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Abortion and Contraception in Sweden 1870—1970

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Summary. The Swedish fecundity statistics show that birth control has been practised since 1870 at the latest, from 1910 to a growing extent, and since 1935 to a varying degree.

The author has — as far as available statistics allowed — studied the different methods and their demographic effects, especially criminal abortions of former times using internal methods, and more modern criminal abortions using external means, legal abortions (since 1939), pessaries and condoms (which almost disappeared on account of the blockade during World War II), Oral contraception (from 1964) and IUDs (from 1966).

The figures tell us that the Swedish people and the Swedish physicians during these last years have adopted a highly effective system of birth control by means of efficient contraceptives and — as safety valve — practically free legal abortion.

Zusammenfassung. Aus der schwedischen Bevölkerungsstatistik ist zu entnehmen, daß eine Geburtenkontrolle seit 1870 angewandt wurde, und zwar vom Jahre 1910 in größerem, vom Jahre 1935 in wechselndem Umfang und mit unterschiedlichen Methoden. Die kriminelle Abtreibung mittels Gifte (besonders Phosphor) war am gewöhnlichsten bis zum Jahre 1901 zu beobachten. Die Abtreibung mit mechanischen Mitteln wurde am häufigsten zwischen den Jahren 1920—1950 feststellbar. Präventive Mittel aus Gummi kamen immer mehr zur Anwendung in den Jahren 1920—1935, aber waren fast verschwunden aus dem Gebrauch in Schweden während der Absperrung des zweiten Weltkrieges. Als Folgen kann man eine starke Erhöhung der Nativität in diesen Jahren beobachten.

Der legale Schwangerschaftsabbruch wurde im Jahre 1939 zugelassen, und die Zahlen stiegen kräftig bis zum Jahre 1951. Die Nativität erhöhte sich wiederum in den Jahren 1960—1964, besonders die der jungen Frauen, aber diese Tendenz verschwand mit der Einführung der P-Pillen (1964) und der Spirale (1966). In diesen Jahren war auch eine Zunahme der legalen Schwangerschaftsabbrüche zu verzeichnen. Die illegale Abtreibung hat zur Zeit keine größere Bedeutung in der schwedischen Gesellschaft, da fast keine Frau verurteilt wird oder stirbt wegen „Abtreibung der Leibesfrucht“.

Die Zahlen zeigen zugleich, daß die schwedische Bevölkerung und die Ärzteschaft in den letzten Jahren ein zuverlässiges System der Geburtenkontrolle mittels Schwangerschaftsverhütungsmitteln eingeführt haben mit einer praktisch freien legalen Schwangerschaftsunterbrechung als Sicherheitsventil.

Key words: Contraception — Abortion, induced — Demography, Sweden.

In Sweden, population statistics have been published without interruption since 1750 [1]. The effects of birth control can be seen clearly from Diagram 1.

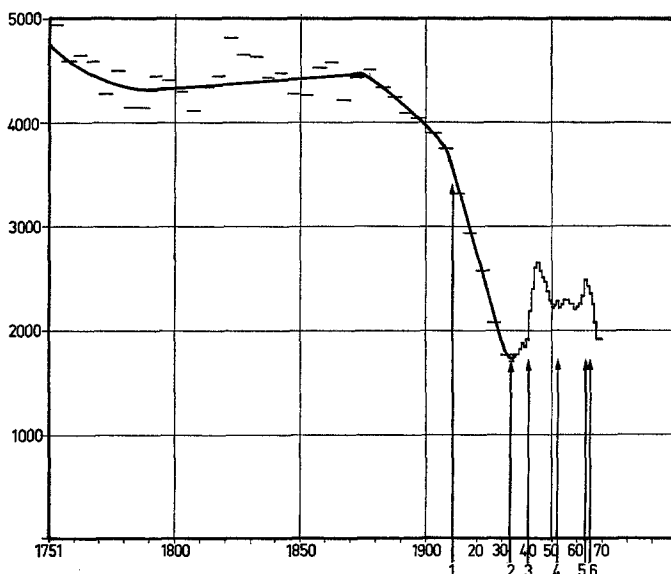


Diagram 1. The number of children, calculated from the fertility values differentiated according to age, for the year (and five-year period respectively), which 1000 women would have during the whole of their reproductive period (*Gross reproduction figure*) 1750—1970. 1 Contraceptives forbidden 1911—1938. 2 New economic and population policy. 3 “Rubber explosion” 1942—1945. 4 Control of rubber contraceptives. 5 P-pills allowed 1 July 1964. 6 IUDs allowed 1 May 1966

Sexual Abstinence

One way of practising birth control — a perfectly certain one — is sexual abstinence. There is an investigation report describing the sex life of Swedish people [2], but it is impossible to illustrate statistically development in this respect and what effect it may have had on the observed nativity.

