

Arbeitspapier **241**

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**Financial aspects of
Apprenticeship Training in
Germany, Great Britain
and Switzerland**

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**Finanzielle Aspekte der betrieblichen Ausbildung
in Deutschland, Großbritannien und der Schweiz**

**Financial Aspects of Apprenticeship Training
in Germany, Great Britain and Switzerland**

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Abstract

Financial attributes are potentially important influences on the viability of apprenticeship as a mode of vocational education and training. Two financial aspects are considered: apprentices' pay, which determines the division of training costs between the trainee and the employer; and corporate ownership, which may influence the incentive to employers to provide training, insofar as it promotes or deters short-termist practice concerning investment in employees' skills.

Evidence is taken from fieldwork interviews with senior managers in 56 companies, spread across two sectors (metalworking, retailing) in three countries (Germany, Britain, Switzerland). The companies are matched by products and technologies, differentiated by bargaining status and type of ownership.

The importance of apprenticeship relative to recruitment as a source of skills is found to vary greatly across companies. The pay of apprentices differs markedly between countries (highest in Britain, lowest in Switzerland) in association with the attributes of labour markets, trade unionism, and education systems. Listing on a stock market and having dispersed ownership are associated with more frequent financial upheaval and a lower training effort than are other ownership types.

Kurzfassung

Finanzielle Gesichtspunkte üben einen wichtigen Einfluss auf die Tragfähigkeit der betrieblichen (dualen) Ausbildung aus. In diesem Beitrag werden zwei finanzielle Aspekte behandelt: zum einen die Vergütung der Auszubildenden, die die Aufteilung der Ausbildungskosten zwischen Auszubildenden und Arbeitgebern bestimmt. Zum anderen die Eigentümerstruktur eines Unternehmens, die insbesondere bei Unternehmen im Streubesitz bei kurzfristiger Betrachtungsweise Praktiken fördern kann, die Investitionen in die Ausbildung behindern.

Daten wurden in persönlichen Interviews mit Managern von 56 Unternehmen aus zwei Bereichen (Maschinenbau, Einzelhandel) in drei Ländern (Deutschland, Großbritannien und der Schweiz) erhoben. Die Unternehmen wurden hinsichtlich ihrer Produkte und Technologien abgeglichen, unterschieden sich aber in Bezug auf Tarifbindungsstatus und Eigentümerstruktur.

Die Interviews ergaben, dass die Wichtigkeit der beruflichen Ausbildung für die Rekrutierung von qualifizierten Beschäftigten zwischen den Unternehmen stark vari-

ierte. Die Vergütung der Auszubildenden unterschied sich beträchtlich zwischen den Ländern (am höchsten in Großbritannien, am niedrigsten in der Schweiz), was auf Unterschiede hinsichtlich des Arbeitsmarktes, der Gewerkschaften und der schulischen Ausbildung zurückgeführt wurde. Börsennotierte Unternehmen hatten häufiger finanzielle Umbrüche und zeigten weniger Ausbildungsbemühungen als Unternehmen mit anderer Eigentümerstruktur.

Paul Ryan | Karin Wagner | Silvia Teuber | Uschi Backes-Gellner

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1 Einleitung

Die betriebliche (duale) Berufsausbildung steht national und international immer wieder im Fokus des wissenschaftlichen und politischen Interesses.¹ Aus wissenschaftlicher Sicht werden Faktoren hinterfragt, die erklären, warum z.B. Umfang und Inhalt der Ausbildung in einzelnen Ländern stark variieren, wie Unternehmen und auch Jugendliche auf steigende Ausbildungskosten reagieren und wie sich die Ausbildung auf die Effizienz der Unternehmen auswirkt. So investieren die Arbeitgeber in manchen Branchen sehr viel in die betriebliche Ausbildung; in anderen dagegen nur wenig (Bardleben, Beicht und Fehér 1995; Beicht, Walden und Herget 2004; Schweri et al 2003; Hogarth et al. 1996; Hasluck, Hogarth und Adam 2008; Backes-Gellner, Mohrenweiser 2010). Aus politischer Sicht besteht großes Interesse daran, den Übergang von der Schule zum Arbeitsleben für die Jugendlichen möglichst unproblematisch zu gestalten, eine hohe Jugendbeschäftigungsrate zu erreichen und möglichst viele junge Leute zu qualifizieren.

Diese Studie beschäftigt sich mit finanziellen Aspekten der betrieblichen Erstausbildung im Maschinenbau und im Einzelhandel in Deutschland, Großbritannien und der Schweiz.² Drei Themenkomplexe werden untersucht: a) der Erwerb von Qualifikationen von Facharbeitern bzw. Fachangestellten sowie von Personen auf der untersten Führungsstufe, b) die Festsetzungsmechanismen, Höhe und Auswirkungen der Lehrlingsvergütungen und c) die Verbindung zwischen Eigentümerstruktur und Finanzierung auf der einen und der betrieblichen Ausbildungsintensität auf der anderen Seite.

Ein besonderes Augenmerk liegt auf den Auswirkungen der Lehrlingsvergütungen. Die Vergütung ist nicht nur als Kostenfaktor für die Arbeitgeber, sondern auch als Einkommensfaktor für die Auszubildenden von Interesse. Als Schulabgänger stehen ihnen in Ländern mit einem betrieblichen Ausbildungssystem drei Wege offen: eine Lehrstelle anzunehmen, in der sie eine Vergütung und eine Qualifizierung während der Ausbildung erhalten, in eine Vollzeitausbildung zu gehen, die normalerweise kein

1 Der Ausdruck „betriebliche Ausbildung“ bezieht sich in diesem Text immer auf die duale Ausbildung, d.h. die Ausbildung wird teilweise im Betrieb und teilweise in einer Schule durchgeführt. Die Ausdrücke Lehrlinge und Auszubildende werden synonym verwendet.

2 Wir bedanken uns bei der Hans Böckler Stiftung, der Anglo-German Foundation, SKOPE (Oxford), dem Bundesamt für Berufsbildung und Technologie (BBT) Bern, der Hochschule für Technik und Wirtschaft Berlin und dem Wissenschaftszentrum Berlin für finanzielle und andere Unterstützung; den Managern und Beschäftigten der beteiligten Unternehmen sowie den Vertretern der Arbeitgeberverbände und Gewerkschaften, die uns für die Interviews zur Verfügung standen; bei den Teilnehmern zweier Kolloquien zu diesem Projekt bei der Hans-Böckler-Stiftung für Kommentare und Anregungen; Michaela Kuhnhenne und Christian Dustmann für Unterstützung und Beratung; Jim Foreman, Christian Busin, Jerome Lutz, Katherine Meyer and Andrea Willi für Unterstützung bei der Forschung; Felix Wenzelmann und Kollegen vom BIBB, Samuel Mühlemann, Barbara Müller und Stefan Wolter von der Universität Bern, Jelle Visser von der Universität Amsterdam sowie dem Statistischen Bundesamt, Bundesamt für Statistik, „Learning and Skills Council“ und Bureau van Dijk Electronic Publishing (BvDEP) für die Bereitstellung zusätzlicher Daten und Johannes Mure, Geoff Mason und Hilary Steedman für Materialien, Kommentare und Anregungen.

Einkommen – abgesehen von staatlicher Unterstützung – einbringt oder als Ungelernte eine Arbeit anzunehmen, bei der sie zwar Einkommen, aber keine formale Qualifizierung erwerben.

Die Eigentümerstruktur und Finanzierung der Unternehmen sind deshalb wichtig, weil argumentiert werden kann, dass Manager von börsennotierten Unternehmen, deren Kapital sich im Streubesitz befindet, „kurzfristigen Interessen“ Vorrang einräumen und weniger Ausbildungsplätze anbieten würden als z.B. Familienunternehmen, Genossenschaften oder börsennotierte Unternehmen mit konzentrierter Eigentümerstruktur (Hall und Soskice 2001; Gospel und Pendleton 2003). Zudem scheinen Länder, in denen die Finanzierung der Unternehmen mehr von den Aktienmärkten abhängt, eine niedrigere Quote an betrieblichen Ausbildungsplätzen aufzuweisen.

2 Hintergrundinformationen

2.1 Methode

Die Studie basiert auf 56 Interviews mit Managern oder Personalverantwortlichen in drei Ländern. Um die Aussagekraft der relativ kleinen Anzahl von Fallstudien zu erhöhen, wird die „Matched Plant“ Methode angewandt. Sie beruht darauf, Betriebe in ausgewählten Wirtschaftsbereichen mit ähnlichen Produkten und ähnlicher Beschäftigtenzahl zu vergleichen. Für die vorliegende Untersuchung wurden der Maschinenbau und der Einzelhandel gewählt: einerseits wegen ihrer Größe und wirtschaftlichen Bedeutung und andererseits aufgrund der Unterschiede in der Produktionstechnik sowie in den Qualifikationsanforderungen. Um die Heterogenität von Produkten und Technologien zu reduzieren, wurden Produktbereiche ausgewählt, die durch 4-stellige SIC-Codes (Standardindustrieklassifikation) definiert sind. Die beiden Sektoren unterscheiden sich weiter in der Wichtigkeit der Teilzeitarbeit und Leiharbeit sowie in der Höhe des Frauenanteils. Zudem konzentriert sich in Großbritannien die Lehrlingsausbildung auf die Ausbildung im Maschinenbau, wohingegen die Lehrlingsausbildung im Einzelhandel eher vernachlässigt wird. Für beide Sektoren liegen aus anderen Veröffentlichungen bereits Forschungsergebnisse vor (Steedman und Wagner 1988; Bierhof und Prais 1997; Thelen 2004; Mason und Osborne 2008; Mayer and Solga 2008). Die Unternehmensinterviews wurden durch Gespräche mit Experten (Gewerkschaften und Einzelhandelsverbände, staatliche und private Bildungsinstitutionen) und durch webbasierte Informationen ergänzt.

2.2 Länder- und Produktauswahl

Für die Erhebung wurden Deutschland, die deutschsprachige Schweiz und Großbritannien (DE, CH, GB) ausgewählt. In Deutschland und in der Schweiz ist die betriebliche Ausbildung das vorrangige berufliche Ausbildungssystem, aber die Einflussnahme der Institutionen ist sehr unterschiedlich, was sich u.a. in einer niedrigeren Lehrlingsvergütung, geringeren Arbeitnehmerrepräsentation und einem schwächeren Kündigungsschutz in der Schweiz zeigt. In Großbritannien besteht eine traditionelle betriebliche Ausbildung im Industriebereich, während sie sich im Servicebereich erst in den letzten Jahrzehnten mit Unterstützung von Regierungsprogrammen entwickelt hat. Zudem besteht in Großbritannien eine Mindestlohngesetzgebung, die die Vergütung beeinflusst.

Entsprechend der Klassifizierung durch den vierstelligen Code in der Standardindustrieklassifikation (SIC) konzentriert sich die Maschinenbaustichprobe auf Unternehmen aus den Bereichen Pumpen, Turbinen und Kompressoren; die Einzelhandelsstichprobe auf Warenhäuser und Lebensmittelgeschäfte. Im Einzelhandel wurden jeweils 10 Betriebe in jedem Land befragt, im Maschinenbau je 9 in Großbritannien

und der Schweiz und 8 Betriebe in Deutschland. Zudem wurde die Studie mit je einem deutschen OT-Unternehmen (OT = ohne Tarifbindung) im Maschinenbau und im Einzelhandel ergänzt, um die Vergütungspolitik in den OT-Unternehmen beispielhaft abzufragen. Die Anzahl von OT-Unternehmen ist in den letzten Jahrzehnten stark gewachsen und es ist ihnen gesetzlich erlaubt, die relevanten Tarife für Lehrlinge bis auf 80 Prozent zu reduzieren (Beicht 2006; Haipeter 2009).

Bei der Auswahl von Unternehmen wurde zusätzlich eine Differenzierung hinsichtlich der Eigentümerstruktur durchgeführt, um eine mögliche Überprüfung des Zusammenhangs der Ausbildungsintensität mit der Eigentümerstruktur nachzuweisen. Die resultierende Verteilung der Unternehmen nach Tarifbindungsstatus und Eigentümerstruktur findet sich in Tabelle 1. Im Maschinenbau gab es mit fast allen deutschen und britischen Unternehmen einen Kollektivvertrag, aber nicht in der Schweiz. Im Einzelhandel finden sich Tarifverträge mit allen befragten deutschen Unternehmen (außer dem einen OT-Unternehmen), dagegen in Großbritannien nur in einem Unternehmen. In der Schweiz bestehen zwar in drei Unternehmen Vereinbarungen, aber sie beinhalten keine Vereinbarungen über die Vergütungen von Auszubildenden. Börsennotierte Unternehmen überwiegen nur im britischen Maschinenbau. Im Einzelhandel fallen in diese Kategorie nur etwa ein Drittel aller befragten Unternehmen in allen drei Ländern. Börsennotierte Unternehmen im Streubesitz sind nur im britischen Einzelhandel vertreten und fehlen in Deutschland und der Schweiz völlig.

Tabelle 1: Verteilung der Unternehmen nach Tarifbindung und Eigentümerstruktur

	Maschinenbau			Einzelhandel		
	GB	DE	CH	GB	DE	CH
Mit Tarifvereinbarung	7	7	0	1	9	3
börsennotiert: alle	8	4	5	3	4	3
börsennotiert: Streubesitz	5	1	2	3	0	0
Anzahl der Firmen	9	8	9	10	10	10

Anmerkungen:

Mit Tarifvereinbarung: die Arbeitnehmerlöhne hängen direkt von den Tarifverhandlungen ab und gelten für einen oder mehrere Standorte, Firmen und Branchen (Tarifvereinbarungen in Deutschland, Gesamtarbeitsverträge (GAV) in der Schweiz); nicht berücksichtigt ist die Anerkennung von Gewerkschaften hinsichtlich außermonetärer Faktoren.

Börsennotiert: die Unternehmensanteile werden an einer Börse gehandelt.

Streubesitz: kein einzelner Aktionär besitzt mehr als 20 % des stimmberechtigten Kapitals.

Der Fokus auf mittelgroße Unternehmen spiegelt sich in einem Medianwert im Maschinenbau zwischen 300 und 500 Beschäftigten wider. Die Studie konzentriert sich jedoch nicht nur auf mittelständische Unternehmen, da in Großbritannien und Deutschland je ein größeres Maschinenbauunternehmen einbezogen wurde. Darüber hinaus sind die meisten der teilnehmenden Maschinenbauunternehmen Tochtergesellschaften großer internationaler Konzerne, die durchschnittlich zwischen vier bis elf Prozent der Gesamtmitarbeiter in den drei Zielländern beschäftigen. Im britischen und deutschen Einzelhandel ist die durchschnittliche Größe der untersuchten Betriebe wesentlich hö-

her als in der Schweiz, was auf den kleineren nationalen Markt in der Schweiz zurückzuführen ist.

Die Antwortquote lag bei 60 Prozent in Deutschland mit 18 von 30 angeschriebenen Betrieben und sogar bei 79 Prozent in der Schweiz mit 19 von 24. Sie fiel weitaus höher aus als in Großbritannien, wo sie bei 43 Prozent lag (19 von 44 Betrieben sagten zu). Besonders der britische Einzelhandel lehnte eine Teilnahme häufig ab, was wahrscheinlich mit finanziellen Problemen in der jüngsten Vergangenheit zu erklären ist. In einigen Fällen wurden Filialen angesprochen, wenn die Konzernzentrale abgesagt hatte.

2.3 Betriebliche Erstausbildung

Die Organisation und die Inhalte der betrieblichen Ausbildung unterscheiden sich in den drei Ländern. In Deutschland und der Schweiz ähnelt sich die Organisation insofern, als die Ausbildungsinhalte, -dauer und -standards in Ausbildungsordnungen unter Teilnahme der Sozialpartner festgelegt werden und der Besuch der Berufsschule geregelt und kostenfrei ist. Allerdings unterscheiden sie sich bei der Lohnfindung für Auszubildende. In Deutschland verhandeln Arbeitgeberverbände und Gewerkschaften über die Vergütungen von Auszubildenden und Betriebsräte nehmen Einfluss auf die Ausbildung im Betrieb. In der Schweiz haben die Gewerkschaften keine Mitwirkung bei der Festlegung der Höhe der Vergütungen von Auszubildenden und es existieren in den beiden Branchen keine tariflich festgelegten Lehrlingsvergütungen. Lediglich eine nicht verbindliche Empfehlung wird von den Berufsverbänden und dem Mittelschul- und Berufsbildungsamt auf Basis einer jährlichen Umfrage bereitgestellt. Zudem ist der Einfluss von Betriebsräten (Personalkommissionen) in der Schweiz geringer als in Deutschland.

In Großbritannien werden betriebliche Ausbildungen (Apprenticeships) vom Staat finanziell unterstützt. Die Ausbildungsstandards, die nach Branche und Beruf erheblich variieren, werden durch die „Sector Skills Councils“ (SSCs) festgelegt. Die „Engineering Council“ (SEMTA) verlangt umfangreiche betriebliche Ausbildungspläne und eine schulische Berufsausbildung für Facharbeiter im Maschinenbau (Advanced Apprenticeship, Level 3), was in etwa den deutschen und schweizerischen Ausbildungsanforderungen entspricht (Prais, Wagner 1983; Ryan, Gospel und Lewis 2006, Ryan and Unwin 2001). Die „Retailing Council“ (Skillsmart Retail) fordert keine schulische Berufsausbildung. Bei den meisten Ausbildungen im Einzelhandel handelt es sich um das niedrigere Niveau „Level 2“, was in etwa einer Anlehre entspricht, mit einer Dauer von 13 bis 15 Monaten, da für diesen Zeitraum eine öffentliche Finanzierung erwartet wird. Die englische betriebliche Ausbildung führt nicht zu einer einzelnen Qualifikation, sondern basiert auf getrennten Qualifikationen für Kompetenz, Fachkenntnisse und Schlüsselkenntnisse wie Lesen, Schreiben und Rechnen (QCA 2006). Über die Wirtschaft insgesamt gesehen stellen Auszubildende in der Schweiz 4,8 Prozent, in Deutschland 6,5 Prozent und in Großbritannien 1,8 Prozent (Level 3) der Beschäftigten

dar. Im Maschinenbau liegt die Ausbildungsrate in Großbritannien mit 5,9 Prozent vergleichbar hoch wie in Deutschland (5,9 Prozent) und der Schweiz (4,9 Prozent).

3 Ergebnisse der Befragung zur Qualifikationsstruktur

3.1 Eintrittsalter in die betriebliche Ausbildung und Gender

Das Eintrittsalter in die betriebliche Ausbildung variiert nach Land und Branche. Nationale Statistiken zeigen, dass die Jugendlichen in der Schweiz bei Ausbildungsbeginn durchschnittlich zwei Jahre jünger sind als in Deutschland und Großbritannien. Der Unterschied kann auf ein niedrigeres Alter bei Schulabschluss und einen direkten Übergang in die betriebliche Ausbildung zurückgeführt werden. Dieser Unterschied zeigt sich auch bei den befragten Unternehmen: in allen Schweizer Unternehmen ist das hauptsächliche Eintrittsalter zwischen 15-17 Jahren. Bei einem Viertel der britischen Unternehmen (4 von 17) und beinahe der Hälfte der deutschen Unternehmen (7 von 18) liegt das hauptsächliche Eintrittsalter zwischen 18-20 Jahren, wobei viele Einsteiger einen Abschluss der Sekundärstufe 2 aufweisen. Der britische Einzelhandel setzt seinen Fokus auf das Anwerben von Erwachsenen (Trainees), was sich in einem relativ hohen Lohnniveau widerspiegelt.

Die Verteilung der Lehrausbildung nach dem Geschlecht folgt weitgehend dem bekannten Muster: ein vernachlässigbarer weiblicher Anteil im Maschinenbau, Mehrheitsanteile im Einzelhandel. Der Frauenanteil im Maschinenbau ist jedoch in den befragten deutschen Betrieben auffallend höher als in der Schweiz oder in Großbritannien. Zwei deutschen Maschinenbauunternehmen ist es gelungen, den Anteil der Frauen auf ein Viertel zu erhöhen. Das eine Unternehmen hat getrennte Ausbildungsklassen für weibliche Mechatroniker-Auszubildende geschaffen; das andere hat die Auswahlanforderungen für weibliche Bewerber gesenkt.

3.2 Anteil an Fachkräften

Der Anteil an Fachkräften in der Produktion im Maschinenbau ist in Großbritannien und der Schweiz geringer als in Deutschland (52 Prozent and 53 Prozent vs. 84 Prozent). Auf der ersten Führungsebene (Meister/Techniker/Supervisors) stellt sich das umgekehrt dar: ihr Anteil an den Beschäftigten in der Produktion liegt bei 11 Prozent in den britischen und 9 Prozent in den schweizerischen vs. 4 Prozent in den deutschen Betrieben. Das Bild passt zu Ergebnissen anderer Studien, die besagen, dass britische Maschinenbauunternehmen aufgrund eines geringer qualifizierten Personals in der Produktion eine höhere Anzahl an Vorarbeitern bzw. Managern einsetzen als deutsche Unternehmen (Prais und Wagner 1988; Sorge und Warner 1986). Im Einzelhandel wird in Großbritannien wenig zwischen qualifizierten und unqualifizierten Verkäufern unterschieden. Es lässt sich aus dem geringen Umfang der betrieblichen Lehre erklären: Auf dem Level 3, der dem Niveau des Einzelhandelskaufmanns etwa entspricht, gibt es ein nationales Lehrlings/Beschäftigten Verhältnis von 0,3 Prozent. Wenn man

den Level 2 mit einbezieht, steigt das Verhältnis auf 1,7 Prozent. Insofern ist es nicht erstaunlich, dass in den besuchten britischen Geschäften keiner der Verkäufer eine Ausbildung durchlaufen hatte, während in der Schweiz und Deutschland mehr als 70 Prozent qualifiziert waren.

