This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Social Protection versus Economic Flexibility: Is There a Trade-Off?

Volume Author/Editor: Rebecca M. Blank

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-05678-3

Volume URL: http://www.nber.org/books/blan94-1

Conference Date: December 14-15, 1992

Publication Date: January 1994

Chapter Title: Three Regimes of Child Care: The United States, the Netherlands, and Sweden

Chapter Author: Siv Gustafsson, Frank P. Stafford

Chapter URL: http://www.nber.org/chapters/c11263

Chapter pages in book: (p. 333 - 362)

11 Three Regimes of Child Care: The United States, the Netherlands, and Sweden

Siv Gustafsson and Frank P. Stafford

Differences in social protection across countries have received greater attention as national economies have become more interconnected through trade and finance. It has been shown that different levels of social protection are factors shaping the competitive position of national partners in an economic union (Abraham 1991). The long-term productivity of a nation's export sectors may be influenced favorably or unfavorably by social protection. To illustrate, well-designed income insurance (Friedman 1953; Stafford 1977; Varian 1980; Milgrom and Roberts 1992) can encourage productive division of labor and improve the market performance of an economy. On the other hand, some policymakers see a minimal level of social protection and insurance as a way to realize gains in competition with countries having more-generous systems. This has created concern in European countries over England's perceived move toward reduced social insurance.

Recent work has emphasized the idea that a country's wage growth will depend on the difference between the rate of growth of its own export sector productivity and productivity growth in the corresponding sectors of its competitors (Krugman 1979; Johnson and Stafford 1992, 1993). In the basic Johnson-Stafford model of world trade (with unitary price and income elasticities of demand), the real wage can be expressed as an increasing function of the country's own productivity in its exportables and its nontraded goods sector and as a decreasing function of the productivity of its competitors in its exportables. If the social protection system acts either as a force improving the productivity of the different sectors of an economy on the one hand or as a costly burden on the other (e.g., U.S. health insurance), the system will affect a country's position in world trade and thereby its standard of living.

Siv Gustafsson is professor of economics at the University of Amsterdam. Frank P. Stafford is professor of economics at the University of Michigan.

Childcare arrangements shape the payoff to educational quality, a particular interest in the advanced industrial economies. Preschool experiences are of major significance for cognitive function in children, so childcare arrangements have an important impact on long-term growth and competitiveness, even if the links are difficult to measure. At the same time, childcare arrangements enable women to realize the market payoff from their formal schooling.

There is an emerging view that advanced industrial economies need a well-trained career work force in order to compete in world markets and that women will constitute a growing share of such workers. But for women with children to have lifetime labor market careers, they need to obtain child care to permit the career development and on-the-job training emphasized in life-cycle theories of human capital formation. Otherwise, they can be expected to have a shallow labor market profile: attenuated skill formation, fewer market hours, and early retirement (Ryder, Stafford, and Stephan 1976, 666). A paucity of resources for child care could be consistent with career development but would have long-term costs for the well-being of the children and their development. On the other hand, child care uses both market and nonmarket resources, and some extensive programs and family sacrifices to attain better child well-being may facilitate added market work that is just not worth the cost.

In this paper, we study the nature and functioning of the childcare market and childcare policies in Sweden, the Netherlands and the United States. These three countries, despite being at what might be regarded as similar levels of industrialization, have dramatically different regimes under which families secure child care to facilitate labor market activity of young women. Perceived economic pressures and wage slowdowns in all three countries will undoubtedly shape the debate on the expansion or reduction of the public policy role in these and other areas of social protection.

Our thesis is that to understand both the context and features of these specific programs, one needs a broader framework to understand the historical and conceptual origins of the welfare concept in each country. As outlined in section 11.1, the welfare concept, in turn, shapes the system of social protection and its modification in light of emerging economic forces. From this outline, section 11.2 provides a historical interpretation of the welfare regime concept developed in each of the three countries and then describes the salient features of current childcare, leave, and related policies.

Section 11.3 presents the basic descriptive differences in the use of public programs and market and informal arrangements that constitute the childcare subsystem of the larger social welfare system in the three countries. In this section, we summarize some of the existing research findings on the use of the systems and, utilizing three separate microdata sets (one for each country), provide some comparative differences in earnings growth and behavioral responses in terms of labor force participation and price sensitivity. In section 11.4, we offer a brief conclusion.

11.1 Different Welfare Regimes

In simplest form, the three social protection, or welfare, regimes that apply to these three countries are residual, institutional (or consensus), and corporate (Esping-Andersen 1990).

11.1.1 Residual

In the residual welfare state conception of the United States, the state is involved only when the family or market fails, and this is presumed to apply to a small share, or residual, of the population. Programs such as Head Start and the Family Support Act of 1988 are centered on the idea that intervention is needed to encourage "positive effects of preschool on disadvantaged children" and that the "needs of employed mothers [be met] while providing developmentally appropriate experiences for children" (Hofferth et al. 1991, 8). While there is some public support for child care extending beyond lower-middle income groups, this support is in the form of tax credits. Tax credits as a policy allow minimum government involvement and facilitate a wide range of choice in the market. Guarantees of unpaid leave have been opposed on the grounds that the firm and its employees can form private agreements on an individualized market basis.

11.1.2 Institutional, or Consensus

The virtual opposite of the residualist approach is the case of an institutional welfare state such as Sweden and other Scandinavian countries. There programs such as parental leave and child care are regarded as being available for everyone—in principle, although in practice the more educated are more likely to avoid being rationed from spaces (Gustafsson and Stafford 1992). The service provided is regarded as essential and universal; the belief is that if it were not available, some parents and children would be denied a basic component of the standard of living.

11.1.3 Corporate

The corporate welfare state is seen as one in which the social policy is shaped by the interplay of powerful political interest groups. In the case of the Netherlands, the rather modest public daycare program and features of related policies affecting women in the job market are seen as the result of conflicting, historical interests of the church. Both Catholics and Protestants feared that a high birthrate of the rival religion would undermine their political power; for this reason, both interests had a family perspective and supported policies to increase fertility.

Based on the distinction between residual and institutional welfare states (Titmuss 1958), we might expect different responses to emerging economic pressures. Under the market approach, a political minority dependent on public

benefits may lose out when economic pressure redirects attention to the well-being of the majority. Witness the 1992 U.S. presidential campaign proposals to enact "tax cuts for the middle class." In the consensus case, with slow economic growth, pressure to cut back spending to balance the budget may be more than offset by pressure to expand the program coverage and serve more broadly, even if per user benefits are reduced somewhat.

Our empirical work verifies that the Netherlands as a corporate-style regime is more than just an "in-between" case. In the context of encouraging the family, the church saw market work as inhibiting the size and character of the traditional family, so policies to encourage women's market work were not developed in the Netherlands.[1] Research indicates that even today the small public daycare program in the Netherlands is used about equally by labor market participants and by nonparticipants (Groot and Maassen van den Brink 1992) and that a woman's religious orientation has a measurable impact on labor force participation in the Netherlands but not in the United States (section 11.3.3). In contrast, the extensive Swedish parental leave and daycare programs are for the nearly exclusive use of labor market participants, and religion plays a minor role.

Comparing across the three countries, there is a type of consistency among the set of policies in each country. The result of the corporatist interplay in Holland was not just the shaping of a given policy but the character of a *set* of related policies: marriage bars on women's market work (historically), the limited extent of parental leave benefits, and public day care. The Swedish parental leave and childcare and related programs (including taxes) fit together and are part of the country's overall system.

The great social policy differences across what one might assume to be countries with rather similar levels of industrialization can be seen in the overview comparisons of the three countries and other industrialized nations from a recent study (Sundström and Stafford 1992, presented as table 11.1). We feel that understanding some of the reasons for these broad intercountry differences is essential. The approach of simply assessing the traditional responses to policy parameters, which is common in the literature of economic evaluation, is not sufficient.