Contraceptive Measures

Other more or less certain ways are various methods of preventing pregnancy, which, it is assumed, have always been practised (coitus interruptus, “safe periods”), but in Sweden we have no statistics at all on this subject until contraceptives were given a number of their own in customs statistics in 1950. It should be observed that trade in and the exhibition of contraceptives were forbidden by law from 1911 until 1938, and noticeable birth control began at the same time as the law was being debated. What was cause and what was effect is open to question. In any case, the legislation was unable to stop birth control.

That we have statistics concerned with contraceptives at all is due to the fact that all rubber goods are imported, and that the Pharmaceutical Control Laboratory (on its own initiative) began, on the first of May 1951, testing the articles then sold in chemists’ shops; testing became compulsory on the first of July 1959 (Diagram 2). Further, Pharmaceutical Preparations Ltd. and wholesale dealers in such preparations provide information on the number of oral contraceptives

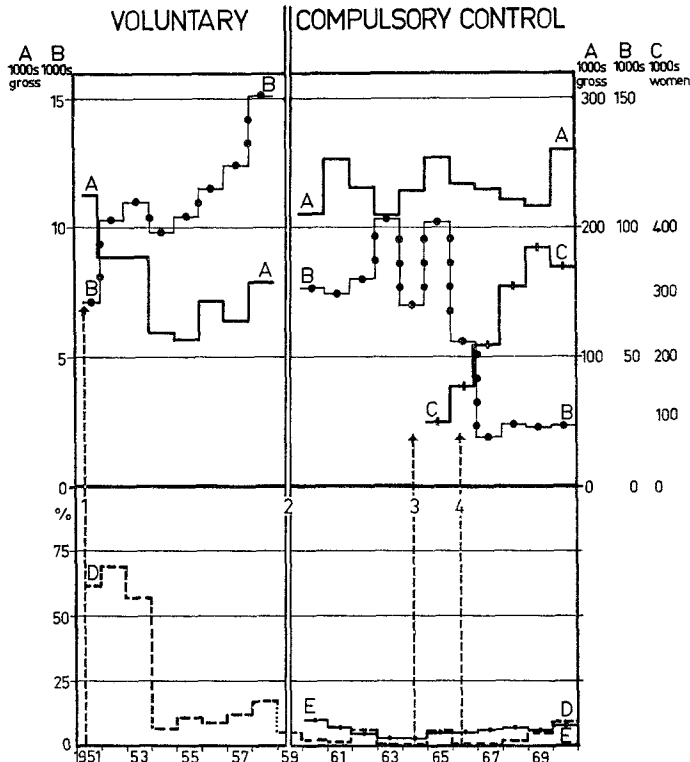


Diagram 2. Control of contraceptives 1951—1970. *A* Condoms. *B* Pessaries. *C* P-pills. Rejection percentages of condoms after control: *D* by Pharmaceutical Control Laboratory. *E* by State Institute for Materials Testing. 1 Voluntary control 1951—1959. 2 Compulsory control 1959—. 3 P-pills allowed 1 July 1964. 4 IUDs allowed 1 May 1966 (data not available)

distributed to pharmacies (and this information has been later processed by Larsson-Cohn and Trost [3]).

Three marked changes are found:

1. Two years after the beginning of the voluntary testing, and the consequent rejection of whole consignments which did not satisfy the demands, the producers (mainly in England and the United States) improved the quality of their condoms. The percentage of rejections declined from 68.5 (1952) to 57 (1953) and 6.6 (1954), followed by a short, but significant decrease in nativity.

2. Oral contraceptives were allowed in 1964 and their use increased rapidly. In 1969 they were used by almost 400,000 (of 1,600,000 fertile) Swedish women.

3. When IUDs were permitted in 1966, the import of pessaries dropped from 102,000 in 1965 to 56,000 in 1966 and 19,000 in 1967.

Criminal Abortions

Up to 1938 there were only criminal abortions in the meaning of the Criminal code, Chapter 14 § 26: a woman who induces the expulsion or allows the ex-

pulsion of her foetus, and §§ 27, 28: another person who with (or against § 28) the woman's will induces the expulsion of her foetus. In practice, however, a physician was allowed to interrupt pregnancy if the woman's life or health was in danger. This was done in about 100—400 cases a year during the 1920's and 1930's.