3.3 Rekrutierung des Personals und Mitarbeiterfluktuation

Es wird häufig erwartet, dass Unternehmen, die eine betriebliche Berufsausbildung anbieten, bei der Besetzung offener Stellen mehr auf eine interne als auf eine externe Rekrutierung für Fachkräfte setzen. Bei den Unternehmensinterviews zeigten sich jedoch erhebliche Unterschiede: Im deutschen und britischen Maschinenbau wird fast allen Lehrlingen eine Übernahme angeboten (99 Prozent und 93 Prozent) und etwas mehr als die Hälfte der Facharbeiter wird aus den eigenen Reihen rekrutiert. Nur ein sehr geringer Anteil der untersten Führungsebene wird extern rekrutiert. Im schweizerischen Maschinenbau werden nur etwa 14 Prozent der freien Stellen mit internen Fachkräften besetzt und etwas mehr als die Hälfte der Lehrlinge erhält ein Angebot zur Übernahme nach der Ausbildung. Die Mehrheit der untersten Führungsebene in der Schweiz wird extern angeworben (sh. Tab. 2). Die Fluktuation in den deutschen Betrieben ist sehr niedrig (2 Prozent), im Gegensatz zu den schweizerischen und britischen Betrieben (9 Prozent bzw. 7 Prozent).

Tabelle 2: Rekrutierung des Fachpersonals und jährliche Mitarbeiterfluktuation

	Beschäftigungsniveau	Maschinenbau			Einzelhandel		
		GB	DE	CH	GB	DE	CH
Anteil externer Personalbeschaffung ¹	Produktionsmitarbeiter/ Verkaufspersonal	40	35	82	99	49	75
	Unterste Führungsebene	16	24	57	35	43	38
Anteil von eigenen Lehrlingen ²	Verkaufspersonal/Produktionsmitarbeiter	54	57	14	0	48	23
Anteil der Lehrlinge, die ein Übernahmeangebot erhalten ²		93	99	55	n.a.	76	60
Mitarbeiterfluktuation	Alle	9	2	7	33	9	16
Anzahl der Unternehmen		8	7	6	10	9	10

Anmerkung:

1. Anteil (Prozent) aller offenen Stellen, die durch externe Rekrutierung im Vorjahr besetzt wurden. Externe Einstellung umfasst sowohl beruflich qualifizierte als auch unqualifizierte Beschäftigte.
2. Prozent der Lehrlinge, die im Vorjahr einen Arbeitsvertrag von beliebiger Dauer nach ihrem Abschluss angeboten bekommen haben.

Die geringe Rolle, die die Übernahme der Lehrlinge in der Schweiz spielt, ist bemerkenswert, da die Berufe im Maschinenbau (v.a. Polymechaniker) von Arbeitgebern normalerweise als Berufe mit relativ hohen Ausbildungskosten bezeichnet werden (Schwermi et al 2003). Dennoch übernehmen schweizerische Unternehmen ihre Auszubildenden häufig mit der Begründung nicht, dass sie nur geringe Nettokosten bzw.

bei Auslaufen der Lehrlingsverträge keinen aktuellen Bedarf an Facharbeitern hatten und stattdessen erst im Bedarfsfall Facharbeiter von extern rekrutieren. Die relativ niedrigeren Nettokosten ergeben sich in der Schweiz aus niedrigeren Ausbildungsvergütungen der Lehrlinge und höheren Löhnen der Facharbeiter. Die Vorgehensweise weist auf aktivere Arbeitsmärkte für Facharbeiter in der Schweiz im Gegensatz zu Großbritannien oder Deutschland hin. Viele Schweizer Unternehmen erklären ihre Entscheidungen mit der Erwartung, dass einige der Ausgebildeten wieder zurück kommen, nachdem sie woanders wertvolle Erfahrungen gesammelt haben oder einen weiterführenden beruflichen Abschluss erworben haben.

Im Einzelhandel besteht in allen drei Ländern eine höhere Mitarbeiterfluktuation, wodurch die Besetzung offener Stellen eine größere Rolle spielt. Diese Tatsache steht im Einklang mit den im Vergleich zum Maschinenbau niedrigeren Ausbildungskosten. Auch hier zeigt sich wieder in der Schweiz eine viel stärkere Besetzung von offenen Stellen durch extern qualifiziertes Personal als in Deutschland. In Großbritannien gab es nach Auskunft der interviewten Manager keine Lehrlinge. Stattdessen schulten die Unternehmen das Verkaufspersonal informell für ein oder zwei Tage am Arbeitsplatz und vermittelten ihnen ein oder zwei Stunden Training pro Woche abseits des Arbeitsplatzes. Die Fluktuation ist mit 33 Prozent mehr als dreimal so hoch wie in Deutschland und doppelt so hoch wie in der Schweiz. Sie wird durch den hohen Anteil von Teilzeitangestellten in englischen Unternehmen (69 Prozent, im Vergleich zu 57 Prozent in deutschen und 31 Prozent in schweizerischen) verursacht, die sich zum großen Teil aus Schülern, Studenten und einem großen Anteil arbeitender Mütter rekrutieren.

4 Ergebnisse der Befragung zur Vergütung der Auszubildenden

4.1 Mechanismen der Lohnfestsetzung

Die nationalen Mechanismen für die Lohnfestsetzung variieren zwischen den Branchen (Visser 2009). Gewerkschaftsmitglieder stellen eine deutliche Minderheit (ca. ein Viertel) der Beschäftigten in allen drei Ländern, wobei die Zahlen zwischen etwa 20 Prozent in der Schweiz und in Deutschland und 29 Prozent im Großbritannien schwanken. Die Abdeckung durch Tarifverhandlungen zeigt jedoch viel größere Unterschiede auf: in Deutschland sind es fast zwei Drittel der Beschäftigten, in der Schweiz fast die Hälfte und im Vereinigten Königreich etwa ein Drittel der Beschäftigten. Diese Unterschiede spiegeln einerseits die Bedeutung der Lohnverhandlungen im Rahmen des deutschen Tarifsystems wider und andererseits die Dominanz einer unternehmensbezogenen Lohnfestsetzung in den beiden anderen Ländern (Haipeter 2009; Fluder und Hotz-Hart 1998;).

4.2 Festsetzung der Ausbildungsvergütungen in Tarifverträgen

In allen drei Ländern bestehen umfangreiche Beziehungen zwischen den Unternehmen im Maschinenbau und den jeweiligen Gewerkschaften, aber nur in Deutschland – mit der Ausnahme des OT-Unternehmens – und einem Betrieb in Großbritannien werden die Vergütungen von Auszubildenden in Tarifvereinbarungen festgesetzt. In allen tarifgebundenen deutschen Betrieben wird bei einer Lohnerhöhung der Mitarbeiter auch eine Vergütungserhöhung der Auszubildenden ausgehandelt. Obwohl die Vergütungen von Auszubildenden in Großbritannien nicht von Tarifverträgen abgedeckt werden, steigen sie, wenn eine Lohnerhöhung der Arbeiter erfolgt. In der Schweiz werden die Lehrlinge nicht in Tarifverhandlungen einbezogen, wobei festzuhalten ist, dass auch die Mitarbeiterlöhne nicht tarifvertraglich festgelegt werden. Die Unternehmen entscheiden autonom über die Höhe der Lehrlingsvergütungen und in einigen der Unternehmen erhielten die Lehrlinge über Jahre hinweg keinerlei Erhöhung.

Im Einzelhandel ergibt sich für die deutschen und schweizerischen Unternehmen ein ähnliches Resultat: Bis auf das eine OT-Unternehmen sind alle deutschen befragten Unternehmen tarifgebunden und mit der Erhöhung des Lohnniveaus für die Angestellten erhöht sich Vergütung für Auszubildende. In der Schweiz existiert dagegen keinerlei Einfluss der Gewerkschaften auf die Vergütung für Lehrlinge, selbst wenn in einigen Unternehmen die Mitarbeiterlöhne mit Gewerkschaften verhandelt werden. Es steht dem Management frei, wann es eine Anpassung der Lehrlingsvergütung vornehmen möchte. Im britischen Einzelhandel wurden hauptsächlich erwachsene „Trainees“ eingestellt. Da sie keinen Ausbildungsvertrag haben, ergibt sich die Lohnhöhe aus dem regulären Arbeitsvertrag. In sechs der zehn Unternehmen wurde das Anfangsgehalt

von der Höhe des Mindestlohns beeinflusst, da die Arbeit im Einzelhandel gering bezahlt wird (Mason und Osborne 2008). Allgemein sind britische Lehrlinge bis zum Alter von 19 Jahren bzw. im ersten Jahr ihrer Ausbildung vom Mindestlohn ausgenommen (LPC 2009; Denvir et al 2009). Die möglichen Auswirkungen des Mindestlohns im Maschinenbau kommen durch die hohe Vergütung der Lehrlinge in dieser Branche nicht zum Tragen.

4.3 Einfluss der Arbeitnehmervertretung

Eine Arbeitnehmervertretung im Unternehmen – in Deutschland z.B. der „Betriebsrat“, in Großbritannien „works council“ oder „employee forum“ und der Schweiz „Personal-kommission“ – könnte auf die Vergütungshöhe von Auszubildenden Einfluss nehmen. In 36 von 50 befragten Unternehmen bestand eine Arbeitnehmervertretung. Allerdings beschäftigte sie sich nur in sechs Fällen mit Angelegenheiten der Auszubildenden, davon zwei Mal mit Vergütungsfragen. Die anderen vier Fälle betrafen deutsche Betriebsräte, die sich für die Übernahme der Auszubildenden in ein Beschäftigungsverhältnis, für eine Erhöhung bzw. in einem anderen Fall eine Verringerung der Zahl der Auszubildenden einsetzten oder auf die Möglichkeit hinwirkten, dass die Lehrlinge im Einzelhandel die Option haben, in eine dreijährige Ausbildung zu wechseln.

4.4 Vergleich der absoluten und relativen Höhe der Ausbildungsvergütung

Umfassende nationale Studien zur Höhe der Ausbildungsvergütung existieren bereits. Als Quelle für Deutschland liegt die BIBB-Studie von 2007, für die Schweiz die Bern-Untersuchung von 2004 und für Großbritannien eine Befragung zur Lehrlingsvergütung von 2005 vor (Ullman und Deakin 2005). Um eine Vergleichbarkeit der Lehrlingsvergütung über die einzelnen Länder und Sektoren hinweg zu gewährleisten, wurde die Vergütung ins Verhältnis zu den Entgelten von qualifizierten Beschäftigten in den betreffenden Berufen gesetzt.

Die relative Vergütung der Lehrlinge ist in der Schweiz mit knapp 18 Prozent des qualifizierten Mitarbeiterentgelts im Einzelhandel (Detailhandelsassistent) und 14 Prozent im Maschinenbau (Polymechaniker) über die Ausbildungszeit am niedrigsten. In Großbritannien liegt sie mit 70 Prozent im Einzelhandel und 41 Prozent im Maschinenbau am höchsten. In Deutschland nimmt sie mit 34 Prozent im Einzelhandel (Kaufleute im Einzelhandel) und 29 Prozent im Maschinenbau (Mechatroniker, Industriemechaniker) eine Mittelposition ein.

Aus den Vergleichen ergibt sich, dass die relativen Vergütungen in Deutschland nahezu doppelt so hoch wie in der Schweiz liegen. Diese Erkenntnis ist wichtig, da die Ausbildungsvergütung einen großen Anteil der Gesamtausbildungskosten ausmacht und damit die Ausbildungskosten in der Schweiz sehr viel niedriger ausfallen (Wagner

1999; Dionisius et al. 2009). Eine höhere Lehrlingsvergütung in Deutschland als in der Schweiz kann mit dem Einbezug der deutschen Auszubildenden in Tarifverhandlungen in Verbindung gebracht werden. Doch liegt die relative Vergütung in Großbritannien am höchsten. Daher lassen sich diese Ergebnisse nicht unbedingt mit dem Einfluss von Gewerkschaften auf höhere Vergütungen erklären: in Großbritannien werden trotz deregulierter Arbeitsmärkte und Ausbildungsstandards sowie geringer gewerkschaftlicher Einflussnahme die höchsten relativen Ausbildungsvergütungen gezahlt. Obwohl viele Autoren auf den Vergleich Schweiz – Deutschland hinweisen, um die Gewerkschaften als Unterstützer eines hohen Lehrlingslohns darzustellen, bringt ein Vergleich mit Großbritannien die Argumentation ins Wanken (Marsden und Ryan 1991).

Eine Analyse der relativen Vergütungen über die Ausbildungsjahre zeigt für Deutschland eine relativ niedrige Differenzierung zwischen den Ausbildungsjahren. Der Unterschied zwischen der Vergütung im ersten und im letzten Jahr bei den Mechatrikern und Industriemechanikern beträgt nur 4.6 Prozentpunkte in Deutschland, aber 10.4 Punkte bei entsprechenden Berufen in der Schweiz. Der Einfluss einer starken Gewerkschaft könnte daher auch zu einer Verringerung der Differenzierung zwischen den Ausbildungsjahren führen. Das Fehlen entsprechender Unterschiede im Einzelhandel könnte auf einen schwächeren gewerkschaftlichen Einfluss in dieser Branche zurückgeführt werden.

4.5 Weitere mögliche Ursachen der relativen Vergütungsunterschiede

Als weitere Ursache für die großen internationalen Unterschiede in den relativen Vergütungen der Lehrlinge kann das Alter der Auszubildenden angeführt werden. Ein höheres Eintrittsalter in die Lehre kann einerseits zu höheren Angebotspreisen (teurere Lebenshaltungskosten), andererseits zu höheren Nachfragepreisen (höhere Produktivität) führen. Die niedrigere Ausbildungsvergütung in der Schweiz korrespondiert mit einem durchschnittlich niedrigeren Eintrittsalter. In allen befragten Unternehmen in der Schweiz liegt das Eintrittsalter der meisten Lehrlinge zwischen 15-17 Jahren, wohingegen die meisten Auszubildenden in den deutschen und britischen Unternehmen im Alter von 18-20 Jahren eintreten. Lehrlinge, die beim Eintritt über 21 Jahre alt waren, finden sich in vier britischen Maschinenbaubetrieben, aber fast gar nicht in deutschen oder schweizerischen Betrieben. Allerdings sind die Unterschiede in der relativen Vergütung zwischen Deutschland und Großbritannien im Vergleich zu den Altersunterschieden sehr groß, so dass dies nicht der alleinige Faktor sein kann.

Neben dem Alter und der Abdeckung durch Tarifverhandlungen könnten der vertragliche Status der Lehrlinge, staatliche Subventionen und das Angebot an Ausbildungsmöglichkeiten für die jungen Leute relevant sein. Im Gegensatz zu Schweizer und deutschen Lehrlingen, die einen Ausbildungsvertrag erhalten, werden 90 Prozent der britischen Auszubildenden – und alle in unserem Sample – mit einem Arbeitsvertrag eingestellt. Um Schulabgänger für eine betriebliche Berufsausbildung zu gewinnen, scheint es für britische Arbeitgeber notwendig zu sein, unbefristete Beschäftigtenver-

hältnisse mit einem Lohn statt einer Ausbildungsvergütung anzubieten. Eine weitere mögliche Ursache für höhere Vergütungen in Großbritannien sind öffentliche Subventionen. Die Regierung zahlt bis zu 20.000 € an einen Arbeitgeber, der einen 16-18-jährigen für eine Ausbildung auf dem Niveau 3 für einen Maschinenbauberuf einstellt. Ein Teil dieses Zuschusses könnte als höhere Vergütung weitergegeben werden. Doch hätten die Arbeitgeber keinen Anreiz eine höhere Vergütung zu zahlen, wenn das Angebot an potentiellen Auszubildenden hoch genug wäre. Trotz eines höheren relativen Lohns berichten die britischen Interviewpartner im Maschinenbau über eine viel geringere Anzahl von Bewerbungen (insgesamt und geeignete) je offener Ausbildungsstelle als deutsche und Schweizer Betriebe. Der rasante Anstieg in der Anzahl Studierender Großbritanniens, der die Zahl potentiell geeigneter Bewerber für die Lehrlingsausbildung reduziert, ist daher ein wichtiger Faktor. Ein weiterer Einflussfaktor wurde von drei Unternehmen erwähnt: das niedrige Ansehen einer betrieblichen Berufsausbildung in den Augen der Eltern und in der britischen Gesellschaft.

Eine Frage speziell für Deutschland war es, ob Lehrlinge in „OT“ Unternehmen, die nicht an einen Flächen- oder Branchentarifvertrag gebunden sind, schlechter als in ‘T’ Unternehmen bezahlt werden (OT = ohne Tarifbindung; T = tarifgebunden). Die Interviews mit deutschen OT-Arbeitgebern sind auf zwei Unternehmen begrenzt, eines in jeder Branche. In beiden Fällen hatte dies eine Auswirkung auf die Lehrlingsvergütung. Das Maschinenbauunternehmen trat aus dem Arbeitgeberverband aus, um eine größere Kontrolle über das Gehaltssystem zu gewinnen. Dies geschah durch die Abschaffung des 13. Monatsgehalts und die Einführung von Leistungsprämien für Mitarbeiter und Auszubildende. Der Einzelhändler entschied sich zum Austritt, um in erster Linie die Verlängerung der wöchentlichen Arbeitszeit zu bewältigen und erhöhte Provisionen auszuzahlen.

4.6 Veränderung relativer Vergütungen

Die Unternehmen wurden nach Veränderungen in den relativen Vergütungen zur Fachkräfteentlohnung gefragt. In 17 von 55 Betrieben ergab sich eine Veränderung, wobei die Änderung bei elf Betrieben vom Management ausging. Die genannten Gründe sind vielfältig. Zwei der deutschen Einzelhändler erhöhten die Vergütung, um mehr (und bessere) Auszubildende zu rekrutieren, ein britischer Einzelhändler erhöhte, um die Fluktuation im ersten Jahr zu reduzieren. Ein britisches Maschinenbauunternehmen erhöhte die Lehrlingsvergütung, um die Differenz im Status zu den Hochschulabsolventen zu vermindern. Zwei Schweizer Einzelhändler und ein Maschinenbaubetrieb dagegen reduzierten das Vergütungsverhältnis, indem sie die Einkommen der Beschäftigten, aber nicht der Auszubildenden erhöhten.

Die Auswirkungen der relativen Vergütungen der Auszubildenden auf die Ausbildung in den einzelnen Ländern und Branchen sind schwierig aufzuzeigen, da andere Determinanten auf das Angebot von Ausbildungsplätzen, wie z.B. Technologie und Fachkräftebedarf, kontrolliert werden müssten. Zusätzlich ist es schwierig, Effekte der

Angebots- und Nachfrageseite zu separieren. Für vier „matched pairs“ im Maschinenbau ließen sich Nachfragefaktoren wie Art der Produkte, Technologie sowie Eigentümerstruktur kontrollieren. Es ergaben sich drei britisch-deutsche und ein deutsch-schweizerisches „Pärchen“. Die relativen Vergütungen variieren stark zwischen den Unternehmen, die mit den erwähnten nationalen Unterschieden übereinstimmen: In den britischen Werken sind sie höher als im deutschen Werk und viel niedriger im Schweizer Betrieb als im deutschen. Allerdings lassen sich daraus keine negativen Assoziationen zwischen relativer Vergütung und Ausbildungsintensität feststellen. Zwei Paare zeigen eine negative Assoziation zwischen höherer Vergütung und niedrigerer Ausbildungsintensität. Zwei Paare weisen das Gegenteilige auf: mehr Auszubildende und höhere Vergütung. Zusätzlich zu der sehr beschränkten Auswahl an Matched Pairs kann die Analyse durch Faktoren wie wirtschaftliche Situation, staatliche Subventionen, kulturelle Unterschiede oder durch die Höhe der Nachfrage von Schulabgängern beeinflusst sein.

5 Ergebnisse der Befragung zum Einfluss der Eigentümerstruktur und Finanzierung auf die Ausbildungsinvestitionen

Die These, dass Entscheidungen über Ausbildungsinvestitionen von der Eigentümerstruktur und der Unternehmensfinanzierung beeinflusst werden, wurde unter Sozialwissenschaftlern bereits häufig diskutiert (Cheffins 2008; Monks und Minow 2008). Dabei wird die Hypothese aufgestellt, dass Manager in Unternehmen im Streubesitz eine gewinnabhängige Vergütung erhalten und dadurch ein Anreiz für die Manager besteht, Investitionen, die sich in der Bilanz nicht positiv niederschlagen wie z.B. in Ausbildung, zurückzufahren, um höhere Boni zu erhalten oder um Aktienoptionen hoch zu treiben, wenn diese Teil der Vergütung sind (Gospel and Pendleton 2005).

Der Datensatz enthält für den Einzelhandel in Deutschland und der Schweiz kein börsennotiertes Unternehmen im Streubesitz. Die folgende Analyse bezieht sich daher auf den Maschinenbau, wobei von den sechs schweizerischen Unternehmen keines in Streubesitz ist. Es handelt es sich daher um einen kleinen Datensatz mit achtzehn Unternehmen, doch zeigt sich, dass die fünf Unternehmen, deren Anteile sich im Streubesitz befinden, mit 7 Prozent eine geringere Ausbildungsintensität aufweisen als die anderen dreizehn Unternehmen mit 10 Prozent. Bei den britischen Pumpenherstellern liegt das Ausbildungsverhältnis bei 2,1 Prozent für zwei Unternehmen im Streubesitz im Vergleich zu 9,5 Prozent der anderen zwei Unternehmen. Bei Turbinen- und Kompressorenherstellern liegt das Verhältnis bei 9,7 zu 11,9 Prozent und damit sehr eng beieinander. Die Effekte aus der Eigentümerstruktur können daher nicht klar von sektoralen oder nationalen Effekten unterschieden werden.