11.2   Childcare Policies: Origins and Differences

Public childcare programs in the United States are very rare and are operated at the local level. The main policies supporting child care are tax deductibility of childcare expenses on federal tax schedules and some modest state supplements (Michalopoulos, Robins, and Garfinkel 1992). Only recently has very

---

1. This is quite apart from the validity of the implicit hypothesis that market work need limit fertility over the range observed across industrialized economies. Both Ireland and Sweden currently have very high total fertility rates, over 2.0, but the labor force participation of women is more than twice as high in Sweden. See table 11.1.

Table 11.1 Total Fertility Rate (TFR), Female Labor Force Participation Rate (FLFPR), and Statutory Parental Leave Benefits in Selected OECD Countries

	TFR 1988	FLFPR 1988 (%)	Maximum Weeks of Maternity Leave[a] 1989/90	Benefit Rate 1989/90 weeks (w), %, money	Employer or Tax Financed[b]	Separate or Joint Taxation	Substantial Day Care or Not	Public Consumption as Share of GNP 1988 (%)
Australia	1.9[c]	59.0	52	0	—	Separate	No	17.4
Austria	1.44	53.7	60	16w 100% + 44w $ 4,524–6,725	Tax	Separate	No	18.4
Belgium	1.57	51.4	14	4.5w 100% + 8.5w 80%	Tax	Joint	No	15.3
Canada	1.7[d]	66.6	17–18[e]	60% up to a ceiling	Tax	Separate	No	18.8
Denmark	1.56	78.3	28	90%	Both	Separate	Yes	26.0
Finland	1.7	73.0	52	80%	Tax	Separate	Yes	20.2
France	1.82	55.7	16–28[g]	84%	Tax	Separate	Yes	18.6
West Germany	1.42	54.4	14	100%	Both	Joint	No	19.5
Greece	1.52	43.4	14	100%	Tax	Joint	No	20.6
Ireland	2.17	37.6	14	75%	Tax	Joint	No	16.7
Italy	1.34	43.9	47	22w 80% + 25w 30%	Tax	Separate	No	17.2
Japan	1.66	58.4	14	60%	Employer	Joint	No	9.3
Luxembourg	1.51	47.6	16	100%	Tax	Joint	No	17.0
Netherlands	1.55	51.6	16	100%	Tax	Separate	No	15.7
New Zealand	1.5[c]	62.0	14	0	—	Separate	No	17.5
Norway	1.84	72.8	22	100%	Tax	Joint	No	20.6

(continued)

Table 11.1 (continued)

	TFR 1988	FLFPR 1988 (%)	Maximum Weeks of Maternity Leave[a] 1989/90	Benefit Rate 1989/90 weeks (w), %, money	Employer or Tax Financed[b]	Separate or Joint Taxation	Substantial Day Care or Not	Public Consumption as Share of GNP 1988 (%)
Portugal	1.53	59.1	13	100%	Tax	Joint	No	16.0
Spain	1.38	39.4	14	75%	Tax	Joint	No	14.3
Sweden	1.96	80.1	65	52w 90% + 13w SKr 60/day	Tax	Separate	Yes	26.0
United Kingdom	1.84	63.5	18	6w 90% + 12w £36.25	Tax	Separate	No	19.9
United States	1.8[e]	66.9	0	0	—	Joint	No	18.3

Sources: TFR: Eurostat (1991); OECD (1988), 204. FLFPR: OECD (1990), 200. Leave benefits: OECD (1990), 144; Stein (1989); Badelt (1991); David and Starzec (1991); Nordisk statistisk sekretariat (1990). Separate taxation: OECD (1990), 166, updated.

[a] In Denmark and Ireland four weeks must be used prior to birth; in France six–ten weeks; in Germany, Greece, the Netherlands, and Japan six weeks; in Italy and Austria eight weeks.

[b] Employers' and employees' mandatory social insurance contributions are here considered a form of tax.

[c] 1986.

[d] 1981.

[e] In some provinces seventeen weeks, in others eighteen.

[f] Benefits are 90 percent of earnings up to a ceiling of DKr 2,397 per week. However, some white-collar workers (e.g., civil servants) get negotiated benefits equal to their full wage from their employer.

[g] Sixteen weeks for the first and second child, twenty-eight weeks for third or higher.

limited legislation allowing women to take unpaid leave from an employer been proposed and enacted (Family Leave Act). Until the 1950s it was common for there to be marriage and maternity bars on women's employment (Goldin 1990). In contrast, the right to unpaid maternal leave at childbirth dates back to 1939 in Sweden (Sundström and Stafford 1992; Gustafsson 1984), and paid leave dates back to 1962 (Gustafsson 1984).

From the perspective of most U.S. economists, even those in the field of human resources, the rationale for public provision of childcare services is seen as very weak. The usual justification for government intervention is to correct market failures arising from public goods or externalities. In addition, there is sometimes a case made for social insurance on the grounds of adverse selection and contract compliance in private markets. This is the implicit and sometimes explicit logic for unemployment insurance. Perhaps the closest justification for public child care would be as a merit good or to correct an externality arising from insufficient resources devoted to child care under choices made by individual parents or families.

This contemporary U.S. perspective on child care is consistent with the view of Nassau Senior, who was responsible for reforming the Poor Laws, and later Manchester liberals who emphasized individual choice and argued that social protection be offered in terms of cash payments (Esping-Andersen 1990, 10). In terms of the residualist approach discussed by Titmuss (1958), the market and family are regarded as the main and preponderant sources of such services; only those who cannot use the market or who have family problems are seen as needing public services.

It has been argued that the extent to which economic goods are provided through the public sector will depend on the variance in consumption preferences of voters. If there is a great deal of variance, consensus about what and how much to consume via public provision, even of purely public goods, will be difficult to achieve, and a greater reliance will be placed on the market (Buchanan and Tullock 1965).

Given a lack of consensus about the appropriate form and level of resources for preschool children, public child care in the United States is often discussed solely as an antipoverty program for lower-income groups to ensure child development and/or to enable women on welfare to become self-sufficient via labor market skills. Virtually all U.S. programs with this concept have small benefit levels, are applicable only to a narrowly defined eligible population, and are often proposed to be converted to a cash basis (Rainwater, Rein, and Schwartz 1986).

Contributory social insurance programs in the United States provide a sharp contrast to such programs for the poor. Social Security is close to universally applicable (with some anomalous exceptions such as federal civil servants) and is close to being politically sacred. The level of revenues from Social Security and other payroll taxes to fund social insurance (including unemployment and disability insurance) are almost as large as those from personal income taxes.

Yet there has been little in the way of calls to scale back these social insurance programs. The reason appears to be that benefits are based on contributions, and though some receive actuarial present values of benefits in excess of contributions, there is a sufficient element of insurance that the system is not regarded as an income transfer program.

The potential relevance of the Social Security experience for public child care is that public child care is unlikely to get much support as a policy in the United States unless it is relatively universal. Possibly, public child care could be offered on a contributory basis if those who used it would face a *future tax surcharge rate* to pay off the cost for their children. Another design element that could be attractive from the U.S. perspective is to make child care a cash benefit via the tax system, and much of what has been done is along these lines, via tax deductibility of childcare expenses. Without design elements emphasizing private choice and a contributory connection to benefits received, public child care or parental leave is unlikely to get much support as a policy in the United States.

While the United States was historically a leader in developing free public education,[2] the family and market orientation seems to have been a continuing factor shaping policy toward very young children. Care of preschool children was regarded as a public obligation only in cases of poverty, widowhood, or family abandonment of children. The main dialogue was over the question of whether aid should be outside the home (in orphanages or the poorhouse) or within the home.

A major change was the shift toward an in-home approach during the Progressive era (1900–17) (Garfinkel and McLanahan 1986, 97) with mother-only families receiving cash benefits on the condition that the child be living in a "suitable home," defined diversely to include religious training, school performance of the child, and absence of male boarders. Very seldom did black families receive benefits, and there were usually restrictions on benefits to never-married women. That only a small share of the population received any benefits is consistent with the residualist hypothesis about the nature of U.S. welfare programs. Market work of the mother was not a major objective of these early programs of aid to dependent children.