Quite naturally, we have no statistics referring to criminal abortions, and figures presented earlier in the general discussion were based either on misunderstanding or unreliable investigations. Pettersson [4] made a reliable assessment of abortions in the County of Uppsala during the years 1963—1964. Applied to the whole country (in 1964) it would give approximately 4300 (\pm 1500) criminal abortions a year.

We can judge development in time only by considering certain observable "after-effects" (Diagrams 3a and b).

Hedén [5,6] collected all cases concerned with the expulsion of foetuses dealt with by the Sanitation Board/Board of Health between 1851 and 1903, in all 1553 cases, 1410 deceased and subjected to post mortems; otherwise living women or injured or dead foetuses were examined. This material contains only eight cases in which "the woman had made use of external means" (punctures or injections in the sex organs); three survived the abortion, five died of sepsis.

The rest were cases of poisoning, 1408 of them with phosphorus matches. When these matches were forbidden in 1901, there was a rapid decline in the number of cases, but Hedén wrote, prophetically: "In any case, it is certain that other substances, more or less injurious to women's health, will take the place of phosphorous until public opinion has reached the stage, 'by enlightenment', where all these unreliable and, for the woman herself, often perilous agents, which are used out of ignorance alone, are replaced by the mechanical agent which will certainly, in all civilized countries, become the foetus-expelling agent of the future."

Statistics cannot tell us when the mechanical agents appeared, but infected abortions became more common in hospitals during the 1920's, and during the period 1931—1936 there were about seventy deaths a year due to "puerperal fever following abortion".

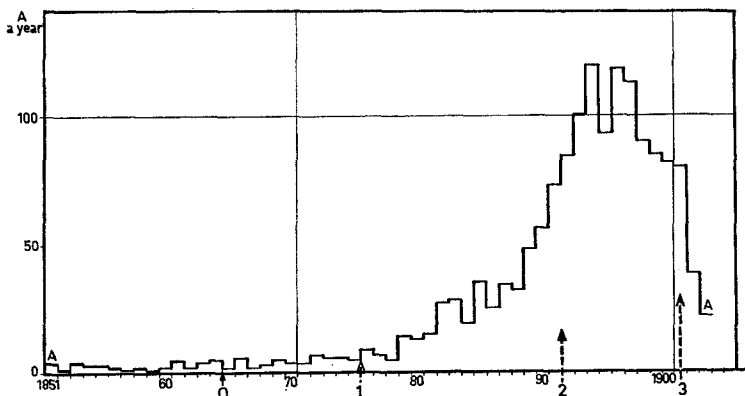


Diagram 3a. Criminal abortions. A 1851—1903 Medico-legal abortion cases in Sanitation Board/Board of Health