Des Weiteren wurden die Unternehmen nach Auswirkungen von finanziellen Schwierigkeiten auf die Ausbildungsintensität befragt. Insgesamt berichteten 17 Unternehmen – elf britische und vier aus den beiden anderen Ländern – über eine Veränderung. Alle drei großen britischen börsennotierten Einzelhandelsunternehmen im Streubesitz hatten finanzielle Schwierigkeiten und erlebten einen starken Rückgang des Aktienkurses. Jedes der drei hatte mit Kürzungen in der Ausbildung reagiert. Ein Elektro-Einzelhändler hatte die Inhalte der Ausbildung für die Filialleiter und das kaufmännische Personal reduziert. Ein zweites Unternehmen hatte die Dauer der Erstausbildung für das Verkaufspersonal von drei Tagen auf zwei verringert. Das dritte hatte die Ausbildung für Abteilungsleiter gekürzt. In allen drei Fällen wiesen die Befragten auf einen Widerspruch zwischen dem finanziellen Druck zur Kostensenkung und der Erhaltung der Konkurrenzfähigkeit hin.

Bei den Unternehmen, die die Ausbildungsintensität verändert hatten, hatte sich meistens vorher eine Krisensituation ergeben, in der die Ausbildungsaktivitäten einer kritischen Bestandsaufnahme unterzogen wurden. Dabei stellte sich heraus, dass etwa gleich viele die Ausbildung ausweiteten (8 Unternehmen) wie verringerten (7 Unter-

nehmen). Diejenigen, die mehr Ausbildung anboten, begründeten es mit einer Anhebung der Qualität des Produkts bzw. der Dienstleistung.

Fünf Unternehmen – davon drei britische – berichteten von einem Wechsel in der Eigentümerstruktur zwischen „börsennotiert und Streubesitz“ und „anderen“. Ein britisches Maschinenbauunternehmen wurde aufgekauft, wechselte damit vom „Streubesitz“ in die Kategorie „andere“. Hier ergab sich (bisher) kein Effekt auf die Ausbildung. Zwei britische Einzelhändler kamen in Familienbesitz und erhöhten die Investitionen in die Ausbildung, was dem erwarteten Effekt aus der Hypothese entspricht. Ein britisches und ein Schweizer Maschinenbauunternehmen wechselten dagegen zu „börsennotiert und Streubesitz“. Bei beiden ließ sich kein negativer Effekt auf die Ausbildung feststellen. Die Manager stellten im Gegenteil die Wichtigkeit von Facharbeitern und von Ausbildung für die Produktion in den beiden multi-nationalen Unternehmen heraus. Diese Fälle unterstützen nicht die Hypothese.

Eine wichtige Rolle für die Ausbildungsintensität könnte auch vom Produktwettbewerb ausgehen (Görlitz and Stiebale 2008). Die Annahme, dass ein stärkerer Wettbewerb zu weniger Ausbildung führt, lässt sich aus den Interviews nicht belegen. Die meisten Manager schätzten den Wettbewerb auf ihrem Produktmarkt als stark ein und argumentierten, dass ein starker, qualitätsbezogener Wettbewerb eine intensivere Ausbildung erforderlich macht. Insbesondere im Einzelhandel wurde ein hoher Kundenservice, der auf Verkaufstraining und Produktkenntnisse beruht, als Wettbewerbsvorteil angesehen.

Financial aspects of Apprenticeship Training in Germany, Great Britain and Switzerland

1 Introduction³

Apprenticeship generates considerable interest, both scientific and policy-oriented. From a scientific standpoint, the factors that cause its scale and content to vary greatly across countries and sectors are still not well understood by the social sciences, let alone by economics alone. Similarly, the mechanisms through which apprenticeship might improve school-to-work transitions in general, and raise youth employment rates in particular, are only partly understood (Ryan 2001).

From a policy standpoint, the importance of apprenticeship is shown by the efforts of government in many countries to install an apprenticeship system or, where one already exists, to improve it – as repeatedly in Britain (House of Lords 2007; DIUS 2008). Similarly, even the countries that have successful apprenticeship systems, notably Germany and Switzerland, see recurrent concern that apprenticeship is in jeopardy (Baethge, Solga and Wieck 2007; Schweri and Müller 2008).

Financial issues feature prominently in both the scientific and the policy dimensions. In terms of how apprenticeship works, the financial stake of the employer varies greatly. In some contexts employers who train apprentices invest heavily when doing so; in other contexts, employers provide training but bear little or none of the cost; while in yet others firms earn a surplus on their apprentices, taking the training contract as a whole. All three situations can be seen in surveys of training costs, in Germany, Switzerland and Britain alike (Bardeleben, Beicht and Fehér 1995; Beicht, Walden and Herget 2004; Schweri et al 2003; Hogarth et al. 1996; Hasluck, Hogarth and Adam 2008).

The reasons for these differences are not well understood. Economic theories predict under different market conditions a zero or positive investment by the employer, but not a negative one (Wolter and Ryan 2011). Moreover, they do not predict that employers who produce similar goods or services in similar financial and labour market situations will make different choices concerning apprenticeship training.

A recurrent issue in policy debates about apprenticeship is whether apprentice pay should be reduced in order to increase the supply of training places (Wagner 1999; Beicht and Walden 2004; Steedman 2005, 2008) – if indeed a cut in pay might be

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expected to increase training volume in the first place (Acemoglu and Pischke 1999). Even were lower apprentice pay considered desirable, its feasibility might be questioned, particularly when pay is set by collective bargaining (Marsden and Ryan 1991b).

The sensitivity of the issue is illustrated by a collective agreement in Bavarian metalworking in 2007, in which employer and employee representatives agreed to reduce employers' training costs in order to secure more training places. The agreement involved not any cut in apprentice pay but rather a lower rate of pay increase for employees to fund the additional training places (VBM 2007). More generally, while the various Alliances for Apprenticeship (*Bündnisse für Ausbildung*) that have been formed in Germany at both national and Land-level during the past decade have seen proposals that trade unions accept lower apprentice pay in return for more apprenticeship places, our interviews with employers' associations and trade unions suggest that little motion has occurred, given both employers' reluctance to commit to a substantial increase in places and trade unions' reluctance to accept pay cuts for apprentices, particularly in the absence of such commitments by employers.

A second financial issue is the effect on training of corporate ownership and finance. Some institutionalists argue that stock market companies with dispersed ownership have 'short-termist' perspectives and provide less training than do other companies, including family-controlled ones, unlisted ones and cooperatives (Hall and Soskice 2001; Gospel and Pendleton 2003). Countries in which corporate finance depends more on stock markets and less on banks have lower rates of vocational training (Black, Gospel and Pendleton 2007).

The apprentice's financial stake in training is also of interest. In countries with a flourishing apprenticeship system, young people can choose between taking an apprenticeship, which provides an income during learning and normally results in an occupational qualification, and either (i) continuing in full-time education, which, in the absence of public subsidies, provides no income during learning and which leads to a strictly educational qualification, whether vocational or general or (ii) entering the low skill labour market, which normally provides more income and some work experience, but no qualification of value. The three alternatives have potentially important but different option values for young people, in terms of the prospect for further learning and career development.

The financial attributes of these alternatives have been changing strongly in some countries – notably in Britain, with the introduction of maintenance grants in upper secondary education, and of tuition fees and short programmes (Foundation Degrees) in post-secondary education (DfES 2003). Analogous developments can be seen in Germany and Switzerland, with the introduction of the Bachelor's Degree and of tuition fees for higher education – though in Switzerland full-time tertiary-level vocational education is taken mostly by adults early in their careers and as such acts more as a complement to than a substitute for apprenticeship (BMBF 2007; Hoeckel et al. 2009). The effects of the English and German innovations on youth interest in app-

renticeship are potentially mixed: increases in tuition fees at tertiary level encourage interest, whereas the reduction of study time and training cost to young people that results from the introduction of shorter tertiary programmes has, in principle at least, the opposite effect.

Our research focuses on two aspects of the financing of apprenticeship that are relevant primarily to employers: the setting and effects of apprentice pay, and the implications of systems of corporate ownership and finance.

This study covers three countries: England, Germany and Switzerland (abbreviated here as GB, DE and CH). All have substantial amounts of apprenticeship training, even though Britain lags well behind the other two countries in that respect. The three countries show contrasting patterns of apprentice pay and employer finance. We concentrate on two sectors, engineering (i.e., metalworking) and retailing, in each of which skills and training have been the subject of a considerable comparative research literature (Steedman and Wagner 1998; Bierhof and Prais 1997; Thelen 2004; Brockman, Clarke and Winch 2008; Mason, Osborne and Voss-Dahm 2008; Mayer and Solga 2008).

Our evidence comes primarily from fieldwork interviews, supplemented by survey data and internet-based information. The interviews were conducted in person with senior managers, responsible mostly for human resource management, in more than fifty establishments (or groups of establishments), and from the officials of more than ten national organisations (employers' associations, trade unions, occupational associations) with an economic interest in one sector or the other. Interviews were distributed in similar proportions across the countries and sectors. We sought to match establishments across countries by products (subsectors) in order to increase the informational content of the evidence.

We do not directly investigate financial issues for young people. However, at a number of companies we were able to collect information from employees' about their prior training and work experience. Findings from this source are presented in the Appendix. We also collected from our interviews with managers incidental information about the youth side, concerning in particular the extent of interest in apprenticeship among young people.

Our project does not cover public subsidies to employers' training programmes – a matter of some complexity in Britain. Nor did we collect much information on the total costs of training to the employer. Few companies have estimated those costs, and, in any case, estimates have already been compiled for all three countries by the systematic surveys cited above.

The next section outlines the background to the research, followed in section 3 by an account of the national and sector context, and in section 4 by some summary attributes of apprenticeship in the selected companies. The substantive research topics are then presented in succession: the contribution of apprenticeship to the intermediate skill

supplies of employers (section 5); the setting and effects of apprentice pay (section 6); and the pattern and effects of corporate ownership and finance (section 7). The conclusions follow in the final section. Findings from the separate survey of employees in participating companies are included in the Appendix.

2 Background: countries, sectors, occupations, cases and research methods

Given the issues to be studied, our research project is defined by the choice of sectors, occupations, countries and research methods.

We chose Britain, Germany, and Switzerland partly because of the importance of apprenticeship in traditional industrial practice and contemporary policy debate in all three countries. Moreover, the three countries differ in institutional attributes that are potentially important for the functioning of apprenticeship – notably the external regulation of training standards (stronger in Germany and Switzerland), rates of employee representation and collective bargaining (high in Germany, low in Switzerland, mixed in Britain), minimum wage legislation (Britain only), and statutory employment protection (stronger in Germany than in Switzerland or Britain).

The sectors involved are engineering (i.e., metalworking industry) and retailing. They were chosen because of their size and economic importance, and also because of the differences in their production technologies and skill requirements. They differ also in the importance of part-time and temporary employment, and the composition of employment by gender. Moreover, in Britain, engineering training has traditionally centred on apprenticeship, whereas in retailing apprenticeship is a marginal feature, in contrast to its importance in the other two countries.

Apprenticeship is traditionally associated with learning for ‘intermediate’ skill levels, not the lower ones for which simple job training is the norm, nor the higher ones dominated by full-time schooling and professional education (Ryan 1991). We study two intermediate occupational levels in each sector: skilled front-line staff and first-line management. Skilled front-line staff comprise, in engineering, craft production workers; in retailing, sales staff. Not all sales staff are occupationally qualified (*Facharbeiter*) in Germany and Switzerland, and few are in Britain, but we treat all such employees nevertheless as being, once trained, possessors of an intermediate skill, in which product knowledge and customer service are key dimensions. First-line managers are defined for engineering as production supervisors, and for retailing as department managers (in large stores) or store managers (in small ones). We chose these two occupational levels partly in order to study to the extent to which apprenticeship feeds through, for both the employer and the individual, from the occupation to which it leads initially to occupations higher up the firm’s employment hierarchy.

The informational potential of fieldwork that uses a limited number of cases is problematic, given small sample size and the likelihood of uncontrolled heterogeneity of products and technologies between employers, particularly in sectors defined as broadly as ‘engineering’ and ‘retailing’. To reduce heterogeneity we concentrate on a few sub-sectors, as defined by 4-digit Standard Industrial Classification (SIC) codes. The sub-sectors were chosen partly with a view to the feasibility of finding matched producers

of highly similar products or services in all three countries. The problem is greater in engineering than in retailing, and in Switzerland, as a smaller country, and Britain, as a country with a much shrunken manufacturing sector, than in Germany. We therefore sought 4-digit subsectors of metalworking, in national listings of establishments by Standard Industrial Classification (SIC) code, as compiled by Dun and Bradstreet, that showed significant numbers of medium-sized establishments (broadly speaking, between 100 and 700 employees) in both Switzerland and Britain – which led to the choice of pump and turbine manufacturers. We then identified comparable German producers from various German sources, including the directory *Wer Liefert Was?*

Our fieldwork is confined territorially within each country: in Britain, to England; in Switzerland, to the German-speaking regions; and in Germany, to four regions: Berlin, the Ruhr, Baden-Württemberg, and Hamburg, with an additional case in Bavaria. The inclusion of Berlin means the presence of two retailing establishments located in the former DDR.

Table 1 shows the distribution of participating establishments by SIC code. Our engineering sample is concentrated in pumps, turbines, compressors and aero engines; our retailing sample, in department stores and food stores. In engineering, this core is supplemented by companies drawn from electronic components; in retailing, by shoe, furniture and electrical/electronics specialists. The inclusion of these additional subsectors reflects two considerations. The first is the limited number of producers, and particularly those willing to participate in the research, in the core subsectors in Britain and Switzerland. Second, we wanted to include for Germany establishments that are not covered by collective bargaining (*ohne Tarifbindung*), which proved absent among internationally comparable establishments in our core subsectors, but which were readily identified in other subsectors.

Table 1: Number of participating establishments by sector

Sector	Subsector	SIC 1987	GB	DE	CH	All
Engineering	Pumps and pumping equipment	3561	4	4	4	12
	Turbines and turbine generator sets	3511	1	2	2	5
	Air and gas compressors	3563	0	0	1	1
	Aircraft engines and parts	3724	1	0	0	1
	Electronic components, n.e.c.	3679	3	2	2	7
	All engineering subsectors		9	8	9	26
Retailing	Department stores	5311	4	2	3	9
	Grocery stores	5411	3	3	2	8
	Shoe stores	5661	1	2	2	5
	Furniture stores	5712	1	1	1	3
	Radio, TV and electronics stores	5731	1	2	2	5
	All retailing subsectors		10	10	10	30
Both			19	18	19	56

Our data for engineering all refer to particular establishments (i.e., plants, factories). The same applies to the subsectors of retailing (department stores and, among grocery

stores, large supermarkets) in which individual establishments (stores) are large. For the other retailing subsectors, although we use the descriptor ‘establishment’, the unit of observation is normally an aggregate of retail outlets, at the level of the district, the region or the entire national company.

In choosing establishments to approach within those subsectors, we sought a differentiation of units in two finance-related attributes central to the research: first, employee representation and bargaining coverage; second, corporate ownership and finance (specifically, listed status with dispersed ownership). The potential benefit of this approach is greater ‘*ceteris paribus*’ identifying variation in those two dimensions.

We encountered difficulty in varying our sample within sectors along those two dimensions. The first problem was the absence in our initial German sample of any case not covered by collective bargaining (*ohne Tarifbindung*) in our core subsectors. The number of such ‘OT’ firms has grown strongly in recent years, and non-coverage may mean different payment practices: OT firms are legally permitted to pay up to 20 per cent less than the relevant Tarif rate to their apprentices (Beicht 2006; BIBB 2008: 162; Haipeter 2009; WSI 2009: 105). We therefore added to our sample two companies, one in engineering and one in retailing, that had in recent years opted out of coverage by sector-level collective agreement. In doing so we implicitly included a further subsector in both engineering (electronic components, n.e.c.) and retailing (furniture), and therefore sought comparable companies in the other two countries.

The second problem arose from the low variability of corporate ownership in retailing in all three countries. Few retailing employers (or their mother company) are listed on any stock market in any of the three countries. Most of those that are listed have a dominant owner. Among the remainder, listed companies with dispersed ownership, agreement to participate in the project was particularly scarce, particularly in Britain, where they are relatively numerous.

The resulting distribution of companies by bargaining status and ownership is shown in Table 2. Starting with engineering, in Germany and Britain most companies are covered by a collective agreement that stipulates employee pay rates. In Switzerland, by contrast, none are covered, as the sector-wide collective agreement leaves pay to individual determination at company level (ASM 2006: 24) and the two companies that negotiate pay collectively do so with their Works Council not a trade union. In retailing, almost all companies are covered by an agreement in Germany, but few are in Britain or Switzerland. Listed companies (i.e., those whose stock is publicly traded) predominate in our sample only in British engineering, and constitute only one third of our retailers in the three countries as a whole; listed companies with dispersed ownership are well represented in British engineering, but completely absent in German and Swiss retailing.

Table 3 shows the importance of these sectors in the wider economy, in terms of employment. For this task we use the 4 digit codes in the 2003 SIC that are closest to

those in the 1987 classification used by Dun and Bradstreet, from which we chose the establishments to target. The engineering subsectors that we use account for around 0.5 per cent of national employment in England and Switzerland, and slightly more in Germany. In retailing, national differences are much greater, with employment shares in the subsectors covered here of less than three per cent in Switzerland, nearly four per cent in Germany, and as much as 5.5 per cent in Britain.

Our initial focus on middle sized establishments is reflected in engineering in a median employment level of between 300 and 500 across countries (Table 4). Our evidence does not however focus on Mittelstand companies. Most of our engineering employers are subsidiaries of large international companies, accounting on average for between 4 and 11 per cent of parent company employment across the three countries. (In Britain and Germany, the presence of at least one large establishment in our engineering sample in each country means that average employment is much higher than median employment, at 1739 and 2959 respectively.

Table 2: Distribution of participating companies by bargaining coverage and corporate ownership

	Engineering			Retailing		
	GB	DE	CH	GB	DE	CH
Bargaining coverage	7	7	0	1	9	3
Listed: all	8	4	5	3	4	3
Listed: dispersed ownership	5	1	2	3	0	0
Number of companies	9	8	9	10	10	10

Notes: n=56

Bargaining coverage: the pay of employees (excluding apprentices) depends directly on collective bargaining with one or more trade unions, whether at plant, company or sector level, as formalised in a collective agreement (*Tarifvereinbarung* in DE, *Gesamtarbeitsvertrag* in CH); we exclude trade union recognition for non-pay issues alone and negotiations with works councils alone.

Listed: the company's stock is listed (quoted) on one more stock exchanges.

Dispersed ownership: no single shareholder owns more than 20 per cent of the voting equity of the company (or its parent company, for a subsidiary).

In retailing, the average size of our cases is considerably greater in Britain and Germany than in Switzerland, reflecting the inclusion in all three countries of not only single stores but also of entire divisions or companies, which face smaller markets, whether regional or national, in Switzerland than in Britain or Germany. The average size of retail outlets within the wider organisation is however similar in particular subsectors (e.g. food, shoes) in the three countries.

Eighteen of our establishments are subsidiaries of a parent company that is shared with one or more cases in other countries. Most of them are simple pairs, whether German/British or German/Swiss, but one group involves four divisions of a single large company spread across the three countries. Most of these paired cases are in engineering (Table 5).

Table 3: Employment by country and sector

Sector	SIC	Number ('000)			Share (%)		
		GB ^a	DE	CH	GB ^a	DE	CH
		2007	2007	2005	2007	2007	2005
Manufacture of machinery and equipment	29	242.6	1005.1	99.0	1.05	2.90	2.20
Engines and Turbines	29.11	14.5	34.3	0.8	0.06	0.10	0.02
Pumps and Compressors	29.12	20.3	70.9	4.4	0.09	0.20	0.10
Radio, TV and communications equipment	32	44.1	153.6	20.3	0.19	0.44	0.55
Electronic components and equipment	32.1, 32.2	32.4	131.5	16.8	0.14	0.39	0.37
All (four subsectors)		67.2	236.7	22.0	0.48	0.68	0.49
Retail trade	52.1-52.6	2372.6	2519.1	347.4	10.28	7.26	7.73
Non-specialised stores (non-food)	52.12	197.2	165.7	22.5	0.85	0.48	0.50
Non-specialised stores (food)	52.11	850.0	702.7	64.9	3.68	2.02	1.44
Footwear and leather goods	52.43	49.4	78.1	8.8	0.21	0.22	0.19
Furniture and related	52.44	98.9	140.8	12.5	0.43	0.41	0.28
Electrical appliances, radio, TV	52.45	57.0	80.9	15.5	0.25	0.23	0.34
All (five subsectors)		1252.5	1168.2	124.1	5.43	3.37	2.76
Whole economy	01-99	23,072.90	34714.0	4493.0	100.00	100.00	100.00

Sources: England: *Annual Business Inquiry: Results for Great Britain*. Germany: Statistisches Bundesamt, FS 4, Reihe 4.1.2, 2007; FS 6, Reihe 4, 2007, table 1.1; *Statistisches Jahrbuch 2008*. Switzerland: BFS Bundesamt für Statistik, *Arbeitsstätten und Beschäftigte der Schweiz, Betriebszählung 2005*.