Contemporary U.S. policy discussion has focused on market-based expansions of child care with emphasis on family need. The Child Care and Development Block Grant passed by the 101st Congress in October 1990 authorized new grants to states to fund childcare assistance to low- and moderate-income families (Hofferth and Wissoker 1992), an expansion of existing tax credits for low-income parents, and added funding for Head Start (Golonka and Ooms 1991). This set of new initiatives can be classified into price reductions, in-

2. As of 1803, the state of Ohio had begun the movement toward free public education in the United States. By 1848 virtually all of the United States had mandatory, free public education, well ahead of most European countries (Garfinkel and McLanahan 1986).

come increases, and subsidies for quality of child care. Consistent with long-standing traditions, these initiatives are seen as only for the use of the segment of the population with limited income, and the actual services are purchased through the market and not from government providers.

The current U.S. childcare system is, for most parents, a market- and family-based system and one that is very diverse in terms of the methods used for child care. Of employed women with preschool-age children, 30 percent are cared for primarily by a parent, 26 percent in centers, (childcare centers, nursery schools) 19 percent in family day care, 18 percent by other relatives, 4 percent by an in-home provider, and the balance (3 percent) by other forms of care (Hofferth et al. 1991). The use of centers and family day care is much higher for women working full time (54 percent) than for those working part time (31 percent), which in turn is higher than for those not employed (17 percent).

In sharp contrast to the United States and the Netherlands, Sweden has a very extensive program of day care and parental leave. Some influences of distant history have shaped today's policy, but the large-scale expansion of public day care and parental leave dates from more recent times, primarily 1974 on. Here we will offer some brief remarks on the social history of the Netherlands and Sweden that has shaped the context for modern policy in these countries.

Our view is that much of the difference in the current-day systems is historical-cultural and connects to the Esping-Andersen thesis of distinct regimes of social protection. This thesis contrasts with the usual functional approach of most economic thinking, which emphasizes system design as the result of solving a problem: if all three countries have industrial market economies, one would expect similarity in the problems and therefore in the solutions. However, there may not be a strong uniqueness to the solution of common problems; in addition, path dependence in the form of history can be important even if there is some "best" way.

In this historical, or path-dependent, context the difference between Sweden and the Netherlands is fascinating. At the time of the Reformation, the Swedish political leader, Gustav Wasa, believed that he could consolidate his power by creating a uniformly Protestant country. This he accomplished over the period 1526–41, shortly after Martin Luther began the Reformation in 1517 in Wittenberg, Germany. In the Netherlands there was a protracted standoff between Protestants and Catholics that persisted for centuries and that divided, or "columnized," all aspects of economic and social life with separate banks, universities (the "free" in the Free University of Amsterdam meant free to pursue instruction according to the principles of the Dutch Reformed Church), companies, unions, neighborhoods, and social clubs. For fear of losing political control, both factions resisted anything perceived as reducing their constituency, and this persisted after World War II.

In this setting, a whole collection of policies evolved predicated on preserv-

ing a strong traditional family and, it was believed, high fertility. The labor market activity of Dutch married women was regarded as competing with these family values, and this contributed to enactment of overt restrictions on women's employment. For example, married female schoolteachers were dismissed under a 1934 provision (van Kessel, Kuperus, and Pott-Buter 1986). The Netherlands did, in fact, have higher fertility until quite recently. As of the late 1960s, the total fertility rate was above 2.5 in the Netherlands and below 2.0 in Sweden (Gustafsson 1992b).

Since the 1970s, religion has had reduced scope in Dutch politics, and fertility has declined (see table 11.1). Market work of younger women has risen dramatically in the 1980s. As of 1990, 82 percent of married women under age 40 without children were labor market participants, compared to 28 percent of those aged 40 to 66 (OSA 1991). Yet certain traditional elements remain. Women with young children are not supported extensively by special public policies, and market participation and hours of these women are very low.

A modern watershed in Swedish labor market policy for women dates back to the 1930s. Just as in the Netherlands (but for other reasons, such as migration to the United States and persistently weak performance in the agricultural sector), there was concern over possible depopulation. The Great Depression accentuated these depopulation fears and fueled the belief that women's employment was at the expense of men's jobs. What is surprising is the turn of events in which Alva Myrdal was able to argue for labor market programs for women. As head of a committee on women's labor market policy, she advanced the principle that mothers should have the right to participate in the labor market and that policies to accomplish this were needed (Gustafsson 1992a). What in fact has evolved from this conception is a system of benefit for the *joint* condition of market work and fertility.

This belief is implicit in the design of the current Swedish system: simply working without children means that one loses out on extensive benefits, and simply having children without labor market attachment implies a low standard of living. In addition to providing a maximum monetary payoff to joint work and fertility, the benefits are unrelated to family structure: unmarried women and married women receive the same benefits so long as they work in the market and have children.
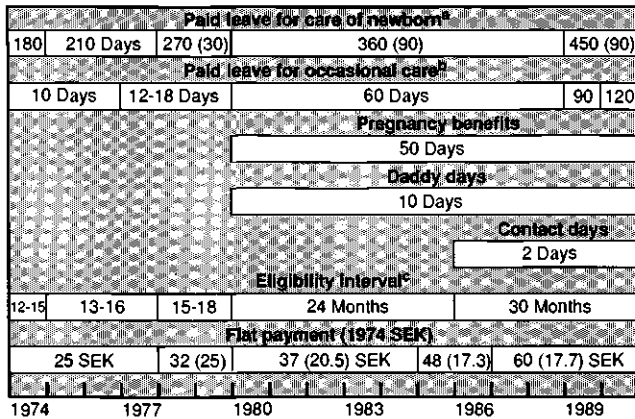
The personal income tax is based on the separate earnings of the husband and wife. Given separate taxation combined with strong progressivity, there are general incentives for market work (Gustafsson 1992b). Combining the influence of the tax system with child-dependent benefits, the full effect of the Swedish system is to encourage fertility and a career or lifetime commitment to the labor market by women. While the system is often criticized on the grounds that it discourages the traditional, two-parent family, at least for preschool children there does not appear to be a problem: as of 1984 over 90 percent of preschoolers lived with both biological parents (Gustafsson and Stafford 1992).

We find the regimes approach useful in gaining an initial understanding of the dramatic system differences across the three countries. As with any classification, however, this approach brings with it some danger of overcategorizing or stereotyping the system differences. Clearly there are pressures to reconsider the scope and design of the Swedish system in light of arguments concerning allocative efficiency. To illustrate, it has been argued that for a given total daycare subsidy, it would be better to reduce the per child subsidy, raise the parents' copayment, and end the extensive rationing (Gustafsson and Stafford 1992, 214–15). On the other side of the spectrum, there has been rising concern over the developmental well-being of young children of low-income, single-parent families in the United States. Early development is seen as shaping subsequent school performance and grade completed, and there is a remarkably strong relationship between crime and school completion for young people (U.S. Department of Labor 1992).

Because of its distinctive features, we will discuss the contemporary Swedish system and its policy elements in some detail. The existing parental leave program dates from 1974, when parental leave was extended to fathers and the benefit level was raised to 90 percent of gross earnings up to a ceiling.[3] As can be seen in table 11.1, parental leave benefits are for fifty-two weeks at 90 percent of one's prior labor earnings, and another thirteen weeks of benefits are available at SKr 60 per day (about $10). The system allows either parent to draw benefits; to encourage greater use by men, starting in 1980 it has had a small special portion available for fathers only ("daddy days"). The program is strongly tied to labor market hours and therefore to labor earnings. For this reason, it is not sensible to think of the leave program as needs based. In fact, those with no earnings history receive a small "flat payment" (SKr 60 per day as of 1990), which has not kept pace with inflation since 1974 when it was introduced (at SKr 25 per day).

