged
85. Decrease
Labor Shortages
86. check on 85
87. Do you currently have a shortage of labor in any occupational category?
88. check on 89–91
If so, is this shortage
89. Very large
90. Large
91. Moderate
Indicate occupational categories (yes/no)
92. check on 93
93. Production worker
94. check on 95
95. Technical white–collar worker
96. check on 97
97. Other

1985 Planning Survey

1. ID
Number of Employees
2. 1984
3. 1985
Total Wage Bill, including social fees
4. 1984
5. 1985
Sales (million SEK, current prices, excluding indirect taxes)
Abroad, including to affiliates
6. 1984
7. 1985
8. 1986 (plan)
9. coded as zero
10. coded as zero

1985 Planning Survey, continued

Domestic, including to affiliates
11. 1984
12. 1985
13. 1986 (plan)
14. coded as zero
15. coded as zero

Raw Material and Input Goods Purchases, total
16. 1984
17. 1985
18. 1986 (plan)

Investment (milliion SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
19. 1984
20. 1985
21. 1986 (plan)
Machinery and equipment, including transport equipment
22. 1984
23. 1985
24. 1986 (plan)

Production volume (percent change, real terms)
25. check on 26
26. 1984–85
27. check on 28
28. 1985–86 (plan)

Capacity utilization
29. check on 30
30. "By what percent could 1985's production volume have increased (as compared with 1984), assuming labor supply and product demand imposed no restraint?"
31. check on 32
32. "By what percent could 1985's production volume have increased (as compared with 1984), assuming product demand available but with the existing labor force?"
33. check on 34
34. "By what percent can 1986 production volume increase (as compared with 1985), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"

Orders
35. check on 36
36. Percent increase or decrease in total volume of orders as compared with this time last year.
37. check on 38
38. Percent of planned 1986 production covered by existing orders.
39. check on 40–42
Order coverage for 1986 is
40. greater than normal
41. normal
42. less than normal

1985 Planning Survey, continued

Inventories
43. check on 44
44. Raw material inventories as of 85–12–31 as a percent of total purchases of raw materials (including fuels) in 1985.
45. check on 46
46. Normal ratio of raw material inventories to purchases
47. check on 48
48. Product inventories as of 85–12–31 as a percent of total 1985 sales volume
49. check on 50
50. Normal ratio of product inventories to sales volume

Supplementary Questions
51. Number of employees 1986 (plan)

Total Manhours (1000's)
52. 1984
53. 1985
54. 1986 (plan)
55. Expected Wage Bill, including social fees, 1986

Other costs
56. 1984
57. 1985

Energy and Fuel Costs
Electrical Energy, including internally generated
58. 1984
59. 1985
60. 1986 (plan)

Fuel (oil, coal, etc)
61. 1984
62. 1985
63. 1986 (plan)

More Capacity Utilization Questions
64. check on 65
65. What percent increase in employment (using 1985's actual employment as base) would have been required to reach full capacity in 1985?
66. check on 67
67. Could 1985's production level have been achieved with less employment? If so, by how much less compared with actual employment?
68. check on 69
69. How high is production activity now (first quarter 1986) as a percent of practically achievable capacity?
70. check on 71
71. How many months would be required (for technical or labor market reasons) to increase capacity utilization to 100%?
72. check on 73
73. How large an increase in employment would be required to reach full capacity utilization?

Prices
Expected percent change in average product price 1985–86
74. check on 75
75. Domestic sales
76. check on 77
77. Exports

1985 Planning Survey, continued

More Questions on Input Goods Purchases
78. check on 79–81
Has the percent of input purchases coming from abroad (1985 vs 1984)
79. Increased
80. Been approximately unchanged
81. Decreased
82. check on 83–85
Will the percent of planned input purchases from abroad (1986 vs 1985)
83. Increase
84. Be approximately unchanged
85. Decrease
How large a fraction of the cost of raw material and input goods purchases came from abroad?
86. check on 87
87. 1980
88. check on 89
89. 1985

1986 Planning Survey

1. ID
Number of Employees
2. 1985
3. 1986
Total Wage Bill, including social fees
4. 1985
5. 1986
Sales (million SEK, current prices, excluding indirect taxes)
Abroad, including to affiliates
6. 1985
7. 1986
8. 1987 (plan)
9. coded as zero
10. coded as zero
Domestic, including to affiliates
11. 1985
12. 1986
13. 1987 (plan)
14. coded as zero
15. coded as zero
Raw Material and Input Goods Purchases, total
16. 1985
17. 1986
18. 1987 (plan)
Investment (milliion SEK, current prices)
Building and plant, including air conditioning, sanitation, etc
19. 1985
20. 1986
21. 1987 (plan)