Notes: based on SIC 2003; part-time employees included, on a head-count basis.

a. England only

Table 4: Employment in participating establishments

	Engineering			Retailing		
	GB	DE	CH	GB	DE	CH
Median	377	500	308	1334	3348	333
Mean	1,739	2,959	288	37,650	12,957	2,406
Share of parent employment ^a (%)	4.2	10.5	11.2	45.7	42.4	42.8

Note: participating establishments comprises single ones in engineering and, in retailing, both single establishments (department stores) and groups of establishments (divisions, regions and companies).

a. Unweighted average

Table 5: Establishments with the same multinational parent company

	GB/DE	DE/CH	GB/DE/CH	All
Engineering	2	3	1	6
Retailing	1	1	0	2
Number of establishments	6	8	4	18

Note: not all shared parent companies have their headquarters in one of the three countries.

The distribution of apprenticeship training across cases is highly skewed. In Germany all of our establishments in both sectors operate an apprenticeship programme; in Switzerland, all but one small pump manufacturer do so; in Britain, all of our engineering establishments do so. The major exception is retailing in Britain, in which only two participating companies have an Apprenticeship programme, neither of which had adopted it in the establishments (stores) that participated in our fieldwork. For British retailing we focus instead on initial training for sales staff, which in all cases involves the employer's in-house programme of on-the-job training for new employees.

We obtained information on companies primarily from two sources. The first was an interview with one or more senior managers – usually an HR/personnel manager, but in some instances the manager of apprentice training, in others a general (e.g. store) manager, and in one case the chief financial officer. The second source, particularly for financial attributes, about which not all HR managers are well informed, was a compilation of information from publicly available sources, including the company's website, the financial press, and (in Britain) the annual reports that limited companies must submit to Companies' House. Further information was obtained from interviews with the principal employers' association and trade union in each of the six country-sector categories, and in Switzerland from two group training organisations, one private training provider, and a cantonal office as well. Finally, we obtained incidental information on the career paths of employees from some participating companies, the results of which are presented in the Appendix.

Our fieldwork in companies was mostly confined to interviews with managers. The systematic inclusion of financial managers would undoubtedly have broadened both information and perspectives from the management side. As it is, our fieldwork evidence on financial factors is by and large confined to perceptions by non-finance managers of effects on their area of operation. We decided also not to try to interview employee representatives (union officials and works councillors), despite the potential benefit for the breadth and depth of our evidence (Barron, Berger and Black 1997). Neither extension struck us as sensible, given that each endangered the rate of participation – invariably a key difficulty in this kind of fieldwork. For the same reason, we explicitly guaranteed to interviewees the confidentiality of the company-specific information that they gave us.

We did however benefit from an interview with a national trade union official in all six of our sector-country permutations. Two trade union officials, one at regional and one at company level, helped us to extend our information on two British companies, one in engineering and one in retailing.

Most interviews were conducted, in English or German, by either two or three members of the research team; a handful, by only one or by all four. A team member based in the establishment's own country was present in all cases. A structured questionnaire was used to shape the interview. The interview was normally preceded by a two page questionnaire, covering the key statistical data in the main questionnaire, which re-

spondents were asked to complete and return before the interview. In cases where that did not happen, and the relevant data were not made available during the interview visit, respondents were asked to complete and return the sub-questionnaire afterwards, and followed up by telephone when that did not happen. In a few cases some key data could not be obtained. Interviews lasted between one and three hours, averaging around 100 minutes, followed in most engineering cases by a factory tour.

Not all of the companies that we initially contacted proved willing to cooperate with the research. Refusals were more frequent in British retailing, and apparently in companies with a recent history of financial upheaval. In some retailing cases, following a refusal by headquarters, the problem was resolved by approaching individual stores. (The emphatic refusals included a large British retailer that had been taken over by a private equity group and subsequently refloated with greatly increased debt.) The participation rate among companies we approached was 79 per cent (19 out of 24) in Switzerland, 60 per cent (18 out of 30) in Germany, but only 43 per cent (19 out of 44) in England. It is likely that our sample is implicitly selected towards (i) larger parent companies, (ii) bigger and better apprentice training programmes, and (iii) unlisted companies with few financial shocks. The possibility of selection bias is least troubling for Swiss engineering, which, in addition to a high response rate, has a sample size close to population size.

Our interviews with employers were conducted during the nine month period September 2008 to May 2009. Two interviews were held in Germany in April 2008, following which fieldwork was suspended owing to an illness in the research team. The interview period saw the onset of the recession induced by the international financial crisis. Between the end of the third quarter of 2008 and the start of the third quarter of 2009, GDP fell in all three countries, and by more in Germany (-5.4%) and Britain (-4.9%) than in Switzerland (-1.8%; OECD 2010). The deteriorating economic context may have coloured perceptions in the interviews; and differences in the timing of interviews during the period may have affected responses on some issues (e.g., apprentice intakes, to the extent that they are cut only as a recession extends and deepens).

3 Context

The three countries differ in terms of their education and training systems, including those related to engineering and retailing. This section outlines the principal differences relevant to our study: educational attainment, and the volume, content and regulation of apprenticeship training.

Intranational differences potentially concern Britain and Switzerland in particular, given the differences in training institutions and methods across their territorial components, whether countries (England, Scotland, Wales and Northern Ireland) or cantons (German, French and Italian speaking). We use ‘GB’ to denote our British cases, even though all are located – or, in the case of some retail chains, centred – in England. The background data presented in this section refer however to Britain, unless indicated otherwise in the notes. Similarly, our Swiss cases are all located or headquartered in German-speaking cantons, where apprenticeship training is particularly extensive (OPET 2009). Nevertheless, we use ‘CH’ to denote the Swiss companies, and our background data concern the country as a whole.

Educational attainment

The first attribute is youth attainments in secondary schooling, at the levels most relevant to apprenticeship. Access to apprenticeship by young people has traditionally been contingent on attaining some minimum level of qualification at lower secondary level (i.e., some GCSE subjects in England, *Hauptschulabschluss* in Germany, *Sekundarabschluss* grade C in Switzerland); access to the more demanding and prestigious apprenticeships, on having attained a higher level (five ‘good’ GCSEs, *Realschulabschluss* or *Abitur*, and *Sekundarabschluss* grade B, respectively). Remedial and pre-vocational programmes (notably, the German *Berufsvorbereitungsjahr*) do indeed make many low achievers and dropouts eligible for apprenticeship in Germany and Switzerland, but failing to obtain a secondary school certificate remains a serious handicap for a young person interested in apprenticeship.

Official breakdowns of attainments in general education – through secondary level, and thus of particular relevance to apprenticeship – show only second-order differences between the three countries (Table 6). Switzerland shows the lowest incidence of both non-qualification and upper secondary general qualification. Around two-thirds of young German and Swiss people leave full-time general education at the lower secondary level. Indeed, more young people appear to attain higher secondary qualifications in Britain than in the other two countries. The data are however misleading, for two reasons. First, vocational qualifications, work-based as well as school-based, are included alongside general ones in Britain (only). When attainment of Levels 2+3 is confined to general school-based qualifications, including language and maths, the com-

bined share for Britain becomes 47 rather than 54 per cent (see note ‘a’), i.e., well below the 69 per cent share in Germany.

Table 6: Qualifications attained by young people in general education by country and category

		Basis	Numbers ('000)	Share by attainment category (%)				
				None	1	2	3	All
GB	2008	Population 20-24	4137	9	16	21 ^a	33 ^a	100
DE	2007	School leavers	965	7	24	41	28	100
CH	2010	Population 25 yrs	100	4	66 ^b		20	100

Sources: GB: DCSF, *Education and Training Statistics for the United Kingdom 2008*, Table 3.9 (<http://www.dcsf.gov.uk/rsgateway/DB/VOL/v000823/V01-2008.pdf>); DE: *Bildung und Kultur*, FS 11, Reihe 3, 2007; CH: SKBF, *Bildungsbericht Schweiz 2010*, pp. 39, 100, 122; Steedman, McIntosh and Green (2004).

Notes. Attainment categories by country are:

	Category 1	Category 2	Category 3
GB	GCSE (< 5 subjects, A-C)	GCSE (5+, A-C), <2 A Levels	2+ A Levels
DE	Hauptschulabschluss	Realschulabschluss	Hochschulreife (Abitur)
CH	Sekundarabschluss ^b		Matura

a. GB data include vocational qualifications, work-based as well as school-based, including Apprenticeships, at levels officially classed ‘equivalent’ to non-vocational GCSE and A Levels. The share of 15 year old pupils attaining five or more GCSEs at grades A to C, including English and mathematics, was 46.5% in 2006-07 (http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000754/SFR34-2007_v2.pdf, Chart 1). Not all Level 3 attainments in GB involve school-based general qualifications. Scottish and other national qualifications are included on standard comparability criteria.

b. Inter-cantonal heterogeneity debars this breakdown

Second, whereas the acquisition of a passing grade in only one GCSE subject (or indeed in any ‘equivalent’ vocational qualification) classifies a young British person in category 1, adequate performance in several subjects is required for a young German or Swiss person to be so classed. We conclude therefore that the attainments in young people in general education fall short in Britain of their German and Swiss counterparts, to an extent that is not clearly visible in the statistics. The potential supply of youth to apprenticeship – in terms of programmes aimed at intermediate skills, at least – is therefore lower in Britain as a result of lower educational attainments. It is particularly high in Switzerland, in association with low participation in full-time general upper secondary education (*Gymnasium*).

Despite the lower educational attainments of young British people, a comparable share has in recent years proceeded to higher education in Britain. Enrolment has been held down in Germany and Switzerland by a greater differentiation of secondary school types and early tracking of children between school types, by the greater availability of apprenticeship, and apparently also by higher entry requirements for tertiary programmes than in Britain (Table 7).

These structural differences in secondary education point to a lower supply of young people to apprenticeship in Britain than in Germany and Switzerland, as part of apprenticeship's smaller scale of operation in Britain. Causality may well be complex: increased participation in full-time schooling in Britain may have reflected the long-term decline of high quality apprenticeship, not just an autonomous increase in interest in higher education (Steedman and Wagner 2007). Some of the engineering employers in our British sample run highly reputable training programmes but still report an inadequate supply of qualified and interested young people (section 6, below). Those managers perceive a widespread preference among youth for full-time studies, and corresponding deficiency in the supply of young people to apprenticeship.

Table 7: Share of 25-34 year old population with tertiary education by type of programme, 2007 (%)

	General	Occupational	All
GB	29	8	37
DE	16	6	23
CH	26	9	35
OECD	26	8	34

Source: OECD (2009), Table A1.3a

Note: ISCED Level 5: general (category A) and occupationally oriented (B).

In any case, in all three countries, observers who value apprenticeship share the concern that the growth of options to continue in full-time schooling may divert young people into learning pathways characterised by higher costs and lower benefits than is apprenticeship (Wolf 2002; Backes-Gellner and Veen 2008).

Apprenticeship: scale

How extensive is apprenticeship training in the three countries, and in engineering and retailing in particular? The question raises problems, to do with national differences in how skill is conceptualised, and how some cross-national criterion of skill might be operationalised, as is the goal of the European Qualifications Framework (Brockman, Clarke and Winch 2008; EU 2008).

A particular problem in any apprenticeship comparison that involves England is the meaning of 'apprenticeship' itself. The standard criterion, recently codified by legislation, is participation in the Apprenticeships programme, through which government funds its work-based learning programmes. The content of those programmes must align with one of the training frameworks established by a Sector Skills Council (Ryan, Gospel and Lewis 2007; Parliament 2009).

How widely should the net be cast when counting Apprentices in England? One option is to count only Level 3 ('Advanced') Apprentices, for which – in industrial occupations at least – skill standards are close to those in German and Swiss apprenticeship (e.g., Ryan and Unwin 2001; Steedman and Wagner 2003; Mason and Wagner 2005). The al-

ternative is to include Level 2 Apprentices, whose training is typically – with construction as the leading exception – aimed at skills below intermediate (craft, technician) level. The prominence of Level 2 programmes in England reflects partly the priority given to social inclusion in the operation of the Apprenticeships programme (Fuller and Unwin 2003), and partly the requirement for a supervisory component in Level 3 training schedules, which many employers judge inappropriate for young people.

Using the narrower (Level 3 only) definition for England, Table 8 shows apprenticeship to operate on a larger scale, controlling for employment in the relevant sectors and occupations, in Germany and Switzerland than in Britain. Across the economy as a whole, apprentices amount to 6.5 and 4.8 per cent of employment (apprentices excluded) in Germany and Switzerland respectively, but to only 0.7 per cent in England. On the broader definition (Levels 2 and 3 combined), the apprenticeship ratio rises for England to 1.8 per cent, but even then lies much lower than the German and Swiss figures.

The comparison is more difficult at sector level. Measurement is complicated by the fact that apprenticeships are categorised by occupation, not sector. Skilled engineers work not just in metalworking itself but also in public utilities, shipping, real estate, etc. Similarly, some engineering apprentices learn their trade in sectors other than metalworking. The misfit between occupations (e.g., metalworking crafts) and sectors (e.g., metalworking industry) should however be similar across countries.

In the engineering industry, however, training activity is comparable in England (5.9 per cent) and in Germany and Switzerland (5.8 and 4.9 per cent, respectively). Given the difficulties that

Table 8: Apprenticeship activity by country and sector

			Number of apprentices	Number of employees	Apprentice-employee ratio ^a (%)	
			('000)	('000)	Excluding Level 2	Including Level 2
GB ^b	2007	Whole economy	161.5 ^c	23,073	0.7 ^c	1.8
		Engineering	34.5 ^{c,d}	826.5	5.9 ^c	11.7
		Retailing	14.2 ^{c,d}	2,372.6	0.3 ^c	1.7
DE	2007	Whole economy	1,781.6	27,224	6.5	n.a.
		Engineering	230.8	3,964.0	5.8	n.a.
		Retailing	159.8	2,016.8	7.9	n.a.
CH	2008	Whole economy	194.3	4,017.1	4.8	n.a.
		Engineering	18.1	368.9	4.9	n.a.
		Retailing	26.0	332.5	7.8	n.a.

Sources. UK. 'Employee jobs by industry Dec 2007', *Annual Business Inquiry: Results for Great Britain*, (www.statistics.gov.uk/abi.abi_analyses.asp); 'Apprenticeship participation', (www.thedataservice.org.uk/statistics/sfrjun09/nat_SFR_post16_Education_and_Skills_Tables_July09), Table S1/1. 2.1;

LSC, Further education, work-based learning for young people and adult and community learning -- learner numbers in England -- October 2004. ILR/SFR06, 22.3.05 (<http://readingroom.lsc.gov.uk/lsc/National/nat-feandwblforyoungpeoplelearneroutcomes0405-re-apr2006.pdf>).

DE. Übersicht A5.9.1/28: *Auszubildende 1 nach Wirtschaftsbereichen in Deutschland zwischen 1999 und 2007*, calculated from *Beschäftigtenstatistik der Bundesagentur für Arbeit*; Stichtag jeweils 31. December; www.bibb.de/dokumente/pdf/ausbildungsquote_wirtschaftsbereiche_d_1999-2007.pdf

CH. Bundesamt für Statistik: *Betriebszählung 2008, Arbeitsstätten, Beschäftigte und Lehrlinge in der Schweiz*.

Sectors. Engineering. GB: SIC 27 to 35; DE: Steel and metal industry, engineering, electrical and optical industries, transport equipment (*Stahl-, Metallherstellung, -verarbeitung, Maschinenbau, Elektrotechnik, Elektronik, Feinmechanik, Optik, Fahrzeugbau*); CH: NOGA 24 to 30 (*Metallerzeugung und -bearbeitung, Herstellung von Metallerzeugnissen, Herstellung von Datenverarbeitungsgeräten, elektronischen und optischen Erzeugnissen, Herstellung von elektrischer Ausrüstungen, Maschinenbau, Herstellung von Automobilen und Automobilteilen, Sonstiger Fahrzeugbau*).

Retailing. GB and DE: SIC 52.1 to 52.6; CH: NOGA 47 (*Detailhandel ohne Handel mit Motorfahrzeugen*)

Apprenticeship occupations. GB: participants in Apprenticeship frameworks recognised by the Sector Skills Councils for Engineering Manufacturing (SEMTA) and Retailing and Customer Service (Skillsmart Retail). DE: engineering and retailing, see Table 9, below. CH: unpublished allocation of apprentices to sectors by Bundesamt für Statistik (non-manual occupations may be included in engineering).

Notes. n.a.: not applicable (no counterpart to English Level 2 programmes)

a. Employment is defined as excluding apprentices in all countries

b. England only

c. Advanced Apprenticeship (i.e., Level 3 programmes) only

d. Estimated on the assumptions that (i) the shares of different training frameworks in total participation are the same as in October 2004 and (ii) the breakdown between Level 2 and Level 3 Apprenticeship within frameworks is the same as that for programme leavers in 2004-05

have affected engineering apprenticeship in Britain in recent decades, this is remarkable enough in itself. Indeed, the English ratio rises to 11.7 per cent if Level 2 Apprentices are included. That would however be misleading, as most Level 2 programmes are organised by specialist training providers rather than employers, and neither the skill level nor the educational content of those programmes would be recognised as apprenticeship in the other two countries. They resemble most closely the Anlehre and Attestausbildung (“elementary apprenticeship”) programmes for low achievers in Switzerland, which are taken by around 3 to 4 per cent of secondary-level graduates. By contrast, almost all employer-sponsored Apprenticeships in British engineering are pitched at Level 3, contain substantial vocational education, and are directly comparable to their German and Swiss counterparts (Lewis and Ryan 2009).

By contrast, in retailing, a sector with a better match between training occupations and sector of employment, the gap between Britain and the two German speaking countries is larger than for the countries as a whole. The apprentice-employee ratio is nearly eight per cent in both Germany and Switzerland, as against only 0.3 per cent in Britain. The difference between England and the other countries reflects the widespread preference among English retailers for informal on-the-job training rather than Apprenticeship (below).

Apprenticeship: content and regulation

The organisation and content of apprenticeship differs between the three countries. Germany and Switzerland share several core attributes, centred on joint administration and social partnership; Britain has taken a different path, with a greater role for both market-oriented competition and public administration.

In Germany and Switzerland, public law and the associated national training authority regulate the meaning, content and coverage of apprenticeship. They stipulate the set of recognised training occupations, the method for determining training standards, methods of training (share of part-time vocational education at public colleges), the basis for the assessment and certification of apprentices, and the eligibility of companies and their employees to provide training (Wolter and Ryan 2011).

Both countries devolve the administration and regulation of apprenticeship to representatives of the interested parties. In Germany, committees comprising representatives of employers' associations and trade unions jointly draft training regulations for training occupations; the appointees of chambers (of commerce, etc.) and trade unions supervise training procedures, perform assessments, and monitor outcomes, at the firms in their district; and works councils have statutory co-determination powers over training practices at plant and company level (Münch 1991). Apprentice pay is negotiated at sector-region level by employers' associations and trade unions. Educators are involved in decision making at all levels from drawing up training standards for occupations to apprentice examinations. The government finances, without charging fees, the part-time vocational education of apprentices but – in the Western Länder – apart from special programmes for disadvantaged youth, and accommodation benefits for apprentices who live away from home, it does not subsidise firms or young people to undertake apprenticeship.

The Swiss system shares some of these attributes. Trade unions are involved in the determination of training regulations and the promotion of apprenticeship training. Collective bargaining of apprentice pay is however rare. Minimum pay rates for apprentices are recommended in some training occupations by employers' associations, occupational associations, or cantonal offices, and sometimes those bodies intervene to discourage companies from conspicuously underpaying their apprentices. Nevertheless, by and large employers are free to set apprentice pay as they wish. Nor is there any statutory requirement for employee representation at the workplace via works councils, which feature only in the rare cases where employees opt to have one (Fluder and Hotz-Hart 1998; OECD 2009; Hoeckel, Field and Grubb, 2009).

The English approach starts from the political rejection by the Thatcher governments of the 1980s of social partnership in favour of 'employer leadership' in setting skill requirements and training standards, and in using those standards, not as part of the education system, but as requirements for the award of contracts by a public agency, the Learning and Skills Council (LSC), for training under the Apprenticeships programme.

A wide range of organisations, including training companies, charities, further education colleges, as well as employers, compete for training contracts. The holders of the primary contract frequently subcontract particular activities (e.g. trainees' assessment) to other organisations. Much Apprenticeship is sponsored by for-profit training specialists who sign up particular employers to offer on-the-job training and work experience, and often little or nothing else, and who perform all the assessment and government-related paperwork themselves.

Training standards for Apprenticeship are stipulated at sector-occupation level by Sector Skills Councils (SSCs), according to how the employers in their sector view the requirements of 'competence' in their companies. The result varies greatly by occupation and sector. The engineering Council (SEMTA) requires long training schedules with part-time externally assessed vocational education for craft occupations (Level 3). Most retailing Apprenticeships are pitched at Level 2, with a duration (defined in terms of how long the public training grant can last) of 13 to 15 months. The retailing SSC does not require any vocational education in a retailing apprenticeship. It has even assimilated into Level 2 apprenticeship some of the bespoke informal training programmes already operated by retailing companies. The main changes required for the recognition of such programmes are the formal certification of occupational 'competence' via a National Vocational Qualification and remedial education for low achievers, by way of training in Key Skills (literacy and numeracy).

The limited educational content and the narrow concept of competence that characterise retailing Apprenticeship differentiate it strongly from its German and Swiss counterparts. By contrast, in engineering Advanced Apprenticeships are similar in content, methods and duration to metalworking apprenticeship in Germany and Switzerland. In retailing, the dominance of contractual relationships and commercial motivation makes problematic the quality of Apprenticeship. The profit-based incentive to commercial providers to offer low quality programmes coincides with extensive opportunity to do so, given unambitious training standards and weak external restraint through both the assessment of Apprentice skills and the inspection of training providers (Lewis and Ryan 2009; Ryan 2010a). Our study impinges only marginally however on these GB-specific complications, as we focus in engineering on Level 3 Apprenticeship programmes for which an employer has taken overall responsibility, and in retailing on in-house informal non-Apprenticeship training for sales staff.