Figure 11.1 presents the time line of parenting leave benefit policy provisions from 1974 to 1990. The modifications in 1980 were the most significant in terms of scope and coverage of the program. The level of benefits is based on past earnings over an eligibility interval. The eligibility period was extended to twenty-four months in 1980 and then to thirty months in 1986, and this had a major impact on program use. The time extension makes it possible realistically to plan the birth of two children in succession. During this protracted period out of the labor force, benefits will equal 90 percent of pay rather than the modest amount received under the flat payment. The parental leave program extensions combined with the daycare system are regarded as having created a fertility boom in Sweden; as can be seen in table 11.1, Swedish fertility was on the same order as Irish fertility in 1988, and by 1992 the Swedish

3. The ceiling was applicable to only about 1 percent of women and 10 percent of men as of 1985 (Sundström and Stafford 1992). Contact days are those allowed for arranging schedules with employers, daycare centers, or schools.

Paid leave for care of newborn[a]				
180	210 Days	270 (30)	360 (90)	450 (90)

Paid leave for occasional care[b]					
10 Days	12-18 Days		60 Days	90	120

Pregnancy benefits
50 Days

Daddy days
10 Days

Contact days
2 Days

Eligibility Interval[c]				
12-15	13-16	15-18	24 Months	30 Months

Flat payment (1974 SEK)				
25 SEK	32 (25)	37 (20.5) SEK	48 (17.3)	60 (17.7) SEK

| 1974 | 1977 | 1980 | 1983 | 1986 | 1989 |

Figure 11.1   Developments in parental leave benefits in Sweden, 1974–1990

Source: National Insurance Board, various publications. Figure adapted from Sunstrom and Stafford (1992).

Note: SEK = SKr (Swedish crowns).

[a]Total number of paid leave days (days at the flat rate are in parentheses). On 1 January, 1980, days with full pay were increased to 270; On 1 July, 90 days at the flat rate were added.

[b]Before 1980, benefit days were counted per family with children under age 10; since 1980, benefit days are counted per child under age 12.

[c]Maximum number of months between births for mother to remain at least at the benefit level of the previous birth.

fertility rate had edged up still further, with added births concentrated among older and more-educated women.

The contemporary daycare system in Sweden also was established in the 1960s and expanded from the mid-1970s on. It is primarily available to mothers of preschool children after parental leave and prior to the start of grade school at age 6–7. Eligibility is based on "substantial" market work (commonly twenty or more hours per week), and in most local communities the fee paid is partly needs or income based. As can be seen in table 11.2, the system is very expensive per child (about SKr 60,000 per year, or $10,000), and the copayment by the family averages only about 10 percent of the cost, or less than $100 per month, for very high quality day care.

The number of spaces available in community childcare centers or community-sponsored homes has risen from about 15 percent of the children ages 0–6 to 47 percent in 1987, where it has stayed (approximately) since. In 1977 there was a shift toward central (state) matched funding, and until 1984 the matching formula to the local community was a combined 50 percent from the central government. From 1984 the central government funding formula was modified to SKr 22,000 per child and SKr 30,000 per childcare worker. With a ratio of one worker per four children, the per-child subsidy to the community is currently on the order of SKr 30,000, which is still 50 percent.

Table 11.2   **Characteristics of Public Child Care in Swedish Communities, 1974–1987**

Year	Ratio of Spaces to Children	Cost per Space SKr (1986 SKr)[a]	Percentage of Cost Paid by		
			Family	Community	State
1975	.15	20,675 (54,566)	12	50	38
1976	.18	23,540 (56,289)	10	56	34
1977	.20	26,960 (57,902)	10	38	52
1978	.23	31,460 (61,373)	10	40	50
1979	.27	34,505 (62,812)	10	38	52
1980	.31	39,590 (63,436)	9	40	51
1981	.34	42,700 (61,026)	8	42	50
1982	.37	44,200 (58,196)	9	41	50
1983	.40	47,800 (57,770)	10	40	50
1984	.42	54,100 (60,539)	10	38	52
1985	.45	58,100 (60,557)	10	41	49
1986	.45	62,050 (62,050)	10	44	46
1987	.47	62,400	10	43	47

Source: Arbete och Löner. S. Gustaffson and P. Lantz, (1985), (Stockholm: Industrial Institute for Economic and Social Research and Arbetslivscentrum).

[a]The figures in parentheses are conversion of the nominal SKr to common 1986 prices.

The share paid by the local community is on the order of 40 percent, and the fee paid by the parents, while averaging 10 percent, varies across communities and among families with different incomes, as illustrated for four communities in Figure 11.2. Other communities are simply represented by the two endpoints (minimum and maximum) of their income-based fee schedules. In communities with a sliding scale, families at the lowest income levels will commonly pay only 3 percent or 4 percent of the total cost, while the highest-income families will be paying about 40 percent of the cost per space. Under the sliding scale (as with the four communities illustrated, with the exception of Danderyd), the parents' share rises with income up to a ceiling, beyond which there is no added copayment. Rationing of spaces is common: at the set price in the local community, a higher share of the eligible population would like to use the system than there are spaces available. Studies indicate
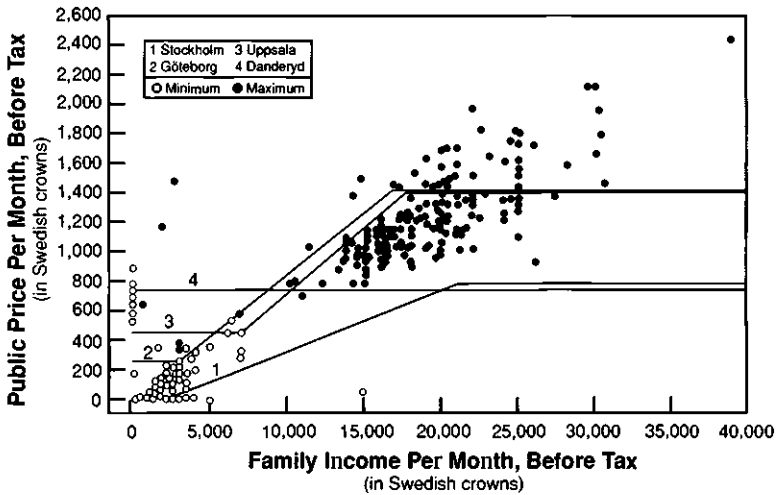
Figure 11.2 Monthly public daycare price in Swedish communities for families of differing monthly incomes.

that parents with professional occupations are far more likely to surmount the rationing barrier than are blue-collar parents (Gustafsson and Stafford 1992, 215).

A fascinating aspect of the daycare system in Sweden is its broad political support. The extent of the daycare program and the rate of parental copayment are subject to control by the 285 local communities, which (as has been noted) pay an approximate average of 40 percent of the cost. What is surprising is that in local communities not under majority control of the Social Democrats (who have championed the program), there are on average only two fewer spaces per one hundred children (Gustafsson and Stafford 1992, table 2). Evidently, there is a broad consensus that public day care should be available, and this applies to parental leave as well.

11.3   Patterns of Childcare Arrangements in the Three Countries

11.3.1   Research Findings

Research on the childcare arrangements in the three countries shows major differences in its availability and use in conjunction with labor force participation. Distinctive features of child care in the United States and the Netherlands include use of multiple modes or, particularly in the United States, arranging parental schedules to allow parental presence throughout the day (Ribar 1992, 145; Groot and Maasen van den Brink 1992, table 3; U.S. Department of Labor 1992a, table 2). In Sweden, families with a space in the public daycare system

generally use this as the primary childcare arrangement (Gustafsson and Stafford 1992). For women with children under 18 months of age, paid parental leave with the mother providing the primary child care is the dominant option used (Sundström and Stafford 1992).

In contrast to the use of mothers' own time for very young children in Sweden, mothers in the United States are likely to return to the job market very soon after the birth of a child. Data from the female youth sample of the National Longitudinal Survey for 1988 (at which time the women in the sample were ages 23–30) show that close to half of the women with a child under the age of 2 were employed and that over half of these women were working thirty-five hours a week or more. This pattern has been highlighted recently (Leibowitz, Klerman, and Waite 1992, 127, table 3) and raises concerns over possible stresses on the family and the child. As we recall from section 11.2, a parent or other family member is the primary care provider for 30 percent of pre-schoolers even when the mother is employed full time. For those employed part time, 61 percent have the parent or other family member as the primary care provider. This has been discussed in the United States, particularly by the popular press, under the general heading of "time squeeze."