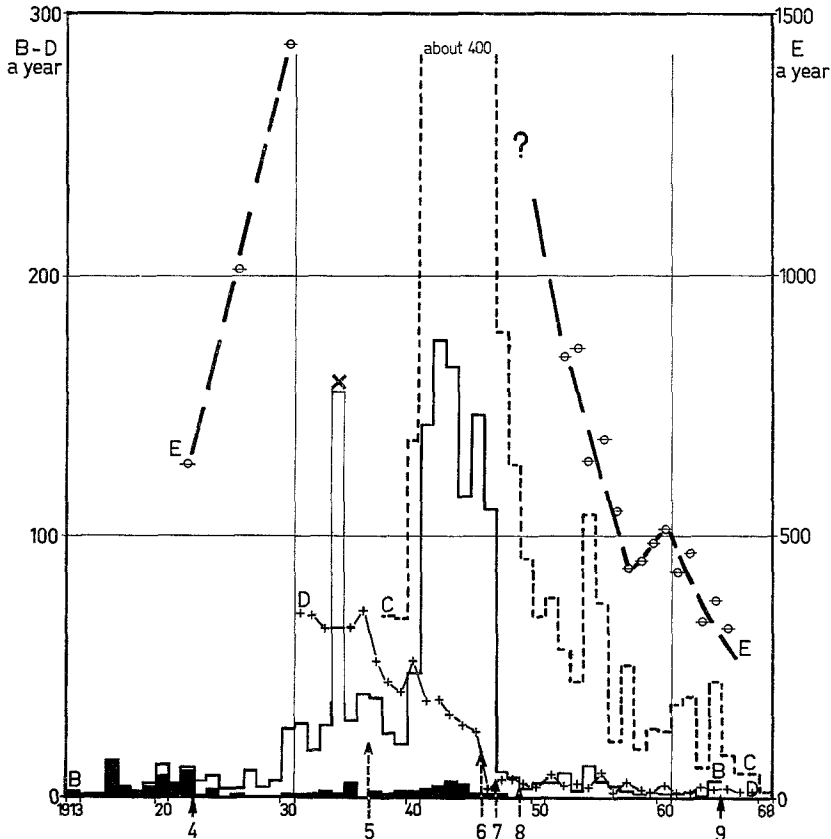


Diagram 3b. Criminal abortions. *B* 1913—1964 Women sentenced for criminal abortion according to SL 14:26, 1913—1948 those sentenced to imprisonment (unconditionally). (black.) *C* 1946—1968 Persons sentenced for criminal abortion according to SL 14:26—28/Brb 3:4. *D* 1931—1950 Deaths due to puerperal fever following abortion. 1951—1967 WHO nos. 651.0 and 651.2 (after spontaneous and criminal abortion). *E* Hospitalized infected abortions (other than legal). Scale to the right, Edin (14), Public Health and Sick Care (15). *o* Criminal Code (1734) repealed: Death^a. Penal Code 1 January 1865 (SL): Hard labour 2—6 years^a. 2 Penal Code revised: Hard labour 1—6 years^a. 4 Penal Code revised: Imprisonment (1 month to 2 years)^a. 7 Penal Code revised: Imprisonment, possibly not prosecuted (decided by public prosecutor)^a. 9 Penal Code repealed, Criminal Code 1 January 1965 (Brb): Remission of sentence^a. 1 Law against arsenic. 3. Law against phosphorus (-matches). 3 Sulphonamides introduced. 6 Penicillin introduced. 8 Statistics revised (data on unconditional sentences no longer given). *X* Large-scale abortionist found (and all his patients)

The penalties for criminal abortion have been reduced from capital punishment (up to 1864) through decreasing terms of imprisonment, to remission of penalty from the first of January 1965. Specified information on abortion has been included in Swedish judicial statistics since 1913. The number of women sentenced is very small in relation to the calculated number of criminal abortions. However, a slow increase can be discerned during the 1920's and 1930's, and a high peak from 1941 to 1946, when the law was revised so that the woman herself was prosecuted only when aggravating circumstances were present.

^a Penalty for the woman if crime accomplished.

Legal Abortions

The demand for legal abortion became increasingly urgent in Sweden, due among other things to the many deaths and other complications caused by criminal abortions, and after enquiries [7, 8] legislation dealing with the interruption of pregnancy came into force on the first of January 1939. Its application is illustrated in Diagrams 4 and 5.

The moral opposition at that time made commissions and legislators cautious. Abortions were therefore allowed only on the basis of so-called indications. Three of these were considered to be above all moral objections.

1. Risk for a woman's life and health, which had, as mentioned above, been accepted earlier.

2. When there is good reason to assume that the woman or the father of the expected child will, by way of inherited traits, transmit to offspring insanity, imbecility or serious physical disease.

3. When the woman was "made pregnant ... with grave disregard of her freedom of action", by which was meant rape, incest or position of dependence, but also when the woman was insane, an imbecile or "below fifteen years of age at the time of intercourse".

4. To these was added, after much discussion, the indication "weakness", which referred to worn-out mothers, who had already fulfilled their public duty of producing children.