Our study is therefore not representative of the highly heterogeneous practice that 'Apprenticeship' embraces in England, but rather comprises two polar cases: one that resembles Germanic apprenticeship (Level 3 Apprenticeships in engineering) and one that has little in common with it (sales staff training in retailing). The spectrum between these poles includes Level 2 Apprenticeships, Apprenticeships with no further education content, and 'programme-led' Apprenticeships, which have no workplace component (House of Lords 2007; DIUS 2008).

The principal apprenticeship occupations and their associated training periods in engineering and retailing are shown in Table 9. English Apprenticeships did not at the time of this research culminate in a single qualification akin to the *Ausbildungsabschluss* in Germany, but rather in separate qualifications for competence, technical knowledge, and Key Skills (literacy and numeracy; QCA 2006). (Recent legislation entitles all Apprentices who complete the three components to receive an apprenticeship certificate; Parliament 2009: 3). Nor do Apprenticeships have a fixed duration: the faster the Apprentice demonstrates ‘competence’, the sooner he or she finishes the programme. In such a situation, we approximate the standard length of the training period by the maximum duration of the public training grant for an Apprentice.

Table 9. Apprenticeship occupations and training periods

		Framework/occupation	Duration (yrs)
Engineering	GB ^a	Engineering manufacture (Level 3)	3.5 ^c
	DE	Industrie-, Anlage- Zerspanungsmechaniker, Mechatroniker, Elektroniker, ...	3.5
	CH	Polymechaniker, Konstrukteur, Mechapraktiker, ...	3.0 - 4.0
Retailing	GB ^{a,b}	Retail Skills Level 3	2.0 ^c
		Level 2	1.25 ^c
	DE	Einzelhandelsfachmann/frau	3.0
		Verkäufer/in	2.0
	CH	Detailhandelsfachmann/frau	3.0
Detailhandelsassistent		2.0	

Notes. Largest occupational categories only.

a. England only.

b. The component qualifications in Level 3 retailing are the NVQ3 in Retail Skills, the Certificate in Retailing (Level 3) and Key Skills in communication and numeracy (Level 2).

c. ‘Standard Length of Stay’, i.e., maximum duration of public (LSC) funding for 16-18 year old entrants; faster or slower completion is possible in practice according to individual progress
Sources: SEMTA (2008), Skillsmart Retail (2009); LSC (2003), pp. 39, 47.

Finally, there is public financial support for apprenticeship. In Germany and Switzerland public funding is largely limited to the provision of part-time vocational education – typically as one to two days per week spent in classwork at a public college (*Berufsschule*). In Britain, part-time vocational education at a further education college, which remains the norm in engineering but is rare in retailing, must be (100 per cent) publicly funded for 16-18 year olds, but many employers have to pay fees for other Apprentices. However, every sponsor of an Apprentice receives a public training grant, which in 2004-05 varied between roughly £3,000 for a 19 - 24 year old taking Level 2 programme in retailing and £15,000 for a 16 - 18 year old taking one at Level 3 one in engineering (Table 10). In sum, German and Swiss firms receive little or no direct public payment for offering apprenticeships; British companies receive direct subsidy if they take responsibility for the entire training programme, but some is clawed back through fees for part-time education, where that constitutes part of the programme. In Britain, public funding is intended not only to cover employer’s charges for any

off-the-job training, but also to contribute to on-the-job training costs, and thereby to encourage employers to provide Apprenticeships – though many employers report that the subsidy is absorbed by cost of the paperwork and assessments required by the Apprenticeship programme (Ryan, Gospel and Lewis 2006).

Table 10: Public funding for an Advanced Apprentice by programme component, England, 2004-05

Age		NVQ3 ^a	Technical Certificate		Key Skills	Total
		National Rate (£)	Guided learning hours ^b	Amount (£)	Amount (£)	range (£)
16-18	Engineering	10604	240 - 1250	1384 - 4149	313	12301 -14753
	Retailing	4786	180 - 250	881 - 1384	313	5980 - 6483
19-24	Engineering	5915	240 - 1250	1038 - 3112	313	7266 - 9340
	Retailing	3590	180 - 250	661 - 1038	313	4564 - 4941

Source: Ryan, Gospel and Lewis (2006)

Notes. Higher grants ('uplift') are paid for disadvantaged young people and in deprived areas.

a. National Vocational Qualification (work-based competence) at Level 3 (previously, craft)

b. Notional amounts of time to be spent in learning away from the workstation

4 Attributes of training in participating companies

Most of the companies that took part in the research operate an apprenticeship programme. The exceptions include a Swiss pump manufacturer, which was included partly to generate similar numbers in the pumps subsector in all three countries, and also because of its ownership history. More substantially, eight of the ten British retailers do not participate in the Apprenticeships programme, but rely instead on their proprietary (in-house) informal training programmes. Of the two retailers that offer Apprenticeships, one had no Apprentices in the relevant store, while the other one's Apprentices, who are all at Level 2, represent only 0.1 per cent of company-wide employment.

These differences show up in two aspects of apprenticeship programmes: the contribution and location of off-the-job training (Table 11). The two sectors differ markedly. In engineering, in all three countries apprentices spend most or all of their first year in off-the-job learning, i.e., away from production work. This is partly attributable to the damage that an inexperienced person could do if allowed to work on the sophisticated, small batch products in which most of our cases specialised. Part-time vocational education at a public college features in almost all of our engineering cases. The countries differ however in the importance of in-company training facilities. In-company training workshops are the norm in Germany but not in Switzerland or Britain: only one British company and two Swiss companies operate one. Instead, external organisations – mostly (district-based) group training associations – provide training under contract to the company in three firms in Britain, and seven in Switzerland. A commercial training provider replaces public colleges for one company in both the British and the German samples. The high cost of apprentice training in Germany relative to Switzerland, as pointed up by previous research (Dionisius et al. 2009), is reflected in these data.

In retailing, by contrast, a much smaller share of training time is spent off the job. For German and Swiss apprentices, the share in our cases is little more than one-third of the first year – comprising in both countries typically 1.5 days a week at college, plus some days of other formal training, which is mostly in-house in Germany but both in-house and external in Switzerland.

Table 11: Attributes of off-the-job training in the first year of apprenticeship or initial training, participating companies

		Share of trainee time ^a (%)	Location of provision			Number of cases
			Public college	Firm's facility ^b	External provider ^c	
Engineering	GB	74	8	1	3	9
	DE	91	7	7	1	8
	CH	81	7	2	7	7
Retailing	GB ^d	4	0	8	0	10
	DE	36	9	7	1	10
	CH	36	10	9	10	10
All			41	34	22	54

Notes:

- a. Unweighted average of time spent in other than in production during the first year of training
- b. The company's own training workshops, in-store training rooms, etc.
- c. Independent providers of training services, including group training associations, training companies, and suppliers of particular brands of retail product
- d. Initial training for sales employees

In British retailing, apprenticeship features only marginally, and all off-the-job training occurs within the company. No programme includes a college component and most contain only short episodes of off-the-job training. In two cases all initial training is provided on-the-job, and so none of the three modes in Table 11 is present. On average, only 4 per cent of the first year of employment as a new sales assistant is spent in off-the-job training. The educational impoverishment, and more generally the low cost, of initial training in British retailing, as noted by previous research (Lewis, Gospel and Ryan 2008), reappears in our sample, which includes several large household name retailers.

Table 12 shows the size of apprenticeship programmes, and the age and gender of apprentices. The engineering programmes are smaller than those in retailing, consistent with a larger size of unit (in some cases, the region or the country rather than the individual establishment) in our retailing cases.

The age at which young people start training varies by country and sector. In Switzerland, the traditional focus of apprenticeship on leavers from lower secondary schooling remains largely unchanged. Only one Swiss case trains adult apprentices, and in none is the principal age of entry 18 - 20 years – as opposed to 15 - 17 years, which constitutes the principal age of entry in all Swiss cases, and the only one in all eight engineering cases. In both Germany and England, most companies still recruit most of their apprentices at ages 15(or 16) - 17, but between two and four companies in each of the four sector-country cells recruit most apprentices at ages 18 - 20. Four British engineers recruit adults for Apprenticeship, but only one German and no Swiss engineers do so. Indeed, the German company that does so has recently reacted to a large increase in the Tarif rates payable to adult apprentices by reducing its intake of adult apprentices. In English retailing, the focus moves yet further away from youth: most recruits to

(non-Apprentice) sales training are adults, and in no company are 16 - 17 year olds the largest group – partly because of legal restrictions on the responsibilities that can be given to under-18s (e.g. the sale of alcohol), partly because of employers' preference for more mature sales employees.

Table 12: Number and age of apprentices in training at participating employers

		Number of apprentices ^a	Age at entry ^b			Female share ^c (%)	Number of companies ^d
			Largest group		Any adults		
			15-17	18-20	21+		
Engineering	GB	27	7	2	4	1	9
	DE	68	5	3	1	13	8
	CH	39	8	0	0	5	8
Retailing	GB ^e	0	0	2	8	63	8
	DE	598	6	4	2	59	10
	CH	155	10	0	1	65	10
Number of cases			36	11	16		53

Notes. Data (here and subsequent) refer to the start of the current calendar year or the most recent annual intake

- a. Weighted average per case (in sector-country category), excluding non-apprenticed trainees
- b. Number of cases (establishments or companies)
- c. Unweighted average
- d. For apprentice numbers and age at entry only
- e. Trainee sales staff only

The distribution of apprenticeship by gender shows a well known pattern: low to negligible female shares in engineering, majority shares in retailing. The female share is however strikingly higher in German than in Swiss or British engineering. In all three countries, prompted primarily by equal opportunity policy, most of these engineering companies have tried to attract females into the traditionally male preserve of manual craftwork, but most have little success to report. However, two German engineering companies have managed to raise the share of females to at least one quarter. The larger one has set up segregated classes for female *Mechatroniker* apprentices; the other has eased selection requirements specifically for female applicants.

5 Skill usage, skill sources, and apprenticeship

This section examines patterns of skill procurement and utilisation, with particular attention to the contribution of apprenticeship to skill supplies. To what extent do companies rely on skilled labour in production, and, insofar as they do, to what extent do their own training programmes, particularly apprenticeship, provide those skills?

As a source of skills, apprenticeship potentially competes with two alternatives, one external and one internal: the recruitment of already skilled workers and the upgrading of existing (less skilled) employees, respectively. Previous research has shown for all three countries that these alternatives to apprenticeship appeal selectively to employers as sources of skill, as to their relative cost and efficacy. When external skill supplies are abundant, recruitment is favoured; when the requisite skill level is not high and it can be attained at limited cost, upgrading may be preferred (Ryan, Gospel and Lewis 2007; Bellmann and Janik 2007; Blatter, Mühlemann and Schenker 2008).

We focus on two occupational levels: in engineering, skilled production workers, and production supervisors and technicians; in retailing, frontline sales staff, and department managers or, in smaller establishments, store managers. Retailing requires particular attention. Following German and Swiss practice, we class sales assistants as skilled if they possess an apprenticeship-based occupational qualification in retailing. The relevant qualifications are those obtained by *Verkäufer/in* and *Detailhandelsassistent/in* (2 years) and *Einzelhandelsfachmann/frau* and *Detailhandelsfachmann/frau* (3 years) respectively. Potential equivalents in Britain are Advanced Apprenticeships, but they involve little or no vocational education, and in any case do not feature in our sample. As noted above, the great majority of British sales staff are trained by short programmes of informal on-the-job training that do not lead to formal qualifications.

Skill usage

The employment share of front-line skilled staff who are qualified in the relevant occupation is lower, and that of first-line managers higher, in our English and Swiss than in our German companies (Table 13). The pattern is consistent with other evidence that British employers use fewer skilled workers and more supervisors than do their German counterparts in producing particular products or services (Prais and Wagner 1989). The Anglo-German difference is substantial for craft work in engineering, and implicitly greater still for sales work in retailing. There, British practice does not distinguish between skilled (qualified) and unskilled (unqualified) workers, and almost no sales staff, in our companies at least, have completed an apprenticeship.

Table 13: Employment shares of skilled employees, and supervisors and middle managers*Share of employment in production or sales functions only*

	Skilled ^a			Supervisors, department/store managers		
	GB	DE	CH	GB	DE	CH
Engineering	52	84	53	11	4	9
Retailing	0 ^b	75	71	9	7	13

Sources: interview responses

Notes: unweighted averages

a. Qualified in skilled metalworking or sales occupation (Berufsabschluss obtained or Advanced Apprenticeship completed)

b. Excludes a small number of employees with a National Vocational Qualification

In the first of our two occupational categories, the share of skilled workers in Swiss companies is similar to the British one in engineering, and to the German one in retailing. For first-line managers, by contrast, the Swiss share is closer to the British one in both sectors. Taking the two occupational levels together, we see that in both sectors the German establishments use more skilled frontline labour and fewer first-line managers than do their English and Swiss counterparts.

Skill sources

To what extent do companies obtain intermediate skills from outside as opposed to within: i.e., ‘make or buy’ their skilled workforce? Companies that provide apprenticeship training might be expected to rely more on internal recruitment in general, and apprenticeship in particular, than on external recruitment in filling vacancies for frontline skills. The extent of their reliance might be expected to increase with the scale of their training effort.

Table 14 shows that the role of apprenticeship relative to external recruitment differs by country. In engineering, both British and German companies use external recruitment to fill a large minority of skilled vacancies, but they rely more on their own completing apprentices, to almost all of whom they offer an employment contract. At supervisory level, they offer an even lower share of positions to outsiders. A very low average rate of labour turnover completes the German picture. In Swiss engineering, by contrast, the great majority of craft vacancies are filled from the outside, by recruiting skilled workers (and, in one case, semi-skilled ones to be upgraded). Only one in seven vacancies is filled by completing apprentices. Almost one half of completing apprentices are not offered continuing employment. Similarly, our Swiss engineering companies use recruitment to fill the bulk of their openings for first-line managers. They point more often than do their British and German counterparts to the benefits to the firm of greater external experience in the supervisory workforce.

Table 14: Sources of skills and labour turnover

	Occupational category	Engineering			Retailing		
		GB	DE	CH	GB	DE	CH
Share of external recruitment ^a	Frontline skilled	40	35	82	99	49	75
	First-line managers	16	24	57	35	43	38
Share of own apprentices ^b	Frontline skilled	54	57	14	0	48	23
Apprentice job offer rate ^c	Frontline skilled	93	99	55	n.a.	76	60
Labour turnover ^d	All	9	2	7	33	9	16
Number of companies ^e		8	7	6	10	9	10

Notes: unweighted averages across establishments

First-line management: production supervisors; department managers (large stores) or store managers (small ones)

- a. Share (%) of all vacancies filled by recruitment in the sector-occupation in previous year (or a longer period where necessary, e.g., because of low labour turnover). External recruitment includes both occupationally qualified workers and unqualified ones who receive only on-the-job training.
- b. Share of vacancies filled by the establishment's own recently completed apprentices
- c. Share of own apprentices offered an employment contract (any duration) on completion, previous year.
- d. Annual (2007), excluding retirements
- e. N=50; excludes companies that did not provide adequate data on recruitment shares

The limited role played by apprenticeship at firm level in Swiss engineering is striking, given that the relevant occupations (*Polymechaniker, Zerspanungsmechaniker*, etc.) are typically seen as involving heavy training costs. Yet our Swiss firms discard on completion many apprentices, in whom they claim they have invested substantially, and instead recruit skilled workers from outside. The pattern points to more active occupational labour markets for craft skills in Switzerland than in Britain or Germany. It is consistent with comparatively low apprentice pay and training costs to employers in Switzerland. Swiss employers explain their decisions in terms of an expectation that many apprentices will leave even if offered a place, combined with the consolation that some of those who quit will return subsequently, having gained valuable experience elsewhere – and perhaps personal ties to localities are indeed stronger than in Germany or England. If so, explanations of high rates of apprentice training despite high training costs and high turnover after training that invoke benefits for the company's image and reputation may apply with particular force to Swiss engineering (Backes-Gellner and Tuor 2010). Finally, the Swiss pattern also suggests that the traditional tramping (*Wanderjahre*) practices of ex-apprentices in pre-industrial societies may have retained more life in Switzerland than in the other two countries.

In retailing, Britain and Germany see higher labour turnover, and a greater role for recruitment in filling skilled vacancies, than in engineering, consistent with a generally lower level of training costs to the employer. The inter-country differences again involve a greater use of recruitment (i.e., of already skilled staff) relative to apprenticeship in filling sales assistant positions, along with fewer job offers to completing apprentices, as well as higher labour turnover in general, in Switzerland than in Germany. The

differences between the two countries are however more muted in retailing than in engineering.

To this German-Swiss difference must be added the greater one between retailing in Britain and in the other two countries. As noted above, only two British retailers participated in the Apprenticeships programme, and then only marginally, opting instead to train most sales staff informally on the job – with off-the-job training limited typically to a day or two of induction training, and an hour or two a week of training away from the sales floor. The near-absence of apprenticeship in British retailing means a near-total reliance on external recruitment, of inexperienced as well as occupationally unqualified workers, to fill vacancies for sales assistants.

Partly as a result, labour turnover among the British retailers is much higher than in the other two countries, and more than three times as high as in Germany. High turnover is generated partly by the high share of part-time employees in the English companies (69 per cent, compared to 57 and 31 per cent respectively in the German and Swiss ones). These part-timers include both school and university students, most of who move on after qualifying, and working mothers, whose domestic responsibilities are prone to change. One large British food retailer is pleased that it has managed recently to cut turnover among first-year sales staff, albeit only to the painfully high rate of 48 per cent. Fast and informal training cushions the effect of high turnover on training costs. But high turnover makes it difficult to develop and retain such skills as product knowledge, whose importance several companies depict as increasing, and it hampers the internal promotion of sales staff to department and store management.

Graduate recruitment

A further issue, prominent in national debates about skill formation, is whether full-time vocational post-secondary education programmes, similar to Associates Degrees in the US, should be expanded, possibly as an alternative to apprenticeship. For example, the British government has introduced and promoted two year Foundation Degrees in vocational subjects. Similar qualifications are offered by *Fachschulen* in Germany and Switzerland, based on longer (mostly three year) programmes. In Britain, the change has been encouraged by concern over both the scarcity of work-based learning places and the possibility that interest among young people in apprenticeship has fallen relative to that in full-time post-compulsory programmes.

To what extent are employers interested in the graduates of vocational programmes, and how do they evaluate them, compared to ex-apprentices in particular, as sources of intermediate skills? We asked companies whether they had recruited graduates for training (in engineering) as production supervisors or technicians or (in retailing) as department managers or store managers – as distinct from higher management programmes, into which non-vocational graduates have traditionally moved. We asked about the recruitment into such positions of graduates from three year and general pro-

grammes, including in Germany and Switzerland the recently introduced Bachelor's degree, as well as graduates of two year occupationally-oriented ones.

Across the three countries as a whole, nearly half of our companies (25 out of 53) have recruited such graduates for intermediate level vacancies (Table 15). In Germany, led by retailing, the share is around two-thirds. By contrast, only five out of 19 Swiss companies do so, and all are retailers. The lower use of graduate programmes in Switzerland is perhaps surprising, in that the participation rate in vocationally oriented full-time tertiary programmes has if anything exceeded its German counterpart (Table 7, above).

Table 15: Share of companies that have recruited graduates into first line management

Number of companies that have recruited graduates/number providing information

	GB	DE	CH	All
Engineering	4/8	3/7	0/9	7/24
Retailing	4/9	9/10	5/10	18/29
Both	8/17	12/17	5/19	25/53

Notes: First line management: in engineering, production supervisors and technicians; in retailing, department managers (large stores) or store managers (multiple outlet firms with small stores)

Graduates: completers of full-time post-secondary programmes, including two year and vocational ones

Our interviewees report mixed experiences in recruiting graduates for intermediate positions, particularly in comparison to promoting their own ex-apprentices. One large British engineering firm that has recruited some graduates for technician posts has found, perhaps not surprisingly, that, although graduates have more depth of knowledge than ex-apprentices, they lack the broad 'can do' type of skill that it particularly values. Another company is encouraging apprentices by progressively removing the differential in pay among its technicians against those who travelled the apprenticeship rather than the graduate route. A Swiss food retailer welcomes the superior knowledge of its operations that its ex-apprentices possess. Similarly, a Swiss electrical goods retailer bemoans both the lack of a feel for selling and the 'different kind of thinking' that it has encountered among the few graduates whom it has been able to attract to its training programme for store managers.

Other interviewees report more satisfaction with the graduate option. They include: (i) a discount food retailer that operates in both Britain and Germany and offers in both countries a graduate training programme aimed at store management, which, in Britain at least, it judges to beat apprenticeship as a source of first-line management skills; and (ii), in Germany, a national shoe retailer and a regional furniture retailer.

One difficulty facing graduate training as a source of first-line management skills in retailing is weak labour supply, presumably related to the sector's below-average pay and status. (The exception is a German discount food retailer which pays store and group managers highly, though their working hours are long.) In addition to the Swiss

electrical retailer cited above, we found in England (i) a nation-wide food retailer that recently dropped its graduate recruitment programme for store managers because the quality of applications had been low, and (ii) a electrical goods chain that has struggled to induce the school and college students whom it employs as part-time sales staff to apply for its training programme in store management once they have completed their education.