Studies based on U.S. time diaries show that educated women are likely simultaneously to work substantially in the job market, to devote a great deal of time to direct child care, and to take on added housework associated with preschool children. The net result is an obvious decline in sleep and free time (Hill and Stafford 1985). Specifically, married women college graduates with a preschooler under age 2 devoted about ten hours a week to child care and another seven hours per week to added housework. Yet market time was reduced only about seven hours a week (as of 1976). Given the fundamental time constraint, there have to be some other time use reductions. About seven hours of the ten-hour deficit $(10 + 7 - 7 = 10)$ were made up for by a reduction in passive leisure and sleep, implying a time squeeze and presumed stress for these women. The rest of the time was "financed" from a variety of alternative time uses.

While generally similar patterns are observed for educated women in Israel, (Gronau 1992), there has not been, overall, a postwar trend toward a time squeeze for women in the United States or Israel. A possible reversal of this may now be taking place, as the average real wage in the United States has stagnated and declined since the mid-1970s (Bound and Johnson 1992). Moreover, the growth of single-parent, female-headed households has raised many questions about the well-being of these mothers and children (Garfinkel and McLanahan 1986, 14 and 48), given that the poverty rate for mother-only families is on the order of 50 percent and their earnings capacity is typically very low. Is it the case that both married women and single mothers return quickly to the job market in the United States, with educated women seeking to ensure better career earnings and the single mothers with low education simply trying to make ends meet?

11.3.2 Descriptive Differences in Labor Supply of Women with Young Children

For the purpose of comparing the three countries. we constructed tables of labor force participation and hours for young women. by age of preschool child. For the United States. where there is special concern over the economic status of mother-only families. the data are presented for single women separately.

From comparisons across tables 11.3–11.6. some of the intercountry differences and program impacts can be seen.[4] In contrast to the United States. where a high percentage of women are at work soon after giving birth. the level of participation and work hours of Swedish women with children under age 2 is far lower. almost 40 percent lower than for women with older preschoolers. In contrast to U.S. women. time diary data for Sweden show a fifteen-hour decline in market work per week and an increase in free-time activities of women with babies in the household (Klevmarken and Flood 1989). Rest and personal care consume three hours more per week for Swedish mothers when there are preschoolers under age 2—in contrast to the decline in personal care and sleep of U.S. mothers. This suggests much less time pressure on Swedish women with young preschoolers (Klevmarken and Flood 1990).

On the other hand. comparing tables 11.3 and 11.6. by the time the youngest preschooler is age 2 many Swedish women have secured a place for the child in the public daycare system. and the participation rate of these women is much higher than in the United States. Given the sharply progressive tax rates that prevailed in Sweden as of 1984. as well as the legal right to work shorter hours (to a six-hour workday) with job protection. we see far fewer Swedish women working thirty-five or more hours per week in the labor market when preschool children are present. Although Swedish women with 2- and 3-year-olds average somewhat higher market hours than comparable U.S. women. the U.S. women are more than twice as likely to work thirty-four hours per week or more.

As of 1985 the overall Dutch female labor force participation rate for women with preschoolers was only 27 percent. well below the rate in the Scandinavian countries and the United States (Pott-Buter 1993). In addition. hours of work for those working were low. and there was the continuation of a long tradition of volunteer work by married women. It is possible that the low correlation between use of formal day care and market work is the consequence of the prevailing view (as in Germany: see Braun. Scott. and Alwin 1992) that full-time parenting was the best lifestyle for women. As its corresponding embodi-

---

4. Assessing data from the Netherlands requires that careful attention be given to the age of the women and time period of any sample used. This is because there has been a dramatic increase in participation among younger women in recent years (OSA 1991). For example. a new sample of six thousand families in the Dutch population shows the following labor force participation rates for mothers with children in specified age ranges: under age 1. 39.7 percent; age 1. 41.7 percent; age 2. 42.6 percent; age 3. 43.0 percent; and age 4. 43.2 percent (Maassen van den Brink 1993).

Table 11.3   **Market Work of Mothers according to Age of Child: United States**

Age of Youngest Child (in years)	Hours per Week of Market Work						
	None	1–9	10–19	20–29	30–34	35 or More	
Under 1	57.6%	3.2%	5.3%	5.0%	3.5%	25.4%	100.0% (1,052)
1–1.99	45.1	4.2	6.4	6.2	4.7	33.3	100.0 (450)
2–3	44.5	2.6	3.2	5.6	5.6	38.6	100.0 (663)
4–5	36.9	3.3	6.4	7.6	4.5	41.2	100.0 (485)
0–5.99	48.4	3.2	5.1	5.8	4.4	32.9	100.00 (2,650)

Source: National Longitudinal Surveys, Young Women Age 23–30 as of 1988.

Table 11.4   **Market Work of Not-Married Mothers according to Age of Child: United States**

Age of Youngest Child (in years)	Hours per Week of Market Work						
	None	1–9	10–19	20–29	30–34	35 or More	
Under 1	64.5%	1.9%	2.3%	2.3%	2.3%	26.6%	100.0% (259)
1–1.99	50.7	0.7	6.7	5.3	5.3	31.3	100.0 (150)
2–3	51.8	2.8	1.6	4.9	4.1	34.8	100.0 (247)
4–5	48.3	1.1	4.6	8.1	5.8	32.2	100.0 (87)
0–5.99	55.6	1.9	3.2	4.4	3.9	31.0	100.00 (743)

Source: National Longitudinal Surveys, Young Women Age 23–30 as of 1988.

ment in public policy, this view has elements ranging from eligibility for the small public day care for women not in the labor market to tax deductions for dependent children (until 1990).

Table 11.5 shows the very low participation rates for women with preschoolers under age 2. While the U.S. participation rate is 46 percent, in the Netherlands it is 26 percent for those with children under age 1 and 22 percent for those with a child age 1–1.99 years. These participation rates, about half the corresponding U.S. rates, occur despite fairly similar public policies (with the possible exception of paid child leave for sixteen weeks in the Netherlands (see table 11.1). Even among mothers with older preschool children, the participa-

Table 11.5   Market Work of Mothers according to Age of Child: The Netherlands

Age of Youngest Child (in years)	Hours per Week of Market Work						
	None	1–9	10–19	20–29	30–34	35 or More	
Under 1	74.4%	4.9%	13.3%	3.0%	1.0%	3.5%	100.0% (203)
1–1.99	78.0	7.6	8.5	3.4	0.9	1.7	100.0 (118)
2–3	73.2	8.5	12.7	.7	0.7	4.2	100.0 (142)
4–5	62.1	15.5	12.6	2.9	0.0	6.8	100.0 (103)
0–5	72.6	8.3	12.0	2.5	0.7	5.8	99.9 (566)
6 or older	65.2	8.2	13.1	5.6	1.8	6.3	100.0 (1,079)

Source: OSA Survey, Women Age 16–65 as of 1988.

Table 11.6   Market Work of Mothers, according to Age of Child: Sweden

Age of Youngest Child (in years)	Hours per Week of Market Work						
	None	1–9	10–19	20–29	30–34	35 or More	
Under 1	58.8%	0.0%	1.5%	16.2%	1.5%	22.1%	100.0% (68)
1–1.99	20.4	0.0	26.5	32.7	10.2	10.2	100.0 (49)
2–3	23.9	2.7	16.8	31.9	8.0	16.8	100.0 (113)
4–5	25.0	0.0	13.3	25.0	10.0	26.7	100.0 (60)
0–5	31.7	1.0	14.4	27.0	7.2	18.7	100.0 (290)
6–18	16.6	2.1	18.7	20.6	7.7	34.3	100.0 (379)

Source: HUS Survey, Women Age 18–64 as of 1984.

tion rate remains below 40 percent, and hours of market work of those who work are rarely in excess of thirty-five hours in the Netherlands. Only about 6 percent of Dutch women with children under age 6 work more than thirty-five hours per week in the market. This labor supply pattern is consistent with the finding that the Netherlands and Japan had a similar near-constancy in house-work hours of women over the period 1960–80, while in other industrialized countries there was a strong movement away from housework and toward market work (Juster and Stafford 1991, table 6).