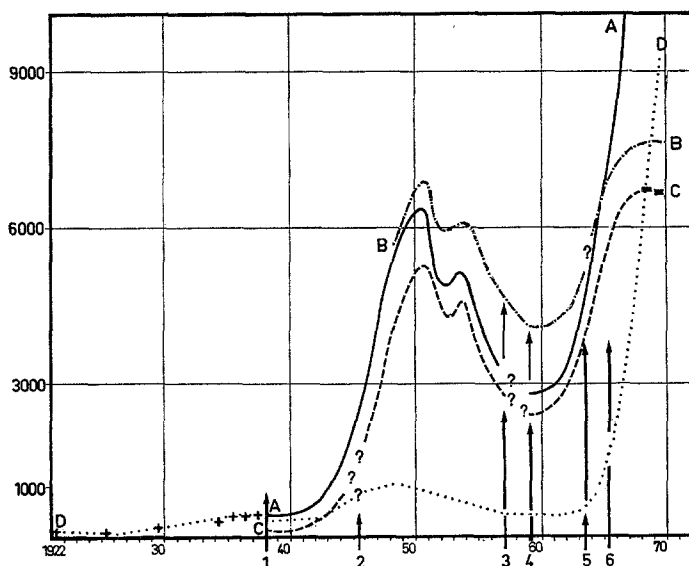


Diagram 4. Legal abortions 1939–1970. *A* Total number performed. *B* Applications to the Board of Health and Welfare. *C* Applications granted (and abortions performed). *D* Abortions performed on the basis of two-doctor certificates (1922–1938 one doctor "prelegally"). Values of *A* (outside the diagram) 1968 10,940; 1969 13,800 preliminary; 1970 16,000 preliminary. 1 Abortion law in force 1 January 1939. 2 Abortion law amended 1 July 1946. 3 Changes of statistics. 4 Changes of statistics. 5 P-pills allowed 1 July 1964. 6 IUDs allowed 1 May 1966

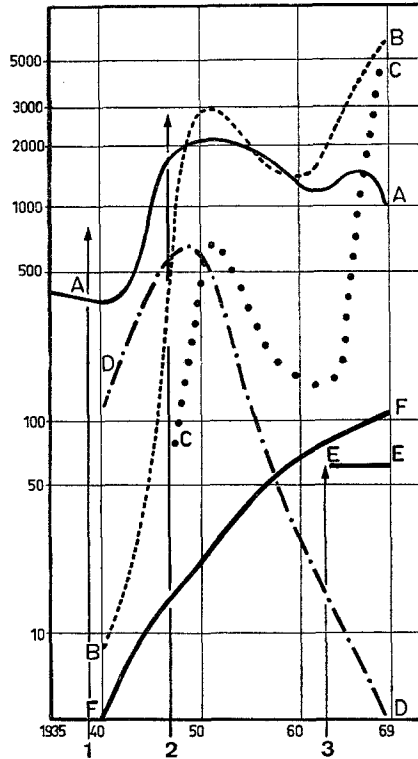


Diagram 5. Indications for legal abortion 1939—1968 and cases of abortion on medical indications 1935—1938. Logarithmic scale: *A* Illness. *B* Weakness. *C* Anticipated weakness. *D* Eugenic. *E* Foetal injury, risk of. *F* Humanitarian. 1 Abortion law in force 1 January 1939. 2 Abortion law amended: Anticipated weakness introduced. 3 Abortion law amended: Foetal injury introduced

It became clear, almost immediately, that the women who really wished to avoid bearing children were not helped, and after another enquiry [9], a fifth indication was added in 1946.

5. The indication “expected weakness”, when, in view of the woman’s circumstances and condition in general, it might be assumed that her physical or mental powers would be seriously impaired by the birth and care of the child. No woman could a priori be excluded from this possibility. Women could now be expected to apply to the abortion centres for abortions, or at least for their share of society’s abortion preventive measures.

ad 1. The sickness indication was soon applied in a total of 2000 cases a year, but has now declined to 1000.

ad 2. The eugenic indication was — if the woman had a hereditary taint — combined with sterilization and came, therefore, into disrepute. Women preferred to abstain from legal abortions rather than allow themselves to be sterilized. The indication is not used now.

ad 3. The humanitarian indication cases have increased in number all the time, it is true, but the indication is applied mainly for girls below the age of fifteen years, and the increase has run parallel to their rising fertility.

ad 4 and 5. The two more "social" indications are now wholly dominant. In the year 1968, from 10,940 legal abortions about 9700 were performed on the basis of these indications. This has occurred since doctors suddenly became personally involved in birth control due to their duty of prescribing oral contraception (permitted from the first of July 1964) and inserting IUDs (allowed from the first of May 1966).

Infanticide

Infanticide, a panic solution, was common in the nineteenth century (about thirty cases a year according to causes of deaths statistics) but has become increasingly rare since 1910. Since 1956 only one to two cases of infanticide a year have been registered.

Different Kinds of Interaction Between the Methods

a) Negative Correlation

It is obvious that the various ways of avoiding children may be substituted for each other and should, therefore, counteract each other, that is, show negative correlation.

It is quite clear, for example, that the demand for pessaries declined greatly when IUDs were introduced into the Swedish market. It also seems now as if the consumption of oral contraceptives has dropped and the use of condoms increased.