1986 Planning Survey, continued

Machinery and equipment, including transport equipment
22. 1985
23. 1986
24. 1987 (plan)

Production volume (percent change, real terms)
25. check on 26
26. 1985–86
27. check on 28
28. 1986–87 (plan)

Capacity utilization
29. check on 30
30. "By what percent could 1986's production volume have increased (as compared with 1985), assuming labor supply and product demand imposed no restraint?"
31. check on 32
32. "By what percent could 1986's production volume have increased (as compared with 1985), assuming product demand available but with the existing labor force?"
33. check on 34
34. "By what percent can 1987 production volume increase (as compared with 1986), given the already decided–upon capacity increases and with labor supply and product demand imposing no restraint?"

Orders
35. check on 36
36. Percent increase or decrease in total volume of orders as compared with this time last year.
37. check on 38
38. Percent of planned 1987 production covered by existing orders.
39. check on 40–42

Order coverage for 1987 is
40. greater than normal
41. normal
42. less than normal

Inventories
43. check on 44
44. Raw material inventories as of 86–12–31 as a percent of total purchases of raw materials (including fuels) in 1986.
45. check on 46
46. Normal ratio of raw material inventories to purchases
47. check on 48
48. Product inventories as of 86–12–31 as a percent of total 1986 sales volume
49. check on 50
50. Normal ratio of product inventories to sales volume

Supplementary Questions
51. Number of employees 1987 (plan)

Total Manhours (1000's)
52. 1985
53. 1986
54. 1987 (plan)
55. Expected Wage Bill, including social fees, 1987

1986 Planning Survey, continued

Other costs
56. 1985
57. 1986
Energy and Fuel Costs
Electrical Energy, including internally generated
58. 1985
59. 1986
60. 1987 (plan)
Fuel (oil, coal, etc)
61. 1985
62. 1986
63. 1987 (plan)
More Capacity Utilization Questions
64. check on 65
65. What percent increase in employment (using 1986's actual employment as base) would have been required to reach full capacity in 1986?
66. check on 67
67. Could 1986's production level have been achieved with less employment? If so, by how much less compared with actual employment?
68. check on 69
69. How high is production activity now (first quarter 1987) as a percent of practically achievable capacity?
70. check on 71
71. How many months would be required (for technical or labor market reasons) to increase capacity utilization to 100%?
72. check on 73
73. How large an increase in employment would be required to reach full capacity utilization?
Prices
Expected percent change in average product price 1986–87
74. check on 75
75. Domestic sales
76. check on 77
77. Exports
More Questions on Input Goods Purchases
78. check on 79–81
Has the percent of input purchases coming from abroad (1986 vs 1985)
79. Increased
80. Been approximately unchanged
81. Decreased
82. check on 83–85
Will the percent of planned input purchases from abroad (1987 vs 1986)
83. Increase
84. Be approximately unchanged
85. Decrease
Service component of sales
What percent of sales in 1986 consisted of services
86. check on 87
87. Services sold in connection with goods (installation, maintenance)
88. check on 89
89. Services sold separtely (technical services, data services)

1986 Planning Survey, continued

90. check on 91
91. Total services

Economic life length of capital equipment

92. check on 93
93. Expected economic life length of the most recently installed piece of important equipment (in years).
94. check on 95
95. Expected economic life length of recently constructed plant (years)

Depreciation

Which write–off method do you regard as the economically best way to depreciate machines?

96. check on 97–99.
97. straight–line
98. accelerated
99. other

Second–hand market

Is there a functioning second–hand market for your more important types of machines?

100. check on 101–103
101. Not at all
102. To some degree
103. Very much so.

Appendix 2: SAS Panel Dataset

The dataset consists of 46 SAS variables. Four of these variables are "index variables" — the observations are indexed by establishment, by year, by industry, and by their APL codes in the cross–sectional data.; 31 variables come from the core part of the Planning Survey ("core variables"); and 11 variables contain information from the supplementary part of the Planning Survey ("supplementary variables"). Missing data are coded as –99.

A. Index Variables

I: Establishment index
Takes on the values 1, 2,...,xx
T: Year index
Takes on the values 75, 76,...,86
IND: Industry code
Takes on the values 1.1, 1.2,...,5 as shown below.