The three countries differ dramatically in the percentage of preschoolers in mother-only families. In the Netherlands 4.6 percent of our sample was mother-only cases; in Sweden special census tabulations place this at 11.0 percent; in the U.S. National Longitudinal Survey (NLS) sample, 28.0 percent of the mothers were not married or living in a consensual union.

11.3.3   Econometric Analysis of Labor Force Participation

Wage Regressions

Based on our three microdata samples of women with young children, we have sought to portray some of the salient differences in women's labor market payoffs to work and education and how wage opportunities, family status, and childcare costs influence market participation. Given that most Dutch women have to arrange child care without much in the way of public policy, we estimated a simple model of responsiveness of daycare use to market price. What we find is that simple models of labor market behavior show many differences across the countries.

To begin, we examined the market payoff to education and work experience. Table 11.7 displays wage regressions for the three countries. The wage variable in the U.S. data is before-tax wage, whereas the Dutch data provide information only on after-tax monthly earnings. In the Swedish data there is information on before-tax wage, and use of previous work (Gustafsson 1992b) allows us to compute the after-tax wage in order to make comparisons with the Dutch data. In both the Swedish and Dutch data, we included women age 45 and younger. A limitation in comparing those results with the U.S. results is that the age range in the NLS only went up to age 30. The Swedish sample size is quite small, and limiting the sample size to include only women 33 years of age and younger would have been too restrictive.

The wage regressions are standard Mincer (1974) earnings functions; we expect education and labor market experience to be the most important explanatory variables. The Dutch data do not include information on years of labor market experience; after some experimentation with ages of the children as an indicator of experience, we opted for age of the woman and number of family members as explanatory variables in the Dutch wage regression. The results of the wage regressions show that there is much more wage variation in the United States than in the Netherlands or Sweden.

Both high school and college education carry a higher wage premium in the United States than in the other two countries. Also, work experience carries a much higher wage premium in the United States than in Sweden, but this may partly reflect the higher payoff to experience early in one's career, since the U.S. sample is younger and less experienced. The average length of labor force experience in the United States is less than a year, compared to thirteen years in Sweden.

In appendix table 11A.1, the means of variables are given. It turns out that the distribution over educational groups between the three countries is very

Table II.7   **Wage Regressions (OLS), All Women (dependent variable Ln(w); t-values in parentheses)**

	United States[a]	Netherlands[b]	Sweden[c]	
			I	II
Year	1988	1988	1984	1984
Constant	1.63	−.473	1.97	3.03
	(58.4)	(−1.99)	(32.0)	(29.1)
Education (compulsory = reference category)				
High school	.235	.070	.167	.135
	(8.7)	(2.5)	(5.7)	(5.1)
College	.573	.319	.271	.181
	(18.3)	(10.0)	(5.9)	(4.4)
Experience				
Age		.141		
		(8.8)		
$(Age)^b$		−.002		
		(7.8)		
Number of family members		−.022		
		(7.8)		
Experience	.288		.0256	.0238
	(9.3)		(2.7)	(2.7)
$(Experience)^b$	−.062		−.0006	−.0006
	(−3.8)		(−1.9)	(−1.9)
n	3145	532	382	366
R^2	.14	.34	.15	.12

Sources: United States: NLS/4; The Netherlands: OSA; Sweden: HUS.

Note: Ln (w) = Natural logarithm of wage.

[a]Wage variable is before-tax wage.

[b]Wage variable is net after taxes.

[c]I = Before-tax wage; II = Net after tax.

unequal. In the United States, almost everyone has completed high school. In Sweden and the Netherlands, about one-third fall into this group. In both the United States and the Netherlands, about 22 percent have completed college. It is difficult to say if these differences are real or an effect of definitions of education used in the different samples (see appendix A). However, given that college completion is more selective in Sweden than in the United States, it is of note that the payoff to college education of women in the United States *exceeds* the payoff in Sweden.

Participation Regressions

The sample means of labor force participation of young married women in the three countries are 72 percent in the United States, 49 percent in the Netherlands, and 82 percent in Sweden (see table 11.8). In all three countries,

Table 11.8   **Participation Equations (Logit): Married Women under 45 Years of Age (dependent variable: labor force participation; t-values in parentheses)**

	United States[a]	Netherlands[b]	Sweden[c] I	Sweden[c] II
Year	1988	1988	1984	1984
Constant	1.303	−.413	1.202	1.227
	(5.0)	(−1.2)	(1.6)	(1.4)
Husband's monthly income				
(× 1.000)	−1.90	−.396	−.1603	−.893
	(−2.5)	(−2.5)	(−1.1)	(−2.2)
Own wage	.044	.257	.0921	.255
	(1.9)	(4.9)	(1.4)	(2.3)
Child age 0–2 (= 1)	−.436	−.789	−1.099	−1.15
	(−2.5)	(−3.5)	(−3.2)	(−3.3)
Child age 3–5 (= 1)	.011	−.318	−.449	−.475
	(−.06)	(−1.2)	(−1.3)	(−1.4)
Number of children 0–12	−.055	−.501	.103	.088
	(−.7)	(−4.8)	(.69)	(.59)
Husband unemployed (= 1)	−.383	−.707		
	(−1.6)	(−2.3)		
Goes to church (= 1)	.006	−.332	n.a.	n.a.
	(.05)	(−1.9)		
Index of day care				
availability	—	—	.004	.006
			(.18)	(.27)
N	1,252	872	357	371
Log likelihood	−732	−536	−163	−163

Sources: United States: NLS/Y; The Netherlands: OSA; Sweden: HUS.
Note: Labor force participation = At least one hour paid work per week.
[a]Women ages 23–30 in 1988.
[b]OSA data net after taxes.
[c]I = Before-tax wage; II = Net after tax.

husband's income has a negative effect and wife's wage a positive effect on participation, as we would expect.[5] The Swedish after-tax regression performs better than the before-tax regression. Theoretically, people should be making decisions on the basis of their after-tax wage and income, and Swedish income tax rates in 1984 were both high and progressive. On the other hand, net wages are endogenous to the hours-of-work decision. Yet, since our dependent variable is to work at least one hour for pay in the survey week, this endogenity is less of a problem.

In all three countries, the impact of children under age 3 is to significantly lower labor force participation; this effect is most pronounced in Sweden,

---

5. The Dutch earnings data are after tax, and the equation should be compared to the second Swedish wage regression.

where the generous parental leave program has its impact. Children ages 3 to 5 have a far smaller impact on participation, and only in the Netherlands does the number of children under 13 years of age decrease mothers' labor force participation significantly. We believe this to be fairly strong support for the hypothesis that long-standing beliefs about the mother's obligation to a full-time childcare commitment holds sway over labor market behavior of Dutch women. The most telling comparison is with U.S. women, since the parental leave policy in the Netherlands is among the United States husbands 10.5 percent were unemployed according to this definition. In the Swedish data there are fourteen husbands who received unemployment benefits. All of them have working wives, and the variable could not therefore be included.

Finally, for Sweden we included an index of availability of community day care in the community where the mother lives. The variable is not significant, but controlling for this variable increases the t-values of the wage and income variables.

Price Sensitivity of Daycare Use and Mother's Work

In table 11.9, for Dutch women, we present an ordered probit regression on whether the respondent would increase the use of day care if the price were lower. The higher the husband's income, the less likely the mother is to be price sensitive in the use of day care. If she is religious, she is also less likely to respond to lower daycare price, although the coefficient is not quite significant. Family resources, represented by husband's income, and religious outlook, represented by church attendance, have an apparent and jointly discouraging effect on market work of Dutch women limited to fourteen weeks (in contrast to sixty-five weeks in Sweden).