When contraceptives became scarce during the Second World War and the quality of those available probably sank, there was a violent increase in fertility, a relation which, as far as I know, was first mentioned by Grill [10]. This led to an increased number of abortions (both legal and criminal), that is, negative correlation between condoms and abortions.

b) Positive Correlation

But if a change takes place in people's (especially women's) attitudes to child-birth, greater (or possibly smaller) demands will be made on methods. If all methods are utilized (or abandoned) to satisfy the changed wishes, then the methods will collaborate, that is, show positive correlation.

Thus, statistical evidence implies that both legal and criminal abortions increased during the "rubber explosion" 1942—1945.

After the war both condoms and pessaries became available again, but then family planning, which had broken down during the "explosion", demanded a stricter (compensating) birth control, at least in the families that had a "surplus of children" during the period 1942—1945. The number of legal abortions increased (certainly) during the years 1946 to 1951, as did (probably) the use of rubber contraceptives (positive correlation), while there are signs suggesting that illegal abortions declined in number (negative correlation).

Ingelman-Sundberg's [11] and Huldt's [12, 13] studies on the situation in the Stockholm region suggest the opposite, however as seen in Diagram 6.

During the subsequent "reaction in the abortion problem", 1952—1960 (legal abortions dropped from 6300 to 2800 a year), there is evidence suggesting an increase in the number of criminal abortions (negative correlation), in the systematically increasing number of hospitalized cases of infected abortions during the

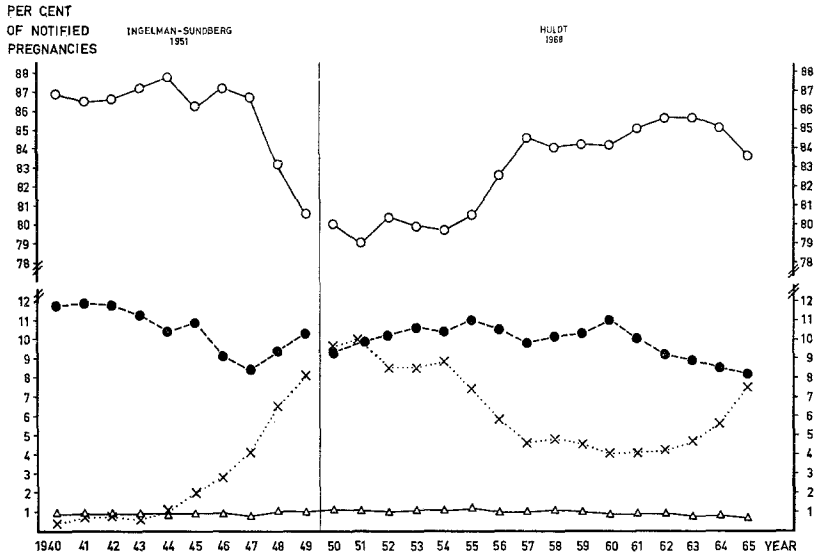


Diagram 6. Outcome of all notified pregnancies in the city and county of Stockholm 1940—1965 quoted from Hult [13]. ○—○ Deliveries; ●—● Spontaneous and criminally induced abortions; ×····× Legal abortions; △—△ Ectopic pregnancies, hydatidiform moles, missed abortions

period 1957—1960. The trend for both these and the number of deaths due to infected abortions was otherwise declining rapidly, thanks to more effective chemotherapy. Hult's studies showed the same tendency.

The Development after 1960

a) *Illegal Abortion*

After that Hult's figures show a decline for spontaneous and criminal abortions, at the same time as they (as in the whole country) show a rise in the number of deliveries and legal abortions.

Otherwise there is not, unfortunately, any statistical evidence regarding the number of illegal abortions since then, neither during the rise in births during the years 1961—1964 nor during the era of oral contraception, IUDs and greatly increasing numbers of legal abortions, but one may assume that we now have a definite decline in the number of so-called criminal abortions.

b) *Oral Contraception, IUDs and Legal Abortion*

On the other hand, it is now possible to judge the effects of legal abortions and the new, more effective contraceptives on nativity by means of various kinds of projection (made by the author).

All the projections have, after a study of the course of the curves before 1965, been determined so that, on the semilogarithmic, smoothed diagrams, a straight line was drawn between the values for 1960 and 1964 up to 1968, and then the curve for 1964—1968 was adjusted to this line, attention being paid to the earlier course. Smoothing and projection have been done, in my opinion, without "violating" the material.