A related problem for some employers is an elevated tendency among graduate recruits to quit during or after training as department or store manager. The problem has discouraged two large department stores in Britain from expanding their graduate programmes. It has even led two large supermarket chains in Germany to abandon such a programme, in the face of extensive quitting, which they attribute to the higher pay offered by discount food chains. These employers have opted instead to upgrade their own ex-apprentices into middle management, through bespoke programmes that contain part-time continuing education.

First-line management

The role of apprenticeship at the next level of the firm's skill hierarchy, first-line management (production supervisors, department and store managers), is likely to be at most indirect. No employer is expected to convert its apprentices directly into managers, and none of our sample does so. (However, as a supervisory component is required in all of the Level 3 qualifications (NVQs) involved in Advanced Apprenticeship in Britain, the possibility is not wholly remote, and some operators of convenience stores use the Apprenticeships programme to develop store managers; Lewis, Gospel and Ryan (2008)).

In the companies involved in this study, completing apprentices typically face a career ladder along which it takes several year to progress – e.g., in German department stores, from Verkäufer through Substitut to Abteilungsleiter. Vacancies for first-line managers are filled mostly internally, from the ranks of qualified skilled employees, among whom ex-apprentices are numerous in all cases except British retailing.

Another indicator of the career contribution of apprenticeship is the share of first-line managers who have previously completed an apprenticeship in the firm (Table 16). A majority of managers has done so in most engineering companies, and in more British and German than Swiss ones. The same applies however to only a minority of retailing companies. That is partly because of the near-absence of apprenticeship from our British retailing firms. In Germany, one half of our retailers satisfied the criterion, and two companies, a pump producer and a national food retailer, state that all of their first-line managers have served an apprenticeship in the company.

Table 16: Number of companies in which at least half of first-line managers had previously completed an apprenticeship at the company

Number of companies meeting the criterion/number providing information

	GB	DE	CH	All
Engineering	5/6	5/7	3/8	13/21
Retailing	0/10	4/8	4/10	8/28
All	5/16	9/17	7/18	21/49

In sum, these companies' own apprenticeship programmes provide an important, if less than a dominant, source of skills for craft employment in German and British engineering, and also in German retailing, but a distinctly secondary one in Switzerland and a trivial one in British retailing. Apprenticeship is in many firms, particularly in engineering, but also in retailing, tied closely to further training and career progression to first-line management. Moreover, as seen above, several retailers compare apprenticeship favourably to full-time vocational education as sources of middle management skills.

These patterns illustrate the extent to which the traditional linkage of apprenticeship to occupational labour markets has been diluted. This is particularly striking in Germany, with its high rate of retention after apprenticeship. More generally, many employers have integrated apprenticeship into human resource management strategies that cultivate loyalty to the company, and which offer continuing options for learning and career progression within the company's internal labour market. Many British and German employers actually value apprenticeship as a source of low labour turnover, compared to the external recruitment of skilled workers. The extreme when it comes to the gearing of initial training to the employer's internal labour market – high labour turnover apart – is the training of sales staff in British retailing, but that category contains little of the wider occupational and educational development that is embodied in both the apprenticeship ideal and German and Swiss practice.

6 Apprentice pay: institutions and outcomes

The pay of apprentices is a central variable in the economics of training. It affects economic incentives, both to the employer to provide training, and to the young person to undertake it. This section considers how apprentice pay affects training decisions, how it is set, how it varies across countries and sectors, and its implications for training outcomes.

6.1 Economics of training

Contemporary economic models of training analyse the firm's decision to provide apprenticeship and whether the firm bears the cost of such training. The market for skilled labour is assumed to be imperfectly competitive: competition between employers is constrained variously by asymmetric information, whether about workers' ability or about the content of other employers' training programmes, by firm-specific skill requirements, by mobility costs, and by other frictions. Companies therefore pay skilled workers less than the value of their output (technically, their marginal product), and can as a result earn a return on any prior investment they make in an apprentice's training – which would be impossible under perfect competition for skilled workers.

Moreover, in such conditions, the firm must bear some of the cost of training, by paying apprentices more than the value of their output (i.e., marginal product net of direct training costs) during training. Otherwise it would lose its supply of apprentices. Young people, knowing that they will not be able to recoup the full benefit after training, would refuse to bear the full cost – again, in contrast to the situation under perfect competition. It is usually assumed, if only implicitly, that the pay of apprentices is set by perfect competition – i.e., by what Leuven (2005: 89) terms 'free entry at the start of period one' – to balance the supply of and demand for apprenticeship places. Apprentices are therefore paid more than the net value of their output during training (Smits 2005; Wolter and Ryan 2011).

Some models change this assumption and allow apprentice pay to be set institutionally, whether by collective bargaining or minimum wages, resulting in a lower pay differential between apprentices and skilled workers than under competitive pay setting – a situation often described as 'wage compression'. The firm is then incentivised to increase training, as it receives a larger surplus (i.e., value of net output minus pay) from employing a skilled worker than an unskilled one (Acemoglu and Pischke 1998, 1999).

If, however, it is also assumed that information about the content of training is asymmetric between the employer and the trainee – i.e., the trainee is the less well informed party concerning the content of the training programme – the prediction of a positive effect of wage compression on training activity becomes suspect. Any such effect may

then depend on the presence of externally enforced training standards, as in Germany and Switzerland, to assure potential apprentices that they will actually receive the training that the employer has promised. Indeed, in the absence of external skill standards, trainee pay may have to be high in order to compensate potential trainees for the risk of receiving little training. Statistical evidence consistent with such interpretations has been found for German apprenticeship (Dustmann and Schönberg 2004, 2007).

The prediction of a positive effect on training from wage compression is however paradoxical. It certainly contrasts to previous ‘human capital’ orthodoxy, in which the firm in otherwise perfectly competitive markets responds to an increase in apprentice pay by reducing training, whether through having fewer trainees or giving less training to each trainee (Leighton and Mincer 1981).

Even in models that assume imperfect competition, higher apprentice pay may lead the firm to reduce training rather than expand it. Assuming that the firm can vary the skill intensity of production and recruit already skilled labour instead of upgrading unskilled employees, it may respond to higher apprentice pay by substituting for apprentice training some mix of increased recruitment of skilled workers, upgrade training of semiskilled employees, and less use of skilled labour in production. Certainly, the relative cost of these potential substitutes for training is reduced by higher trainee pay.

Only when borrowing problems (financial market failure) prevent a young person from accepting an apprenticeship place does imperfect competition in occupational labour markets mean more training than does perfect competition. The effect of exogenous wage compression in that class of models has yet to be worked out formally, but it may well be a reduction, not an increase, in training (Stevens 1994, 1996, 1999).

The conclusion that higher apprentice pay means more training is therefore potentially sensitive to assumptions about labour markets and technology. Moreover, it is not clear that trade unions will invariably seek higher pay for apprentices relative to employees, particularly if they expect higher apprentice pay to reduce training. Unions may instead agree, whether implicitly or explicitly, to limit wage compression in order to ensure the economic viability of apprenticeship – particularly if they can expect low apprentice pay to mean more and better training, and not the exploitation of trainee labour (Marsden and Ryan 1991b; Dustmann and Schönberg 2007).

Finally, economic theory has yet to model the conditions under which employers who provide apprenticeship training actually invest in their apprentices, i.e., bear positive training costs – as opposed to making a surplus out of them, i.e., bear negative training costs (Backes-Gellner and Mohrenweiser 2009; Wolter and Ryan 2011; Ryan 2010b).

Economics of training: the apprentice

The influence of apprentice pay on individuals’ training decisions is mostly implicit in economic models of training. The young person accepts a period of reduced pay in

return for a skill that will increase his or her future earnings. Under competitive pay setting, the rate of return on the investment must be competitive with that on alternative uses of the person's resources. The greater the skill content of an apprenticeship, the lower the pay offered to, and accepted by, the apprentice (Wagner 1995). Under institutionalised pay setting, however, the apprentice may earn economic rent, being paid more than is necessary to induce him or her to accept a training place, given future earnings prospects in the relevant occupational labour market.

Young people who consider taking an apprenticeship may be expected to weigh up its net benefits relative to two alternatives. The first is the higher level of investment represented by full-time schooling, which typically means that little or no income accompanies learning and that, increasingly, tuition fees must be paid, for tertiary-level courses. The second alternative is the lower level of investment involved in direct labour market entry, representing some mix of less skilled employment, unemployment, and participation in labour market programmes (Ryan 1998).

In this potentially complex decision, the young person sets against its short-term effect on his or her income the expected labour market benefits of completing apprenticeship, relative both to a tertiary educational qualification and to increased labour market experience as a less skilled worker. The result of the calculation is expected to depend on the nature of uncertainty about the future. Apprenticeship may expand a young person's options, giving access to a rewarding and relatively secure occupational labour market, and also to higher education, should preferences of circumstances change. Alternatively, the expected reward for occupational skill may be low or precarious, and the educational ladder leading from apprenticeship flimsy, as in Britain for Level 2 Apprenticeships in particular (McIntosh, 2004).

As we take our evidence largely from managers, the decisions of young people enter the picture only around the margins. Even so, managers provide us with some evidence, in the shape of application rates for their training programmes, concerning the value young people put on apprenticeship. We also draw on the individual questionnaires that some participating companies distributed to their employees (Appendix).

6.2 Pay setting: context and mechanisms

Institutions of pay setting vary across our countries and sectors. At national level, union members constitute a distinct minority (around one quarter) of employees in all three countries, varying in 2007 from around 20 per cent in Switzerland and Germany to 29 per cent in Britain (Table 17). For collective bargaining coverage, the differences are much greater: in Germany, most employees (63 per cent) are covered, as compared to less than one half (48 per cent) in Switzerland and around one-third (35 per cent) in Britain. These cross-national differences reflect the importance of pay bargaining external to the establishment (at sector-region level) under the German Tarif system, and

the dominance of plant-level and company-level pay setting in the other two countries (Haipeter 2009; Kersley et al. 2006; Fluder and Hotz-Hart 1998).

Table 17: Union membership density and collective bargaining coverage by country, 2007

	Union membership density (%) ^a	Collective bargaining coverage (%) ^b
Britain	29	35
Germany	20	63
Switzerland	19	48

Source: ICTWSS: *Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 34 Countries between 1960 and 2007*, AIAS, University of Amsterdam (www.uva-aias.net/208)

Notes:

- a. Net union membership as percentage of wage and salary earners in employment.
- b. Share of employees covered by collective agreement for pay as a percentage of all wage and salary earners in employment with a right to bargaining coverage.

Reliable and recent data on union membership and bargaining coverage are not available at sector level for any of the three countries. Fragmentary evidence suggests that in all three both union membership and bargaining coverage are more extensive than average in engineering, and less than average in retailing. In terms of type of bargaining, Germany retains a preponderance of sector-region (*Tarif*) bargaining, external to the establishment. It covers 60 per cent of employees in manufacturing (producer goods) and nearly one-half in distributive services, alongside a small share that is covered by a company (or establishment) agreement only (Table 18). The influence of the *Tarif* system extends beyond its direct coverage: in engineering the pay of two thirds of employees in the ‘no coverage’ category is directly linked to a *Tarif* agreement, and the same applies to one half of uncovered employees in distribution. So only one in nine employees in engineering is not directly affected by *Tarif* bargaining, and even in retailing it is no more than one quarter.

Table 18: Coverage of collective bargaining by level and sector, Western federal states, Germany 2007

Percentage of employment in sector

Sector	Level			
	Sector-region (<i>Tarif</i>)	Company or plant only	No coverage	
			All	No link to <i>Tarif</i> ^c
Machinery, Equipment ^a	60	8	32	11
Distribution and repair ^b	48	5	47	24
All sectors	56	7	37	17

Source: IAB-Betriebspanel 2007

Notes:

- a. *Investitionsgüter*
- b. *Handel/Reparatur*
- c. No direct linkage between the establishment’s terms and conditions and those in the relevant *Tarif* agreement

Pay setting in participating companies

There are no systematic national-level data on how apprentice pay is set. In post-war metalworking in both West Germany and Britain apprentices were extensively covered by collective bargaining. Trade unions frequently negotiated pay agreements for apprentices separately from those for employees. In West Germany, the status distinction between apprentices and employees was institutionalised in the payment to apprentices of an ‘allowance’ (*Vergütung*) rather than a ‘wage’ (*Lohn*), whereas in Britain the differences between apprenticeship and employment, in both labour law and industrial practice, became marginal (Münch 1991; Beicht 2006; Marsden and Ryan 1991a; Ryan 1993, 1999, 2010b).

Table 19 shows the relevant attributes for our participating companies, including the number (i) who negotiate with trade unions pay for employees (or on whose behalf pay is negotiated externally, as in the *Tarif* system), (ii) who negotiate pay for apprentices, and (iii) whose apprentices receive periodic general pay increases for employees, whether by negotiation or by managerial decision.

Table 19: Union recognition, minimum wages and apprentice pay setting

Number of establishments with attribute

		Trade union recognition ^a	Setting of apprentice pay			No of companies ^e
			Collectively negotiated ^b	Affected by minimum wage ^c	Same pay raise as employees ^d	
Engineering	GB	6	1	0	6	8
	DE	7	7	n.a.	8	8
	CH	6	0	n.a.	0	8
Retailing	GB ^f	1	1	6	9	10
	DE	9	8	n.a.	9	10
	CH	3	0	n.a.	0	10
Both		32	17	6	32	53

Notes:

- a. A collective agreement governs any pay or non-pay issues, or both, for production or sales employees
- b. At any level, including negotiations external to the company
- c. Pay of apprentices (or sales trainees) has been influenced in any way by changes in a statutory minimum wage
- d. Apprentices receive the same (usually, percentage) increase at same time as regular employees in same occupation
- e. Companies providing information on all three pay variables
- f. Trainee sales employees

In engineering, in all three countries most of our establishments negotiate (or are covered by) a collective agreement for manual employees – although in Switzerland it covers non-pay issues only, as the sector-level agreement leaves pay to individual agreement between employer and employee (ASM 2006: Art 15.2). Most of our employers in German retailing are also *tarifgebunden*. By contrast, few of our Swiss retailers

and a single British one are covered by a collective agreement, though two British retailers discuss non-pay issues informally with a trade union.

Negotiating for employees does not however translate directly into negotiating for apprentices. In only 17 of the 32 companies covered by a collective agreement for craft or sales employees does a collective agreement cover apprentices as well. Apprentices are particularly unlikely to be covered by collective bargaining in Switzerland: none of the nine firms that negotiate over employees negotiates apprentice pay. Similarly, in British engineering, only one of the six unionised companies negotiates apprentice pay. In the sample as whole, fifteen firms negotiate employee pay but retain managerial discretion over apprentice pay.

A further potential influence on trainee pay is a statutory minimum wage, which is present in our sample only in Britain. British Apprentices are exempt from the National Minimum Wage until the age of 19 and, if older, during their first year of training (LPC 2009; Denvir, Pearmain and Cox 2009). At the start of our fieldwork the adult (22+ years) minimum wage was £5.52 per hour; a ‘Development’ rate of £4.60 applied to 18-21 year olds, and a still lower one, £3.40, to 16-17 year olds (LPC 2009: Table 1.1).

The impact of the minimum wage on apprentice and trainee pay is potentially substantial (Table 20). Our engineering establishments on average pay their first year Apprentices close to the NMW rate for 18-21 year olds. However, as first year Apprentices are not covered by the NMW and Apprentice pay stands well above the NMW in years two through four, changes in the NMW are not expected to matter much in engineering – and indeed no interviewee in that sector pointed to them as a factor in Apprentice pay.

Table 20: National Minimum Wage and apprentice pay, British establishments

Apprentice pay as percentage of National Minimum Wage

	Year of training				Number of establishments
	1	2	3	4	
Engineering ^a	(101.2) ^c	122.7	143.8	165.8	8
Retailing ^b	109.0	n.a.	n.a.	n.a.	9

Notes:

- unweighted mean across establishments; n.a., not applicable
- a. For an assumed 38 hour working week; relative to NMW Development Rate
- b. Sales staff trainees; relative to NMW (adult rate)
- c. Not applicable (first year Apprentices exempt from NMW)

The story is different in British retailing. Sales trainees are overwhelmingly non-Apprenticed regular employees, and mostly adults. Most are therefore subject to the adult minimum wage from the outset. Moreover, most retailing employment is low paid (Mason and Osborne 2008). The sector’s trade association claims that changes in the NMW have affected strongly the pay of sales trainees (BRC 2008). Our findings align with that claim. Although only two of nine employers actually pay their sales trainees the (adult) NMW, the average starting rate across our retailing cases is only 9 per cent more than it. Six retailers report that increases in the NMW in recent years, which excee-

ded the rate of increase in both consumer prices and average earnings, have increased trainee pay directly, whether by raising the pay structure as a whole or by reducing pay differentials between trainee and experienced employees (Table 19).

Returning to our three country sample, the next issue is whether apprentices receive the same rate of periodic general pay increase as do employees, and do so at the same time. That is so in more than half of our cases (32 out of 53). Although the number of firms recognising trade unions is the same (Table 19, above), the two variables diverge considerably across country and sector. The differentiation of initial training from employment for pay setting is greatest in Switzerland and least in British retailing. In no Swiss company, unionised or not, do apprentices simply receive the 'going' increase. Indeed, some Swiss employers increase apprentice pay only occasionally, without any expectation that apprentices will receive an increase just because employees do. At the other pole, as trainee sales staff in British retailing are overwhelmingly regular employees, their pay invariably increases with that of other employees, and, apart from intentional changes in pay structure, does so by the same percentage as that of other employees.

Bonus pay

Some companies offer performance-related bonus pay to their apprentices. Table 21 shows that in nearly three-fifths of our companies (32 out of 55) apprentice pay involves a bonus component. Apprentices' performance is measured at either individual level or group level, and in nine cases at both levels. In the case of group schemes, apprentices are typically included in the bonus scheme for regular employees, such as those in retailing that are based on store-wide sales. Some companies operate individual bonus schemes for apprentices: notably electrical and shoe retailers who pay apprentices, like sales employees, commission on their own sales.

Performance at the workplace is a criterion in all cases of individual bonus pay for apprentices. No company pays its apprentices bonuses only for performance in part-time vocational education. At the same time, most of the systems with an individual bonus for apprentices (seven out of eleven) include a school-based component, based typically on examination performance, sometimes as part of a wider appraisal of the apprentice's progress. These cases are all in engineering, which suggests that engineering employers value their apprentices' performance in college more strongly than do their counterparts in retailing.

Table 21: Incidence of bonus pay for apprentices

		Number of companies paying bonuses to apprentices				Performance criteria (individual bonuses)			Number of companies
		Person	Group	Both	Either	School only	Workplace only ^b	Both	
Engineering	GB	1	5	1	5	0	0	1	9
	DE	2	4	2	5	0	1	1	8
	CH	6	4	4	6	0	1	5	8
Retailing	GB ^a	3	4	2	5	0	3	0	10
	DE	2	3	0	5	0	2	0	10
	CH	4	2	0	6	0	5	0	10
Both		18	22	9	32	0	12	7	55

Notes:

a. Sales staff during the first months of employment

b. Includes commission pay in retailing

Where apprentices are eligible for a group performance bonus, this tends to reflect a sense that it would be unfair, and would be viewed as such by other employees, to exclude them, as they also contribute to the results (e.g. establishment profits) for which regular employees are rewarded. In companies that pay individual bonuses to sales staff, notably under commission systems in retailing, some managers explained the inclusion of apprentices in terms of training quality: apprentices should learn to function under the kind of payment system under which they will subsequently work as employees.

Although apprentices are often included in bonus systems, the terms of their inclusion tend to differ from those for regular employees. Some companies exclude apprentices in the first phase of training, particularly when they spend their time entirely outside production, as in the first year of engineering Apprenticeship in Britain. Others pay a lower bonus rate to apprentices than to employees. One German shoe retailer pitches the sales level required for eligibility for bonus pay higher for apprentices than for regular employees. Others pay the same bonus rates to apprentices, but note that the time that apprentices spend off the job and their inexperience typically mean lower bonus earnings than for sales employees.

Of the 23 companies that do not pay bonuses to apprentices, eight nevertheless pay bonuses to employees in the same occupations. The principal reason for excluding apprentices is a perceived status difference between apprentices and employees, as learners and producers respectively. In some cases, managers wish to avoid conflict between the learning of skills and the increased pressure to produce that bonus pay causes.

The other 15 companies avoid bonus pay altogether, i.e., for both apprentices and non-managerial employees. They include a large discount food retailer in Germany, which opts instead for high base pay (i.e., pays efficiency wages) because its managers expect performance measurement to involve errors and biases so substantial as to generate resentment and demotivation among employees and apprentices alike.

In sum, we find only small cross-national differences in the incidence of bonus pay for apprentices. One might have expected to see more widespread use of bonus pay, particularly on an individual basis, in Britain than in the other two countries, for apprentices as well as for employees, to the extent that managerial choice and individualism in payment systems are more influential in that country. The national pattern proves however highly similar in all three countries: in each sector and country around one half of employers pay some type of bonus to apprentices. The principal difference is that Swiss companies, particularly in engineering, are the most prone to pay individual bonuses to apprentices, and to base those bonuses on performance at both the workplace and the college. The pattern may not be fully representative at sector or national level, but it is striking and suggestive.

Workplace representation

The other channel along which worker interests may affect pay setting for apprentices is workplace representation. In Germany, that means Works Councils. In Britain and Switzerland, statutory requirements for employee representation are respectively limited (European Works Councils in multinationals) and zero (a right for employees to elect workplace representatives, but no obligation to do so). Workplace representation is in both countries therefore largely limited to any consultative bodies that the company has chosen to set up, including *Personal-Kommissionen* in Switzerland and employee forums in Britain.