The view that historical and cultural influences matter is supported further by the impact of religious activity on labor force participation of Dutch women. In the Netherlands, women who attend church are less likely to participate in the labor market. The definition of the variable is "goes to church at least once a month," and 26 percent of the Dutch mothers do so. There is an NLS/y variable based on an identically phrased question, and 52 percent of the women in our sample go to church at least once a month. There is no apparent relation between church attendance and labor market participation in the United States.

In the Netherlands, unemployment benefits are dependent on family income, and the participation equation shows that Dutch women whose husbands are unemployed (7 percent of the sample) participate significantly less in the labor market than other women. This is consistent with the hypothesis of a "poverty trap" in the Dutch tax and social security system (Gustafsson and Bruyn-Hundt 1991), which is also present in the British social security system. In England, the husband's unemployment has similarly strong negative effects on wife's labor force participation.

A "husband unemployed" variable in the U.S. regression shows a negative

Table 11.9   **Price Sensitivity for Day Care in the Netherlands: Women with Children under 12 (asymptotic *t*-values in parentheses)**

Price query: Would you use more day care if the price were lower?	
Response	Percentage Observed
No (= 1)	81.2%
Do not know (=2)	9.9
Yes (=3)	8.9
	100.0

Ordered Probit Estimates		Means
Constant 1	.403	
Constant 2	.887	
Own wage	−.008	12.0
	(−.33)	
Husband's monthly income ($\times$ 1,000)	−.217	2.39
	(−2.3)	
Labor force participation (hours > 0)	.086	.34
	(.57)	
Child age 0–2 (= 1)	.199	.41
	(1.5)	
Uses child care (= 1)	.345	.17
	(2.0)	
Goes to church (= 1)[a]	−.270	.26
	(−1.75)	
N	494	
Log likelihood	−293	

[a]At least once a week.

but not statistically significant effect on wife's labor force participation. The unemployment definition was "husband has no earnings," and insofar as these variables would lower the willingness to utilize day care even if the price were lower. On the other hand, for those who do use child care, a lower price would lead to more use. This parallels the well-established result for the U.S. childcare market (Ribar 1992; Michalopoulos, Robins, and Garfinkel 1992) and for user response to the variation in copayment rate in the Swedish public childcare system (Gustafsson and Stafford 1992). Further, using an approach similar to that of Ribar (1992) for U.S. data, the substantial price sensitivity of daycare use and mother's work is observed in a recent study of the Netherlands (Groot and Maassen van den Brink 1992).

11.4   Conclusion

Comparisons have shown that among these three advanced industrialized countries, the policies and practices of child care and labor supply of women with young children differ dramatically. Partly, these differences arise from

historical differences in broad social institutions (Stafford and Robinson 1990). These differences have shaped contemporary differences not just in isolated features of the childcare or tax laws but in major, complementary elements of a system shaping the choices of families with young children.

The impact of these historical and policy variables (other than tax rates, which influence the wage rate and family income) may help explain the puzzle in multinational comparisons of labor supply conducted in the mid-1980s (Layard and Mincer 1985). Within countries, labor supply of married women seems to be explained by some of the same variables: wages and income variations, tax incentives, and family responsibilities. Yet across countries the differences in such variables seem to have far less power. A possible resolution of this result is that there are major long-term institutional and social protection policy differences that cause differences in labor supply.

Appendix
Data

The Netherlands

The Organisatie voor Strategisch Arbeidsmarktonderzoek (OSA) data are organized as a panel (OSA 1991) (see table 11A.1). To utilize the OSA data,

Table 11A.1   Means of Variables

	United States	Netherlands	Sweden I	Sweden II
In wage regression				
Compulsory education	.15	.44	.57	
High school	.63	.34	.32	
College	.22	.22	.11	
Experience	.8		13.0	
Age		30.1		
Number of family members		2.9		
In participation logits			I	II
Participation	.72	.49	.82	
Husband's income	1,633	2,335	8,689	4,799
Own wage	7.4	11.7	39.7	26.9
Child age 0–2	.52	.24	.18	
Child age 3–5	.28	.12	.24	
Number of children < 12	1.74	.97	.65	
Husband unemployed	.105	.07	.039	
Goes to church	.52	.23	n.a.	
Index of daycare possibility			11.1	11.2

one can contact OSA, Van Stolkweg 14,2585 JR The Hague, The Netherlands. For the first wave of April 1985, a random sample of two thousand households was selected. In all households, all members between ages 16 and 65 years of age were interviewed if they were not full-time students or military draftees.

The second and third waves took place in fall 1986 and 1988, respectively. This study uses the 1988 wave. All respondents interviewed in the first wave were asked to participate, and household members who had moved were included in the sample. To counter the loss of households by nonresponse, new households were added by the "random walk" method (i.e., a new household from the same neighborhood was chosen). The total number of observations in 1988 were 4,464, and the number of respondents among these who were interviewed also in 1985 was 1,868, less than half of the respondents (OSA 1991, B15).

The wage and income variables are constructed from a question on net earnings. The respondent could choose between answering net income per week, net income per four weeks, or net income per month. To get wage per hour we used the variable average number of hours, excluding overtime, worked per week. The education variable is highest education completed. The Dutch education system is derived from the "columnized" society, so there are many parallel schools of different kinds covering the same age groups of students but with different profiles (e.g., degree of academic achievement). We have grouped the different educations into three groups covering as closely as possible the division into compulsory school (BO, LBO, MAVO), high school (MBO, HAVO, VWO), and college (HBO, WO). The Dutch data do not have any information on years of labor market experience. It turned out that the number of family members in addition to age and age square predicts the wages fairly well for married women (legally married plus women living in consensual unions).

For the participation equation, we predicted net own wage for nonworkers and used actual net wage for workers. The variable husband unemployed was asked: Do you currently receive unemployment benefits? If the husband answered this question affirmatively, the variable is equal to one and he also answered the question, How many hours do you currently work (by zero)? A person was considered religious if she answered that she went to church every week or at least once a month. For child care, the person was asked, Do you currently use child care (yes or no)?

United States

In the analysis of child care and female labor supply, we use the National Longitudinal Youth panel (NLS/y) (see table 11A.1). The National Longitudinal Survey of Youth was designed by the Center for Human Resource Research, Ohio State University, and fielded by the National Opinion Research Center (NORC) at the University of Chicago. The NLS/y began in 1979 with a national probability sample of subjects aged 14–21 on 1 January 1979. The

original sample was 12,686 persons living in the United States. The respondents have been reinterviewed annually.

We selected 1988 for our basis year because there was more child documentation up to and including 1988 and the Dutch data also are for 1988. In order to create our file for the wage equation and the participation equation, we had to use variables from the following files: Keyvar 1988, Marriage 1988, Schools for all years, CPS 1988, Common file, and Family Background 1982. The data include women aged 23–30 in 1988. The hours variable is number of hours worked during the survey week (R2518800). The question was phrased, How many hours did you work last week at all jobs? The wage variable we used is hourly rate of pay of current or most recent job (R2526010). Religious activity is once a month or more frequent (R6556). Whether the husband is unemployed is defined in the NLS/y data as husband having zero earnings. The definition of completing high school is to have completed the twelfth grade; the definition of college is to have completed the sixteenth grade.

Sweden

The Hushallens Ekonomiska Levnadsforhallanden (HUS) data are organized as a panel (see table 11A.1). The director of the HUS data is Prof. Anders Klevmarken. People interested in analyzing the data should contact Professor Anders Klevmarken, Department of Economics, University of Gothenburg, Viktoriagatan 30, S-41125 Gothenburg, Sweden.

The first wave was collected in 1984. The original data include 1,184 women and 1,114 men. In the 1984 HUS data all adult members of a select household are interviewed if they are not in an institution. Split households are followed in subsequent panels, and young people are added to make the cross section representative. The second wave was collected in 1986. In 1988 the University of Gothenburg mailed a small survey without external fundings with the most important variables. In 1991 there was a new small survey, and for 1993 a larger survey is again funded. The number of respondents who are in all three panels (1984, 1986, and 1988) are 656 women and 602 men. Data from the HUS panel have been used for analysis of separate taxation in Gustafsson (1992c) and on childcare subsidies and labor supply in Sweden (Gustafsson and Stafford 1992). We choose to use the 1984 HUS data because thereby we can make use of the auxiliary data on child care and taxes that were constructed for the two previous papers. The HUS data have very many more variables than the more limited OSA survey.