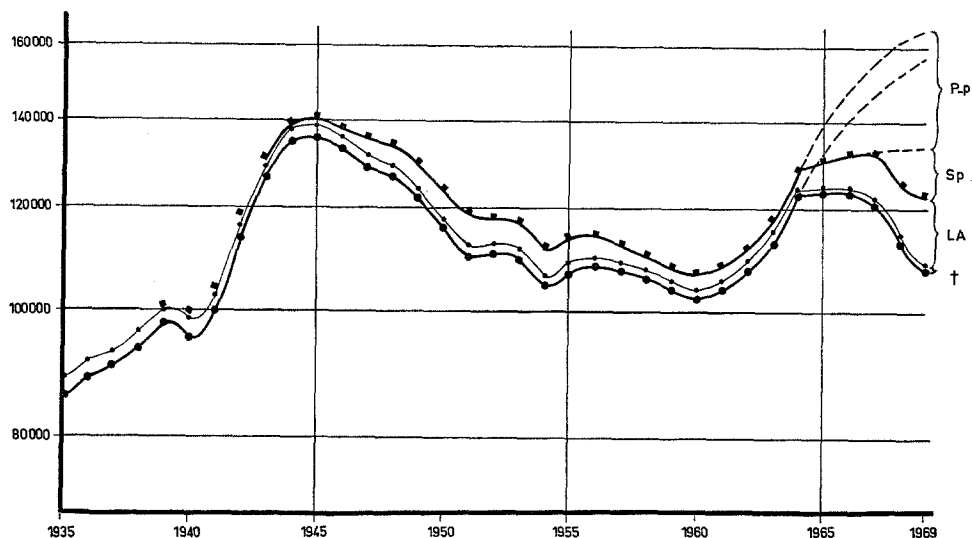


Diagram 7. Births and Legal Abortions in Sweden 1935–1969. Logarithmic scale. ■--- Projected number of births + legal abortions; ●--- Projected number of live births; ■--- to ●--- Projected number of legal abortions; P-p Births prevented by P-pills; --- Free-hand projection; Sp Births prevented by spirals (= IUDs); ■-■-■ Observed numbers of births and legal abortions; LA Births prevented by legal abortions; ●-●-● Observed number of births; † Observed number of still-births; ●-●-● Observed number of live births

Table 1. Projection 1964–1969 (without oral contraception and IUDs). Age 15–46 years, 1000 s (per cent respectively)

	64	65	66	67	68	69	Σ 65–69
1. Live births observed	122.7	122.7	123.3	121.3	113.0	107.6	588
2. calculated	•	132.3	140.5	147.5	152.7	156.1	
3. Births prevented, calculated	•	9.5	17.2	26.2	39.6	48.6	
4. Correction for alterations in legal abortions and still-births	•	0.3	0.3	2.0	2.7	5.3	
5. Births prevented by new contraceptives (± possible changes in criminal abortions)	•	9.2	16.9	24.2	36.9	43.3	130
	•	6.5	11.4	15.5	22.8	26.1	by ΣΣ
6. Legal abortions, observed	•	4.5	4.9	6.2	6.8	8.4	by ΣΣ
	4.7	6.2	7.3	9.7	10.9	14.0	48
	3.6	4.8	5.5	7.3	8.7	11.5	by Σ
7. Still-births observed	1.4	1.3	1.2	1.2	1.0	0.9	6
8. Σ (1 + 6 + 7)	128.8	130.2	131.8	132.2	124.9	122.5	
9. ΣΣ (5 + 8)		139	149	156	162	166	772

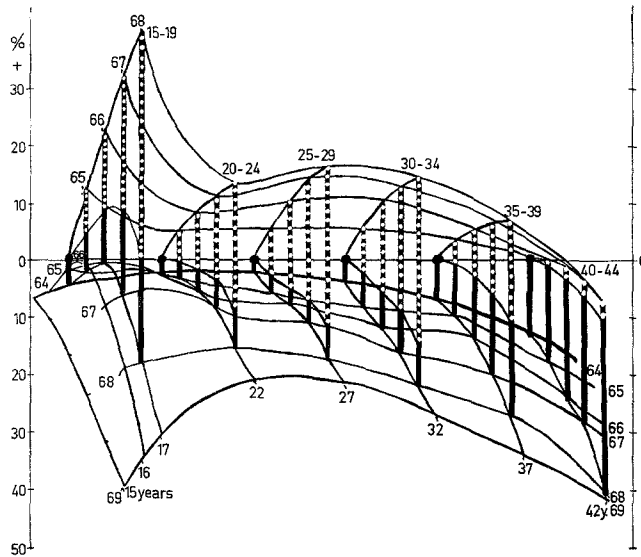


Diagram 8. Calculated and observed births prevented 1964—1969, various ages: ▨ by P-pills and IUDs, calculated; ▤ by legal abortion, observed

Diagram 7 gives the projections in absolute numbers for the total population.