As Table 22 shows, most employers in our sample (36 out of 50) have some form of employee representation, whether at the workplace or at company level. The highest incidence is, not surprisingly, in Germany (16 out of 18); the lowest in England (7 out of 14).

Table 22: Employee representation at the workplace and apprenticeship

		Presence of consultative mechanism ^a	Influence on apprentice pay ^b	Adoption of policies toward non-pay issues ^c	Number of companies ^d
Engineering	GB	2	1	0	5
	DE	8	0	2	8
	CH	8	0	0	8
Retailing	GB	5	5	0	9
	DE	8	1	2	10
	CH	5	0	0	10
Both		36	7	4	50

Notes:

- a. Works Council (Betriebsrat or Personal-Kommission), employee forum or other consultative body
- b. That body has any influence on apprentice (in English retailing, trainee) pay, at establishment or company level
- c. That body advocates change in any non-pay attribute of the company's apprenticeship programme
- d. Companies providing information on all three variables

Even where such bodies exist, according to our interviewees they influence apprentice pay in only one quarter of companies (7 out of 36) overall, and in none in Switzerland. The incidence of such influence concentrates on British retailing, in which all five companies with consultative bodies report its presence – consistent with the status of trainees as regular employees not apprentices, and with the companies’ use of representative councils for communication with employees.

Most of the employers with consultative bodies report that those bodies show little or no interest in apprentice pay. In some cases that applies to apprentice-related issues in general. Although we did not enquire systematically about non-pay aspects of apprenticeship, we encountered in two German cases works councils that press for all completing apprentices to receive an employment contract, two that advocate an expansion of the establishment’s apprentice intake, one that wishes to reduce it, and one (in retailing) that wants to see all two year apprentices have the option of proceeding to a third year of training.

The reasons given for limited interest in apprentice pay on the part of consultative bodies include both organisational-political ones and functional ones. The former includes low or zero involvement of apprentices in the consultative body itself; the latter, greater concern among employees for the volume and content of apprentices’ training than for apprentice pay, as well as a lack of expressed concern about pay among apprentices themselves.

6.3 Apprentice pay: outcomes

How high is apprentice pay, and how does it vary? In order to compare apprentice pay across countries and sectors, we adopt standard procedure and measure apprentice pay relative to the pay of skilled (qualified) employees in the relevant occupation. Ideally, we wish to measure relative pay for two definitions of pay: base rates (e.g. in collective agreements) and earnings (e.g., in company payrolls), where the latter includes overtime pay, bonuses and employers’ social security contributions. For Germany, we distinguish further between two types of base rate: those in the external sector-region Tarif agreement and those in the establishment or company. For simplicity, we set aside for Germany and Switzerland the distinction between the allowance paid to apprentices by the employer (*Vergütung* and *Lehrlingslohn*, respectively) and pay (*Lohn* or *Gehalt*), and term both ‘pay’.

National evidence

We start with background evidence for the countries and sectors. Our primary sources for Germany and Switzerland are the most recent surveys of employers’ training costs in each country: the 2007 BIBB survey for Germany, and the 2004 Berne survey for Switzerland, both of which broadly adopted the methodology developed in earlier

BIBB surveys. For Britain we use the 2005 survey of apprentice pay; skilled pay is taken from the Annual Survey of Hours and Earnings.

Measures of base rates of pay in the training establishment are available for all three countries (Table 23). Apprentices are confined in the British data to participants in Level 3 programmes, in order to increase comparability between countries. The relative pay of apprentices in the economy as a whole is lowest in Switzerland, at 18 per cent of skilled employees' pay, highest in England, at 45 per cent, and middling in Germany, at 27 per cent. Inter-country differences are also marked at sector level, for which mismatch between training and employment data is less than for the economy as a whole. In metalworking, the base rate of Swiss apprentices is only 14 per cent of that of skilled employees, well below that in Germany (29 per cent) and Britain (41 per cent). In retailing, relative apprentice pay is generally higher than in metalworking, but the national differences are similar: 18 per cent in Switzerland, as compared to 34 per cent in Germany and fully 70 per cent in Britain.

Table 23: Relative pay of apprentices and employees in national statistics: base pay

Apprentice pay as % of the pay of skilled employees in the relevant occupations and companies

			Base pay of apprentices by year of training (% skilled base pay)					Number of apprentices
			1	2	3	4	All ^f	
DE	2007	All sectors ^a	23.7	26.7	29.9	n.ap.	26.8	7502
		Metalworking ^b	26.7	28.7	31.0	31.3	29.2	317
		Retailing ^c	29.5	33.8	39.1	n.ap.	34.2	178
CH	2004	All sectors ^a	13.4	17.3	23.0	n.av.	17.9	2987
		Metalworking ^b	9.0	11.8	15.6	19.8	14.1	391
		Retailing ^c	13.0	17.2	22.5	n.ap.	17.5	138
GB ^g	2005	All sectors	n.av.	n.av.	n.av.	n.av.	45.2	5500
		Engineering ^d	n.av.	n.av.	n.av.	n.av.	40.9	500
		Retailing ^e	n.av.	n.av.	n.av.	n.av.	70.0	500

Sources. Unpublished data from the 2007 BIBB survey and the 2004 Bern survey of employers' training costs for Germany and Switzerland, respectively; for GB, Ullman and Deakin (2005), Figures 3.3, 4.2; Annual Survey of Hours and Earnings, 2005, Table 14.5 (http://www.statistics.gov.uk/downloads/theme_labour/ASHE_2005/2005_occ4.pdf)

Notes. n.av.: not available; n.ap.: not applicable. Base rates in DE and CH are mean monthly pay, excluding social security contributions (both parties), additional month(s) pay, bonus and overtime pay; in Britain, mean net weekly pay, excluding bonus and overtime pay, and including any training allowance received, divided by mean weekly hours spent in work and training in the relevant framework (Apprentices) and the hourly earnings of full-time adult employees excluding overtime pay (for all ages and both sexes) in 'skilled metal and electrical trades' (for engineering), 'sales assistants and retail cashiers' (for retailing) and 'skilled trades occupations' (for all sectors).

Data for DE and CH are for firms that trained apprentices at the time of the survey

a. Three year programmes only, for all apprenticeable occupations with such programmes

b. *Mechatroniker, Industriemechaniker, Elektroniker, Betriebstechnik* (DE); *Polymechaniker, Elektroniker* (CH)

c. *Kaufmann/frau in Einzelhandel* (DE); *Detailhandelsassistent* (CH)

d. Apprentices under Engineering Manufacturing Level 3 training frameworks

e. Apprentices under Retailing and Customer Care Level 3 training frameworks

- f. Unweighted (DE, CH) or weighted (GB) mean of all training years (4 in engineering, 2 or 3 in retailing)
 g. Apprentices in Level 3 programmes only. Apprentice pay is for England and Wales only, employee pay is for Britain

Pay data are available on an earnings basis only for Germany and Switzerland, for which they include such supplementary payments as thirteenth month pay, vacation pay, travel allowances, and (for Switzerland only) performance bonuses (Table 24). The inclusion of both parties' social security contributions means that this pay variable stands somewhere between earnings and employers' labour costs. How overtime pay is treated is not however clear, and may not be consistent, whether across the two countries or across employers within either country.

On an earnings basis, apprentice relative pay is half as high in Switzerland as in Germany, at around 16 and 33 per cent, respectively. The comparison is similar at sector level, except that in metalworking relative pay is even lower on an earnings basis in Switzerland relative to Germany, at 13 and 34 per cent respectively.

Table 24: Relative pay of apprentices and employees in national statistics: earnings

Apprentice pay as a percentage of the pay of skilled employees

			Relative pay of apprentices by year of training (%)				
			1	2	3	4	All
DE	2007	All ¹	29.7	33.3	37.0	n.a.	33.3
		Metalworking ²	29.8	32.3	34.9	37.8	33.7
		Retailing ²	27.7	32.0	36.4	n.a.	32.0
CH	2004	All ¹	11.9	15.5	21.5	n.a.	16.3
		Metalworking ²	8.1	10.7	14.8	18.8	13.1
		Retailing ²	11.7	15.6	21.5	n.a.	16.3

Sources: as Table 23.

Notes. Earnings: average monthly pay including social security contributions (both parties), additional month(s) pay, and (in Switzerland only) bonus pay. All data are confined to firms that train apprentices.

1. Three year programmes only; all apprenticeship occupations
2. Occupations as in Table 23

The German-Swiss difference in apprentice pay has attracted interest, as a leading potential reason for the higher training costs borne by German employers (Dionisius et al. 2009). The perspective alters however when England is included in the comparison – for engineering at least. English Apprentices are paid markedly more, relative to employees in their training occupation, than are their German counterparts, let alone their Swiss ones.

The relationship between institutions and outcomes is therefore not straightforward. Higher apprentice pay in Germany than in Switzerland can plausibly be associated with the greater coverage of collective bargaining in Germany. However, Britain, the country with the least regulation – of labour markets in general and training standards in particular – has the highest relative pay for apprentices. By contrast, the country

with the most extensive collective bargaining of apprentice pay, Germany, occupies the intermediate position on apprentice pay. Although some commentators infer from a Swiss-German comparison that trade unions are a force for high apprentice pay, our British-German comparison points rather to a ‘limited pay, high quality’ approach by German unions (Marsden and Ryan 1991b).

A separate effect of collective bargaining may be a low differentiation of pay among apprentices. The difference between the base rates of apprentices in their final year and in their first year in metalworking, a sector in which the difference between Germany and Switzerland in trade union strength is particularly marked, amounts to only 4.6 percentage points in Germany, as compared to 10.4 points in Switzerland (Table 23). (The absence of any cross-national difference in retailing is consistent with the weakness of trade unionism in that sector in both countries.) A neglected effect of strong trade unionism may therefore be the reduction of pay inequality *within* apprenticeship, whatever about pay differences between apprentices and employees.

The effects of changing the pay variable from base rates to earnings (Tables 23, 24) can be considered only for Switzerland. As expected, in Switzerland relative apprentice pay is lower in terms of earnings than in terms of base rates, as was also the case historically in post-war British engineering (Ryan 2010b). The Swiss rates-earnings difference is however small. (The German data actually show relative pay to be higher on an earnings than on a rates basis. This is interpreted as a distortion caused by the exclusion from the ‘earnings’ data of performance bonuses, which are expected to be proportionately greater for craft-workers than for apprentices.)

Apprentice pay in participating companies

Returning to the companies in our sample, apprentice relative pay is in all sector-country cells higher than in the national data. The difference between relative base pay in the sample and the national data is particularly large in British engineering (23.7 percentage points), somewhat smaller in German and Swiss retailing (14.3 and 11.2 points), and modest in German and Swiss engineering (4.2 and 5.4 points; Tables 25, column 7, and 23, column 8). Higher apprentice pay in sample than in national data suggests that our cases are selected towards larger plants and companies, who not only pay more than other employers, but apparently do so more strongly for apprentices than skilled employees. It is however reassuring to note that the rankings of mean apprentice pay in engineering are the same in both the sample and the national data: highest in Britain and lowest in Switzerland.

Relative apprentice pay is more readily compared in our sample in terms of base rates than of earnings. We were not able to collect comprehensive information on earnings, particularly for British engineering establishments. The effects of changing the definition of pay from base rates to earnings are analysed in detail for Germany, below. At

this stage we simply note that, as in national data, the change makes little difference for the Swiss companies.

Apprentice pay is particularly high in the British engineering companies (Table 25). Apprentices' base rates start at 49 per cent of the rate for (recently qualified) skilled workers. They average 64 per cent over the training period as a whole – as compared to, at the other pole, 19.5 per cent for their Swiss counterparts. The difference is vast. Germany occupies the middle ground, averaging 33 per cent.

In British engineering the starting rate for apprentices in the July 1983 sector-wide ('national') collective agreement – which played at the time a role similar to that still played by Tarif agreements in Germany – was 47.5 per cent of the skilled rate. The lack of any substantial difference between that and the average in our sample suggests that the erosion of collective bargaining, particularly for apprentices, has had little effect on apprentice relative pay, in these plants at least. Indeed, one pump producer still pays the apprentice age-stage scales that applied when sector-wide bargaining ended in 1989 (EEF 1993; Purcell 1993; Ryan 2010b).

However, the rates that our establishments pay to second-year and third-year apprentices average six and twelve percentage points less than their counterparts in the 1983 agreement, respectively. Moreover, the dispersion of apprentice relative base rates in engineering companies is larger in Britain (a coefficient of variation of 25.5 per cent) than in Germany or Switzerland (12.8 and 15.1 per cent respectively) – which suggests a greater role for market forces and management discretion at plant level in Britain.

Table 25: Relative pay of apprentices in establishments surveyed

Apprentices' base pay rates as percentage of pay of recently qualified skilled employees in the same occupation and company

		Base rates by year of training ^a					Earnings by year of training ^b					No. of companies	
		1	2	3	4	All ^d	1	2	3	4	All ^d	Base rates	Earnings
Engi- neering	GB	48.5	58.5	68.3	78.5	63.5	n.av.	n.av.	n.av.	n.av.	n.av.	8	0
	DE ^e	30.5	32.2	34.5	36.3	33.4	30.3	33.4	35.1	36.6	33.8	8	8
	CH	12.4	16.0	21.5	27.9	19.5	13.7	17.7	23.5	26.7	20.4	8	7
Retailing	GB	(92.6) ^c	n.ap.	n.ap.	n.ap.	n.ap.	n.av.	n.ap.	n.ap.	n.ap.	n.a.	10	0
	DE ^e	42.3	48.7	54.4	n.a.	48.5	41.5	47.9	53.5	n.ap.	47.6	8	8
	CH	22.9	28.2	34.9	n.a.	28.7	23.1	28.1	34.4	n.ap.	28.5	9	9

Notes. n.ap.: not applicable; n.av: not available

a. Includes 13th month pay (*Weihnachtsgeld*) and holiday pay (*Urlaubsgeld*) where paid.

b. Includes performance bonuses where paid to apprentices or skilled employees, but not overtime pay

c. Pay of newly recruited inexperienced sales staff relative to sales employees with one year's service.

d. Unweighted average for all years of training

e. Establishment (or company) level pay

Similarly, in retailing, Swiss apprentices are paid (relative to qualified employees) little more than half the rate of their German counterparts. The situation becomes more complicated when Britain is considered. Given the near-total absence of Apprentices from our set of British retailers, we consider the pay of trainee sales staff, relative to the pay of sales staff who have completed the initial training programme (which takes between one and twelve months, and averages 5.3 months across participating companies). Three companies start their trainees at the rate for the job. In the other companies, the training rate is close to the experienced rate. The result is an average pay ratio of 92.6 per cent: i.e., our retailers on average pay their initial trainees a base rate only seven per cent less than that of established sales staff. Were we able to allow for (i) bonus pay, which is used by six of the ten companies, and (ii) promotion, e.g. to section leader, that would undoubtedly reduce trainee relative pay toward the level seen in national data (Table 23, above). Even then, the key attribute would still be present: a high pay ratio compared to the other sector-country categories.

What might cause the large differences in the relative pay and labour cost of apprentices across countries – that is, in engineering at least? One consideration is the age of apprentices: older entry to training is expected to increase both supply prices (higher living costs) and demand prices (higher relative productivity) in the market for apprentice services. Low apprentice pay in Switzerland corresponds to a lower typical age of entry: in all Swiss companies in our sample, most apprentices start at 15-17 years, whereas in some German and British companies 18-20 year olds are more numerous. Similarly, adult (21+) apprentices are found in four British engineering firms but in hardly any German or Swiss ones (Table 12). Nevertheless, the differences in relative pay, between Britain and Germany in particular, are large compared to those in age of entry, and cannot therefore be attributed to that factor alone.

Four further influences are potentially relevant: collective bargaining, the contractual status of apprenticeship, public subsidies, and the supply of young people to apprenticeship. As to collective bargaining, trade unions may seek higher pay for apprentices, in relative, not just absolute, terms. As noted above, this line of explanation aligns with the greater coverage of apprentice pay by collective bargaining in Germany than in Switzerland. It is also consistent with a remark made to us by a senior negotiating official of IG Metall, that his union's goal is for apprentices to receive 35 to 40 per cent of the *Facharbeiter* rate, i.e., somewhat more than at present (Tables 23, 25, above). Such a policy is consistent with IG Metall's provision of distinctive options for the representation of, and involvement in discussions by, its youth and apprentice members (IGM 2010). By contrast, Swiss trade unions report that one-third of apprentices do not even receive the 13th month's pay every year, something that their German counterparts, in *tarifgebunden* firms at least, can take for granted (Lehrlingslohn 2008).

However, bargaining coverage is low in Britain too, and, although six of the eight engineering companies in our sample have collective bargaining, in only one does apprentice pay feature on the bargaining agenda. Yet apprentice relative pay is high, in national

statistics (for engineering) as well as in our sample. Differences in unionisation can therefore explain the empirical pattern only in part.

A third feature aligns more closely with Britain's position: the contractual status of apprentices. More than 90 per cent of English Apprentices, and all those in our sample companies, hold an employment contract, not just a training contract. Of course, employee status need not mean high pay. Apprentices are excluded from coverage by the National Minimum Wage if they are less than 19 years old or in their first year of training. Non-employed Apprentices who do not have a work placement (in 'programme-led Apprenticeships') are entitled only to the Education Maintenance Allowance of £30 per week; those who do have a work placement ('non-waged Apprentices'), to the Minimum Training Allowance of £40 per week. However, employee status leads Apprentices to expect – and is intended by government to do so – much more than a low training allowance: the LSC-required minimum weekly pay was £80 at the time of our study, and has since risen to £95. In high paying sectors, including engineering, young people can expect considerably more than that (LPC 2009: 156, 157; TUC 2008).

By contrast, the contractual status of Swiss and German apprentices focuses on the training contract, even though nowadays labour law attaches in both countries the status of employee thereto. The distinction between training and employment contracts is underlined in both cases in the different terminologies used for the pay of apprentices and employees: *Lehrlingslohn* and *Vergütung* for apprentices, in Switzerland and Germany respectively, as opposed to *Lohn* and *Gehalt* for employees in both countries.

In all three countries, apprentices hold a fixed term contract, which in principle excludes any right for the apprentice to continue with the employer after training. Here again, the situation has been muddied in Britain by the government's promotion of employee status. Although the employment contracts held by Apprentices are formally fixed-term, employers are free to offer them permanent contracts. If the employer does so, it becomes liable to make a redundancy payment if it fires an Apprentice after training. The share of Apprentices who hold a permanent contract of employment is not known but, given that many are already employees of the training firm when they join the programme, it may well be high.

Britain therefore lacks the kind of clear distinction between the apprentice and the employee that in Germany and Switzerland buttresses low pay and fixed-term contracts for apprentices. Indeed recent British legislation locates Apprenticeship agreements nearer to the regular contract of employment ('service') than to the common law contract of apprenticeship (Parliament 2009: 15-16).

The difference in contractual status between Britain and the other two countries may itself be endogenous. In order to interest young people in Apprenticeships, British employers may find it necessary to offer employee status, a permanent contract, and a wage rather than a training allowance. Indeed, the government's promotion of employee status for Apprentices can itself be seen as a reaction to the abuse of youth labour

under the Youth Training programme, with its low pay and limited training content (Lee et al. 1990; Ryan and Unwin 2001). National differences in the status of apprentices may therefore reflect underlying economic factors rather than act as a separate cause of higher pay.

A fourth possible source of high apprentice pay in British engineering is public subsidy. The government pays up to €20,000 to an employer who takes on a 16-18 year old for a Level 3 Apprenticeship in engineering, and covers the tuition fees for part-time vocational education for Apprentices aged less than 19. This suggests a greater rate of subsidy to employers who provide apprenticeship than in Germany and Switzerland. Although much of the public grant is absorbed by the cost of the multiple assessments and extensive paperwork that are required in the English ‘training market’, part of it may be passed on to young people as high pay during training.

However, employers are not required to pass any of their public subsidies on to their Apprentices. Nor would they have any incentive to do so were the supply of potential Apprentices abundant – but the latter is not always the case. Although in all three countries all of our companies report more applications than vacancies, the British engineering firms report lower ratios of applications – both all applications and acceptable ones – to vacancies than do their German and Swiss counterparts, even though they offer higher (relative) pay (Table 26).

Table 26: Applications for and vacancies in apprenticeship programmes by country and sector

		Ratio of applications to vacancies		
		All applications	Acceptable applications ^a	Number of companies ^b
Engineering	GB	7.8	3.2	6
	DE	21.4	11.6	5
	CH	17.4	7.2	7
Retailing	GB	n.a.	n.a.	–
	DE	34.5	5.5	7
	CH	39.3	9.7	9

Notes

a. In some cases, only applicants who were interviewed could be counted

b. Excluding companies that either use a third party to screen applications or provided no data

The supply of suitable young people to apprenticeship is therefore the fifth factor. Three British firms express particular concern about the number and quality of young applicants. They attribute the problem to the low status of apprenticeship in the eyes of parents and teachers, and to a spreading youth preference for full-time education. One employer did see the high pay of its apprentices as generating more applications, albeit in some cases for suspect reasons (‘they’re only in it for the pay’). The ratio of youth demand to supply is sufficiently low, high rates of pay notwithstanding, to concern some British companies. Nor is the problem just a matter of low pay. None of the three firms with the lowest ratios of applications to places paid its apprentices much less than the

average in our sample, and one paid substantially more. Supply side constraints, possibly assisted by public subsidy, appear therefore to promote high pay for engineering apprentices in Britain.