1. Raw Materials Processing
   - 1.1 Iron and Steel
   - 1.2 Non–Ferrous Metals
   - 1.3 Saw Works
   - 1.4 Pulp
2. Intermediate Goods
   - 2.1 Chemicals
   - 2.2 Metal Working
   - 2.3 Paper
3. Investment Goods
   - 3.1 Machinery
   - 3.2 Electronics
   - 3.3 Office Furniture
   - 3.4 Shipbuilding
4. Consumption Goods
   - 4.1 Food–Tobacco–Beverages
   - 4.2 Textiles–Shoes–Leather
   - 4.3 Pharmecueticals
   - 4.4 Consumer Durables
   - 4.5 Graphics
   - 4.6 Furniture
5. Building Materials

APL: APL code in cross–sectional data
Takes on the values 1.01,..etc

B. Core Variables

These are the variables that are available for all years (with some exceptions in 1975).

LLAG:	Number of Employees in T–1
L:	Number of Employees in T
****The following variables are in current prices, million SEK****	
WLAG:	Total Wage Bill (including social fees) in T–1
W:	Total Wage Bill (including social fees) in T
S1LAG:	Sales Abroad (including to affiliates) in T–1
S1:	Sales Abroad (including to affiliates) in T
S1EXP:	Sales Abroad (including to affiliates) in T+1 (expected)
S2LAG:	Sales Domestic (including to affiliates) in T–1
S2:	Sales Domestic (including to affiliates) in T
S2LAG:	Sales Domestic (including to affiliates) in T+1 (exp)
RLAG:	Raw Material and Input Good Purchases in T–1
R:	Raw Material and Input Good Purchases in T
REXP:	Raw Material and Input Good Purchases in T+1 (expected)
I1LAG:	Investment Expenditures, Plant and Building (including air conditioning, sanitation, etc) in T–1
I1:	Investment Expenditures, Plant and Building (including air conditioning, sanitation, etc) in T
I1EXP:	Investment Expenditures, Plant and Building (including air conditioning, sanitation, etc) in T+1 (expected)
I2LAG:	Investment Expenditures, Machinery and Equipment, (including transport equipment) in T–1
I2:	Investment Expenditures, Machinery and Equipment, (including transport equipment) in T
I2EXP	Investment Expenditures, Machinery and Equipment, (including transport equipment) in T+1 (expected)
****Percents Expressed in Whole Numbers***	
DQ:	Production Volume — Percent Change from T–1 to T
DQEXP:	Production Volume — Percent Change from T to T+1 (exp)
***Note:	To use A21 and SUM to compute utilization rates, one needs first to subtract off DQ****
SUM:	"By what percent could year T's production volume have increased (as compared with T–1), assuming labor supply and product demand imposed no constraint?"
A21:	"By what percent could year T's production volume have increased (as compared with T–1), assuming product demand available but with the existing labor force?"
DC:	"By what percent can year T+1's production volume increase (as compared with T), given already decided–upon capacity increases and assuming labor supply and product demand impose no restraint?"
DORDER:	Percent change in orders from T–1 to T
COVER1:	Percent of planned production in T+1 covered by existing orders
COVER2:	Order coverage for T+1 (–1 = less than normal; 0 = normal; 1 = greater than normal)

RSTO:	Raw materials inventories as of the end of year T as a percent of total purchases of raw materials in T (including fuels)
NORMRS:	Normal ratio of raw materials inventories to purchases
STO:	Product inventories as of end of year T as a percent of total sales in year T
NORMST:	Normal ratio of product inventories to sales volume

C. Supplementary Variables

COST:	Total Costs (labor costs + raw material/input goods costs + "other costs") (available from 1984–86)
ELAG:	Electricity Costs in T–1 (including internally generated) (available from 1978–86)
E:	Electricity Costs in T (including internally generated) (available from 1978–86)
FLAG:	Fuel costs in T–1 (coal, oil, etc) (available from 1978–86)
F :	Fuel costs in T (coal, oil, etc) (available from 1978–86)
HLAG:	Total manhours (in 1000's) in T–1 (available from 1980–86)
H:	Total manhours (in 1000's) in T (available from 1980–86)
K1:	Replacement value of capital stock (building and plant) as of 31 December 1979
K2:	Replacement value of capital stock (machinery and equipment) as of 31 December 1979
MLR:	"What increase in employment in year T (compared with actual employment that year) would have been required to reach full capacity?" (available from 1980–86)
RED:	"Could year T's production level have been achieved with less employment? If so, by how much less as compared with actual employment in T (in percentage terms)?" (available from 1980–86)