Table 1 shows the calculated and the observed absolute numbers respectively.

Diagram 8 gives the projected and observed values in each age group for the years 1965—1968 (in respect of live births also 1969), expressed in percentages of the number of “live births + legal abortions” in 1964. One-year classes are given for live births, otherwise five-year classes.

The heavy black columns give the (known) number of legal abortions performed, the heavy dotted columns the calculated number of births prevented by the new contraceptives (\pm possible changes in the number of criminal abortions).

The diagram shows the following:

1. The projection (of the expected number of “live births + legal abortions”) has, as already mentioned, been made on the basis of the course observed and gives, as expected, high levels in the youngest class, and levels below that of 1964 for the oldest age groups.

More unexpected is, perhaps, the fact that 20—24-year-olds have lower expected fertility than 25—34-year-olds.

2. The base line for live births, that is to say, the x-axis (zero line) minus the frequency of legal abortions was obtained by interpolation.

As early as 1965 a reduction is apparent for the middle age-groups, while the youngest ones are still showing a rising number of live births.

A more marked reduction in the higher ages began in 1967.

The youngest age groups come last, but then with a very marked reduction in the number of live births (1968 and 1969) in relation to both the 1964 level and particularly to the projected level (expected number of “live births + legal abortions”).

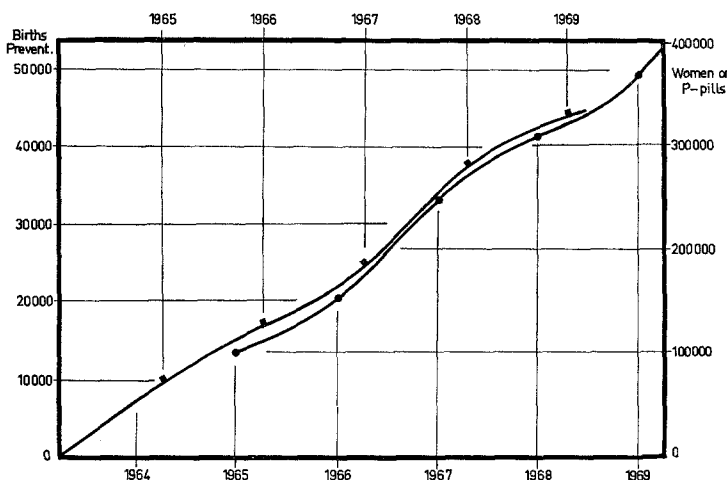


Diagram 9. Consumption of P-pills and births prevented 1964—1969. —●— Consumption of P-pills (number of women) (quoted from Larsson-Cohn & Trost [3]); —■— Calculated number of births prevented (9 months later)

3. The final result is that “the new time” (1964—1969) has had most effect on the youngest and weakest in age classes 21—29 years.

In 1969 the curve for the youngest and oldest was still going steeply downwards, while the decline was retarded in the most productive ages (21—30 years). The number of live births is now (1970—1971) rising again (but not yet statistically processed).

4. The lack of births was due:

a) In the ages 40—44 years almost entirely to the great and relatively rapidly increasing number of legal abortions.

b) In the intermediate ages (20—34 years) only to a small extent to the moderately increasing legal abortions and must thus instead be attributed to the immediately accepted use of oral contraceptives.

c) The 35—39 years class occupies an intermediate position between a) and b).

d) A marked rise in both legal abortions and the effect of oral contraception can be seen in the 15—19-year class, particularly during the last years.

e) The specific effect on the higher ages during the years 1967—1968 (and probably until 1969) may with good reason be ascribed to the IUD. No such effect was to be expected in the age group 40—44 years (and is not seen in the diagram).

f) The fifteen-year-olds “fall out of the framework”, and the fourteen-year-olds cannot, for statistical reasons, be shown in the diagram.

Since the projection was made, statistics on the sales of oral contraceptives in Sweden have been published (Larsson-Cohn and Trost [3]). Diagram 9 shows these series of figures compared. Agreement is astonishingly good, and shows that the fertility of “oral contraception women” without oral contraception would have been approximately 135‰ (that is, equal to the fertility in the most reproductive ages).

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