In this paper, we attempted regressions that were as similar as possible across the three countries. The wage variable we defined in the same way as the Dutch variable—namely, net after tax wage at actual hours worked—and net wage was predicted in the same way. The variable in the HUS data is before-tax monthly income if the person receives monthly pay and before-tax hourly wage if the person receives hourly pay. The variable was converted into net wage by use of a tax simulation worked out for Gustafsson. The whole tax

program is published (Gustafsson and Bruyn-Hundt 1991). Husband's income after tax was calculated by the same procedure. There is a variable on whether the person was unemployed. Among the 445 women who were younger than age forty-five, there were fourteen unemployed husbands. There is no information on religiosity in the Swedish data because practically no religious groups remain in Sweden.

References

Abraham, F. 1992. Social protection and regional convergence in an EMU. International Economics Research Paper no. 83. *OER*. Forthcoming.

Bound, J., and G. E. Johnson. 1992. Changes in the structure of wages during the 1980's: An evaluation of alternative explanations. *American Economic Review* 82, June, 371–92.

Braun, M., J. Scott, and D. F. Alwin. 1992. Economic necessity of self-actualization? Attitudes toward women's labor force participation in the East and West. Occasional Paper no. 9. Essex: University of Essex, ESRC Centre on Micro-social Change.

Buchanan, J., and G. Tullock. 1965. *The calculus of consent*. Ann Arbor: University of Michigan Press.

Esping-Andersen, G. 1990. *The three worlds of welfare capitalism*. Princeton, N.J.: Princeton University Press.

Friedman, M. 1953. Choice, chance, and the personal distribution of income. *Journal of Political Economy* 61, August, 277–90.

Garfinkel, I., and S. McLanahan. 1986. *Single mothers and their children: A new American dilemma*. Washington, D.C.: Urban Institute Press.

Goldin, C. 1990. *Understanding the gender gap: An economic history of American women*. New York: Oxford University Press.

Golonka and Ooms. 1991. Paper presented at the Family Impact Seminar. Cited in Hofferth and Wissoker, (1992).

Gronau, R. 1992. Private communication on research.

Groot, W., and H. Maassen van den Brink. 1992. Labor supply, child care, and consumption. Research manuscript. University of Amsterdam, Department of Economics, May.

Gustafsson, S. 1984. Equal opportunity policies in Sweden. In *Sex, discrimination, and equal opportunity: The labor market and employment policy*, ed. G. Schmid and R. Weitzel. London: Gower.

———. 1992a. Female labor supply and pronatalism: An economic history of Swedish family policies. Research memorandum. Department of Economics, University of Amsterdam.

———. 1992b. Public policies and women's labor force participation: A comparison between Sweden, the Netherlands, and Germany. Paper presented at the Conference on Women's Human Capital and Development, Bellagio, Italy, 18–22 May.

———. 1992c. Separate taxation and married women's labor supply. A comparison of West Germany and Sweden. *Journal of Population Economics* 5(7): 61–85.

Gustafsson, S., and M. Bruyn-Hundt. 1991. Incentives for women to work: A comparison between the Netherlands, Sweden, and West Germany. *Journal of Economic Studies* 18, no. 5/6: 30–65.

Gustafsson, S., and F. P. Stafford. 1992. Childcare subsidies and labor supply in Sweden. *Journal of Human Resources* 27, winter, 204–30.

Hill, C. R., and F. P. Stafford. 1985. Parental care of children: Predictability and variety. In *Time, goods, and well-being*, ed. F. T. Juster and F. P. Stafford, 415–38. Ann Arbor: Survey Research Center, University of Michigan.

Hofferth, S., A. Brayfield, S. Deich, and P. Holcomb. 1991. *National child care survey, 1990.* Urban Institute Report 91–5. Washington, D.C.: Urban Institute Press.

Hofferth, S., and D. Wissoker. 1992. Price, quality, and income in child care choice. *Journal of Human Resources* 27, winter, 70–111.

Johnson, G. E., and F. P. Stafford. 1992. Models of international competition and real wages. Discussion Paper no. 314, Research Forum on International Economics, Institute of Public Policy Studies. Ann Arbor: Department of Economics, University of Michigan, July 1992.

———. 1993. International competition and real wages. *American Economic Review Papers* and *Proceedings* 83 (May) 2: 127–30.

Juster, F. T., and F. P. Stafford. 1991. The allocation of time: Empirical findings, behavioral models, and problems of measurement. *Journal of Economic Literature* 29 (June):471–522.

Klevmarken, A., and L. Flood. 1989. *Tidsänvandningen i Sverige i 1984* (Time use in Sweden in 1984). Research Memorandum 127. Gothenburg: University of Gothenburg, Department of Economics.

———. 1990. Arbete och fritid: Svenska hushålls tidsanvändning. In *Tid och Råd: Om Hushållens Ekonomi,* ed. Klevmarken, 177–233. Stockholm: Industriens Utredningsinstitut.

Krugman, P. 1979. A model of innovation, technology transfer, and the world distribution of income. *Journal of Political Economy* 87, April, 253–66.

Layard, R., and J. Mincer, eds. 1985. Trends in women's work, education, and family building. Conference proceedings. Chelwood Gate, 31 May–3 June 1983. *Journal of Labor Economics* 3, Supplement.

Leibowitz, A., J. A. Klerman, and L. J. Waite. 1992. Employment of new mothers and child care choice. *Journal of Human Resources* 27 (winter): 127.

Maassen van den Brink, H. 1993. Female labor supply, child care, and marital conflict. Dissertation research. Amsterdam: University of Amsterdam, Department of Economics.

Michalopoulos, C., P. K. Robins, and I. Garfinkel. 1992. A structural model of labor supply and child care demand. *Journal of Human Resources* 27, winter, 166–203.

Milgrom, P., and J. Roberts. 1992. *Economics, organization, and management.* Englewood Cliffs, N.J.: Prentice Hall.

Mincer, J. 1974. Schooling, experience and earnings. New York: Columbia University Press.

Organisatie voor Strategisch Arbeidsmarktonderzoek (OSA). 1991. *Trendrapport aanbood van arbeid,* 12. The Hague: OSA.

Pott-Buter, H. 1993. Facts and fairy tales about female labor, family and fertility. A seven-country comparison, 1850–1990. Amsterdam: Amsterdam University Press.

Rainwater, L., M. Rein, and J. Schwartz. 1986. *Income packaging in the welfare state: A comparative study of family income.* Oxford: Clarendon Press.

Ribar, D. C. 1992. Child care and the labor supply of married women: Reduced form evidence. *Journal of Human Resources* 27 (winter): 134–65.

Ryder, H., F. P. Stafford, and P. E. Stephan. 1976. Labor, leisure, and training over the life cycle. *International Economic Review* 17 (October) 3:651–74.

Stafford, F. P. 1977. More on unemployment insurance as insurance. *Industrial and Labor Relations Review* 30 (July):526–31.

Stafford, F. P., and M. Robinson. 1990. Industrial growth and social institutions. In

Institutions in American society: Essays in market, political, and social organiza-tions, ed. J. E. Jackson. Ann Arbor: University of Michigan Press.

Sundstrom, M., and F. P. Stafford. 1992. Female labor force participation, fertility, and public policy in Sweden. *European Journal of Population* 8:199–215.

Titmuss, R. 1958. *Essays on the welfare state.* London: Allen and Unwin.

U.S. Department of Labor, Bureau of Labor Statistics. 1992a. Childcare arrangements of young working mothers, table 2. Research Note.

————. 1992b. National Longitudinal Surveys. Research memorandum. Unpublished.

van Kessel, E., M. Kuperus, and H. Pott-Buter. 1986. *Hoezo gelijk belast?* Amsterdam: De Populier/Amazone.

Varian, H. R. 1980. Redistributive taxes as social insurance. *Journal of Public Finance* 14, August, 49–68.