A weak supply of young people to apprenticeship might in turn be caused by economic factors. In human capital theory, should the returns to individuals for investing in skill be low, as when pay differentials between skilled and unskilled workers are compressed, young people will not accept low pay during training. The comparatively high pay of apprentices in British engineering might then reflect an expectation of low returns to skill. This line of explanation is consistent with the low, and even negative, pay differentials in British engineering between craft and semiskilled workers that were reached during the 1970s, along with poor employment prospects after training, in a sector undergoing protracted contraction (NEDO 1977).

Table 27 shows, however, that, while pay differentials between skilled and less skilled (semi-skilled) employees in engineering and retailing vary considerably across the three economies, the pattern is not consistent with the hypothesis. In engineering, the mean differential between the pay of skilled and semiskilled or unskilled employees in Britain is similar to that in Switzerland, and considerably higher than in Germany. A low return to skill does not appear to lie nowadays at the root of the supply problems of British apprenticeship, in engineering at least. The value of the evidence is limited by differences in occupational categories across countries, and the fact that in all three countries the returns to training potentially include increased occupational mobility. However, the comparatively limited interest of young people in the high quality Apprenticeships on offer in British engineering may not be explicable in narrowly economic terms – as opposed to informational and socio-cultural ones.

An increase in company-sponsored Apprenticeship places remains the policy priority in British engineering, given the excess demand for such places by young people and the difficulty for employers of recruiting skilled labour. But employers' concern about the quality of applicants points to problems in the supply of as well as the demand for youth.

Table 27: Pay differentials by skill, by country

Mean earnings in national currency and skilled earnings as percentage of less skilled earnings

			Engineering	Retailing	All sectors
GB	2009	Skilled	£12.68	£7.26	£11.55
		Less skilled	£9.61	£6.79	£10.12
		Ratio (%)	131.9	106.9	114.1
DE	2008	Skilled ^a	€ 20.22	€ 13.74	€ 16.99
		Less skilled ^a	€ 17.73	€ 11.80	€ 14.02
		Ratio (%)	114.0	116.4	121.2
CH	2004	Skilled	SFr 5603	SFr 4224	SFr 5390
		Less skilled	SFr 4130	SFr 3904	SFr 4307
		Ratio (%)	135.7	108.2	125.1

Sources. GB: *Annual Survey of Hours and Earnings 2009*, Table 14.5a (http://www.statistics.gov.uk/downloads/theme_labour/ASHE-2009/2009_occ4.pdf)

DE: SB (2009), T4.1.1; CH: BFS (2006), T4, TA1

Notes. Pay. GB: Mean gross hourly earnings, all employees; DE: mean gross hourly earnings (*Bruttostundenverdienst*); CH: Mean gross monthly pay (*monatlicher Bruttolohn*).

Content of skilled and less skilled occupations:

GB: Engineering: skilled metal and electrical trades, and assemblers and routine operatives. Retailing: sales assistants, and retail cashiers and checkout operators. All sectors: skilled trades, and process, plant and machine operatives. DE: Leistungsgruppen 3 (*Arbeitnehmer mit schwierigen Fachtätigkeiten, für deren Ausbildung eine abgeschlossene Berufsausbildung, zum Teil verbunden mit Berufserfahrung erforderlich ist*) and 4 (*Angelesene Arbeitnehmer mit einfachen, schematischen Tätigkeiten*) in C28 (*Maschinenbau*), 47 (*Einzelhandel ... ohne Kraftfahrzeug*) and B-S (*Produzierendes Gewerbe und Dienstleistungsbereich*). CH: Anforderungsniveaus 3 (*Berufs- und Fachkenntnisse vorausgesetzt*) and 4 (*Einfache und repetitive Tätigkeiten*) in SIC 30-32, 52, all sectors.

a. Full-time employees only

In contrast to the situation in engineering, the much higher relative pay of trainees in British retailing is consistent with (i) the status of trainees as regular employees, pure and simple, (ii) the absence of broader educational content, vocational as well as general, from all training programmes, and (iii) the paucity of public subsidies for non-Apprentice training. High trainee pay may in turn discourage retailing employers from providing more training to each trainee. We return to the issue later in this section.

Issues specific to Germany

Two further issues arise in Germany concerning the relationship between an establishment's base rates and the external Tarif rate. The first is whether the apprentices of OT (*ohne Tarifbindung*) companies, who are not covered by a sector-region collective agreement, are paid less than those of T (*tarifgebunden*) companies, who are covered by one (*Gesamtmetall 2008*). A German trade union official whom we interviewed maintained that, in retailing at least, OT companies typically choose to pay their apprentices at Tarif rates, having chosen OT status primarily in order to evade the restrictions on working time that come with T status. However, German labour law permits OT employers to pay less than Tarif rates, as long as the reduction does not exceed 20 percent. In one estimate, 20 per cent of employers, accounting for 14 per cent of apprentices, pay their apprentices less than the relevant Tarif rate (Beicht 2006).

Our evidence on the implications of OT status is confined to three OT companies, one in engineering, two in retailing. One of the retailers is a producers' cooperative that includes many small outlets; around 80 per cent of its members' employees are paid less than Tarif rates. The other two companies, which are entirely OT, both abandoned Tarif coverage in recent years, and in both apprentice pay has been affected by the change. The engineering company became OT in order to increase its control over its payment system, and specifically to replace 13th month pay (*Weihnachtsgeld*) by performance bonuses, for apprentices as well as employees. The performance criteria that determine apprentices' bonuses involve both the school and the workplace, with equal weight to each component. The (furniture) retailer became OT primarily to extend the working

week, in response to increased opening hours, but it too reduced base pay (for sales staff) and increased bonus (commission) pay. Bonus pay has not yet been introduced for apprentices, but the owner-manager plans to do that in future. Moreover, the move to OT status has indeed led to lower apprentice relative pay, in that apprentices have not in recent years been included in the general pay raises received by employees, as they would have been under T status.

For broader evidence, we return to BIBB's 2007 survey. Apprentice pay (available here only on an earnings basis) is lower, relative to skilled pay, in OT than in T companies (Table 28). In the economy as a whole, the difference between relative pay in T and OT establishments averages 3.1 percentage points; it is slightly higher in our two sectors, at 3.7 points in metalworking, and 4.2 in retailing – though smaller cell sizes mean lower reliability in the estimates at sector level.

The difference between T and OT companies could be purely compositional, caused by (i) the smaller average size of OT firms combined with (ii) lower apprentice (relative) pay in smaller firms. However, if the comparison is limited to middle-sized establishments (50 to 499 employees, all sectors), the T-OT difference changes little (4.1 points). This suggests that the relationship is causal, and that the trend increase in the employment share of OT companies (Gesamtmetall 2008; Haipeter 2009; WSI 2009: 105) is reducing apprentices' relative pay, if only moderately.

Table 28: Relative earnings of apprentices by bargaining status of establishment, national statistics, Germany, 2007

Average earnings of apprentices as percentage of those of newly qualified skilled employees

	Status	Relative earnings by training year (%)					Number of apprentices
		1	2	3	4	All	
Metalworking	T	27.5	28.4	30.5	33.5	30.0	261
	OT	23.1	26.4	29.4	26.2	26.3	56
	Δ	4.4	2.0	1.1	7.3	3.7	
Retailing	T	30.6	34.3	39.2		34.7	148
	OT	25.6	29.0	37.0		30.5	30
	Δ	5.0	5.3	2.2		4.2	
All occupations	T	24.1	27.2	30.3		27.2	6452
	OT	21.4	23.6	27.5		24.1	1050
	Δ	2.7	3.6	2.8		3.1	
50 - 499 employees ^a	T	22.5	25.3	28.0		25.3	2436
	OT	19.4	20.3	24.0		21.2	327
	Δ	3.1	5.0	4.0		4.1	

Sources: Table 24

Notes. Bargaining status. T: covered by sector-region collective agreement (*tarifgebunden*); OT: not covered (*ohne Tarifbindung*). Pay: gross earnings, including bonus pay and social security contributions (see Table 24).

Δ: T minus OT

a. Total employment in the establishment at which apprentice is being trained

The second issue specific to Germany is the extent to which T companies pay more than the relevant *Tarif* rates, whether directly through company supplements to base pay, or indirectly, through additional earnings from performance bonuses, extended working hours, and overtime (Artus et al. 2006).

Most establishments (eleven out of fifteen T companies) paid their employees more than the relevant *Tarif* rate (Table 29). The same number did so for apprentices. The firms in the two categories are not however identical, and the two sectors differ considerably in this regard. In engineering, three firms pay apprentices according to the *Tarif*, despite paying more than it to skilled employees. In retailing the opposite applies: all companies but one pay their apprentices more than *Tarif* rates, but three of them pay skilled workers no more than the *Tarif* requires.

Table 29: Relationship between base rates in the establishment and *Tarif* rates, participating German establishments

	Apprentices ^a			Skilled employees ^b			Number of firms ^c
	Less	Same	More	Less	Same	More	
Engineering	0	5	3	1	1	6	8
Retailing	1	0	8	1	3	5	10
Both	0	5	11	1	4	11	18

Notes: 'Less': most or all base rates in company are lower than the relevant *Tarif* rates. Base rates and *Tarif* rates contain thirteenth month pay (*Weihnachtsgeld*) where paid, as for apprentices and skilled employees in all but two cases – one OT engineering firm and one T firm in retailing that faced financial crisis – both of which paid it to neither.

a. First year apprentices

b. First line skilled employees after completion of apprenticeship

c. Companies with information for both apprentices and employees

The average premium over *Tarif* rates for apprentices in companies that pay more than *Tarif* rates to either category is moderate overall, at seven and eight per cent in engineering and retailing respectively (Table 30). The situation for apprentices does not however mirror closely that for employees, for whom the premium is distinctly higher in engineering (sixteen per cent) and lower in retailing (less than five per cent).

Assuming that the tendency of these companies in engineering to pay their apprentices the *Tarif* rate, and of those in retailing to exceed it, is representative of the sectors as a whole, what might cause the difference? One possibility is labour market pressure: employers facing a greater supply of potential apprentices have less incentive to supplement pay in order to recruit more or better apprentices. This interpretation is consistent with the lower ratio of acceptable applications to vacancies in retailing than in engineering, at 5.5 and 11.6 respectively (Table 26, above). More retailers expressed concern about their ability to recruit good apprentices than did engineering companies.

Table 30: Premium of establishment base rate over the relevant *Tarif* rate in participating German establishments (%)

Difference between the two pay rates as percentage of the Tarif rate

	Apprentices					Skilled employees	No of companies
	Year 1	Year 2	Year 3	Year 4	All		
Engineering	8.0	9.1	7.6	7.3	8.0	16.1	6
Retailing	10.1	11.4	7.8	n.a.	7.3	4.8	8

Notes: as Table 25

Includes only those companies that pay a premium over *Tarif* rates to either category

A second possibility involves employee organisation and bargaining. German engineering employers typically face stronger trade union organisation and more vigorous works councils than do retailers. The greater premium over *Tarif* rates for skilled employees in engineering than in retailing (Table 30) is consistent with such an interpretation. But both the lower incidence of pay premia for apprentices in engineering, and the similarity in the premia (where present) in engineering and in retailing, appear

inconsistent with it. Both attributes may however reflect a lack of interest, on the part of both union officials and workplace representatives, in pursuing higher pay for apprentices – as opposed to ensuring that the company offers more places and retains all completing apprentices. Several managers described the priorities of employee representatives in such terms.

Finally, what difference does it make whether relative pay is measured in terms of *Tarif* rates, base rates, or earnings? Table 31 shows that in our sample changing the definition of pay has only secondary effects on the relative pay of apprentices. In engineering, relative pay is lower in terms of base rates and earnings than in the minimum rates stipulated by *Tarif* agreements; in retailing, higher. (The pattern here is more plausible than that in the German national survey; Tables 23, 24, above). The implication is that in engineering apprentices gain less at establishment level, relative to the *Tarif* rate, as a result of company pay policy and workforce pressure, than do skilled employees – but more than do skilled employees in retailing. The differences are however small, at less than two percentage points in each case.

Table 31: Apprentice relative pay by definition of pay, participating German companies

Apprentice pay as percentage of pay of recently qualified ex-apprentices

	Definition	Year of training					Number ^e
		1	2	3	4	All ^d	
Engineering	Tarif rates ^a	31.8	33.4	36.1	38.1	34.8	8
	Base rates ^b	30.5	32.2	34.5	36.3	33.4	8
	Earnings ^c	30.3	33.4	35.1	36.6	33.8	8
Retailing	Tarif rates ^a	39.8	45.7	52.1	n.a.	45.9	8
	Base rates ^b	42.3	48.7	54.4	n.a.	48.5	8
	Earnings ^c	41.5	47.9	53.5	n.a.	47.6	8

Notes:

a. Minimum rate, sector-region collective agreement, including 13th month pay

b. Actual base rate in establishment, including 13th month pay

c. Excluding performance bonuses and overtime pay

d. Unweighted average

e. Number of establishments for which pay data were obtained on all three definitions

6.4 Apprentice pay: effects

What effect might these large differences in apprentice pay across countries and sectors have on employers' willingness to offer training? We have seen that recent economic theories diverge on the issue; assuming that markets for skilled labour are imperfectly competitive, some theories predict that high relative pay for apprentices reduces the supply of training, but others suggest the opposite.

Recent changes in participating establishments

Our fieldwork provides only limited information on the issue. The first strand is whether the relative pay of apprentices had changed recently, and the effect of such changes on training and employment decisions. Little can be gleaned on this account, however: only a minority of companies (17 out of 55) reported any significant recent change (Table 32).

Moreover, in eleven companies, the change in pay resulted from management choice rather than external constraint. Three retailers, two British and one German, and including in each country a discount food retailer, raised apprentice (in Britain, trainee) pay in order to reduce turnover in the first year of employment (Britain) or to make it easier to recruit apprentices (Germany). A British engineering company raised its apprentices' pay, already high in absolute terms, in order to reduce the status differential between apprenticeship and graduate qualifications as sources of technical skills. Three Swiss companies, two in retailing, implicitly reduced relative pay by not increasing apprentice pay when employees received a general pay rise.

Table 32: Recent changes in relative apprentice pay

Number of companies with attribute

		Occurrence of a change ^a		Cause of the change ^b		Effect on training ^c
		Rise	Fall	Chosen	Imposed	
Engineering	GB	1	0	1	0	0
	DE	0	0	n.a.		n.a.
	CH	1	1	2	0	0
Retailing	GB	6	1	3	4	2
	DE	1	3	2	2	0
	CH	0	3	3	0	0
Both		9	8	11	6	2

Notes:

- 'In recent years, any significant changes in the pay of your apprentices relative to ... skilled manual workers'.
- Chosen: management initiated. Imposed: caused by collective bargaining or statutory minimum wage.
- 'Any effect of the largest change in apprentice relative pay on training and employment practices'.

When the company chooses the change in pay, the meaning of an 'effect' is not straightforward: in principle, changes in pay and training are then jointly determined by underlying factors. Imposed changes are potentially more informative. Such changes were however confined to four British and two German retailers. The British cases resulted from stronger growth in the National Minimum Wage than in earnings generally, which led to a compression of the pay differential between trainee and experienced sales staff. (A Swiss shoe retailer fears similar effects were trade unions to succeed in raising apprentice pay.) The two German cases are retailers who report slower growth in apprentice pay than in employee pay in recent *Tarif* agreements.

Only two of the companies that had experienced a change in relative pay reported any effect on training – in both cases, British retailers reporting that higher trainee pay had helped to reduce quits by recently hired employees, as intended. None of the companies that had experienced an imposed change – including all the British retailers affected by increases in the minimum wage – reported any effect on training or recruitment practices. The lack of response may be attributable variously to the limited size of the change, the low cost of the informal on-the-job training that dominates British retailing, and the greater importance of the other determinants of training activity, including staff turnover and product market competition (section 7, below).

Cross-sectional variation

Further evidence on the association between apprentice relative pay and training may be sought in the large variation in relative pay across companies, sectors and countries. The analysis is however handicapped by two factors: first, the need to control for other determinants of the supply of apprentice places, including technology and skill requirements; second, the difficulty of separating demand-side from supply-side influences.

Other factors on the demand side could in principle be controlled by exploiting in our data the matching of companies: by product line and production technology, which should broadly hold constant skill requirements; and by ownership, which should hold constant ownership and financial factors (section 7, below). Our data contained seven matched pairs of companies, all of which comprise two subsidiaries of a single multinational, located in different countries but producing similar products or services.

We discard one of those pairs as it involves retailing apprenticeship in Germany but only on-the-job training in Britain. The data on relative pay or employment are incomplete for two others. Table 33 shows the situation for the remaining four pairs, all in engineering: three English-German matches and one German-Swiss one. The relative pay of apprentices varies greatly between the matched companies, in line with the national differences noted above – in particular, it is much higher in the English plants than in their German counterparts, and much lower in the Swiss plant than in its German match. The evidence does not suggest however a negative association between relative pay and relative training activity. Pair A shows an inverse association between relative pay and training intensity: i.e., the plant with higher apprentice pay (British compared to German, German compared to Swiss, respectively) has lower training intensity than its sister plant. The opposite is however the case for pairs B and C: the English pump and turbine manufacturers train apprentices at a higher rate than do their German sister plants, despite much higher relative pay. Pair D shows no serious difference.

Table 33: Relative pay and employment of apprentices in matched national subsidiaries of international parent companies

Parent company	Products	Location of subsidiary	Apprentice relative pay ^a (%)	Ratio of apprentices to employees (%)
A	Smaller pumps	GB	54.3	3.7
	Smaller pumps	DE	26.1	5.2
B	Larger pumps	GB	61.3	14.3
	Larger pumps	DE	37.8	11.1
C	Gas turbines	GB	62.7	16.2
	Gas turbines	DE	33.7	12.0
D	Turbines	DE	39.6	9.0
	Turbines and compressors	CH	22.2	9.3

Note:

a. Base pay; unweighted mean across four training years

Even had these data shown an inverse association between relative pay and relative training intensity in matched plants, the cases available would be too few, and the possibility of uncontrolled differences in such other potential determinants as detailed products, recent changes in output, public subsidies and national culture too high, for firm conclusions to be drawn. Moreover, were there to be an inverse association, it would not be possible to distinguish between the employer's response to apprentice pay on the demand side and differences in the appeal of apprenticeship to young people on the supply side. In other words, if indeed fewer English than German or Swiss youth are interested in apprenticeship, a combination of high relative pay and low training volume could be generated on the supply-side rather than the demand-side.

Hypothetical scenarios

Our third potential source of evidence on the association between trainee pay and employers' training decisions comes from interviewees' statements about their company's expected response to a substantial change, specifically a 20 per cent rise or fall, in apprentice pay. Table 34 shows the results. Most respondents (26 out of 41) expected no effect on training or employment practices. The remainder expected some effect on training, and a negative association – higher relative pay, less training – in all cases. Several of those who expected no effect pointed to the importance of skills for the company's success, the advantages of training as a source of skill, and the determination of training volume by anticipated requirements for skilled labour rather than by the cost of training. Shoe retailers tended to cite capacity constraints on training: notably that store managers could not readily handle more apprentices were the company to respond to lower pay by increasing training. Some Swiss companies noted that, as apprentice pay is low, a 20 per cent increase would have only a small absolute effect on training costs and therefore no effect on training volume.

Table 34: Effect on training of hypothetical large change in apprentice pay*Number of companies*

		Number of companies	Effect expected		Direction of expected effect ¹	
			None	Any	Inverse	Positive
Engineering	GB	8	3	5	5	0
	Germany	8	6	2	2	0
	Switzerland	9	8	1	1	0
Retailing	GB	3	1	2	2	0
	Germany	6	4	2	2	0
	Switzerland	7	4	3	3	0
Both		41	26	15	15	0

Note: Responses to ‘what would be the effect on your training and employment practices of a substantial forced change in the pay of apprentices (e.g., a 20% fall or rise)?’ Companies that had experienced a recent change in apprentice relative pay were not normally asked this question.

1. Inverse: an increase (decrease) in apprentice pay is expected to lead to a decrease (increase) in the number of apprentices (GB retailing: trainee sales assistants) or the amount learned by apprentices (trainees).

The interviewees who anticipated some effect from higher apprentice pay tended to focus on the obstacles to any commensurate increase in their training budgets, which would require them to make changes in training. In the hypothetical case of lower apprentice pay, three German and Swiss retailers would expect such a change to cause their apprenticeship programme to expand – in one case, specifically by substituting apprentices for both helpers and qualified staff.

This evidence is also limited. Interviewees may not have thought through the hypothetical change in any detail. There is however one striking feature. We noted above the theoretical disagreement among economists about the direction of the effect of a change in apprentice pay on the supply of training places. None of our interviewees suggested any potential reaction on their part that might create a *positive* relationship between apprentice relative pay and training volume. Where they anticipated an effect, it uniformly involved an inverse effect.

In sum, the evidence shows large differences in the relative pay of apprentices across countries, with potentially large effects on employers’ training costs and willingness to offer apprenticeship places. Apprentices are more highly paid in England than in Germany, and in Germany than in Switzerland. The pattern appears to reflect both institutional differences (bargaining coverage) and market conditions (the appeal of apprenticeship to young people). The decline of bargaining coverage in England has tended, and in Germany currently tends, to reduce apprentices’ relative pay and to increase the performance-related component. We find no evidence of any strong association between apprentice pay and apprenticeship activity, but our evidence is more consistent with a weak inverse association than with the positive one predicted by some recent theories of training.

7 Corporate finance, corporate ownership and training decisions

The possibility that decisions concerning skills and training are affected by companies' ownership and financial attributes has been extensively discussed by institutionally-oriented social scientists.

Analytical framework

In the 'varieties of capitalism' approach to the links between national institutions and economic performance, a key requirement for extensive employer investment in work-based training is the presence of 'patient capital': i.e., investors who have a long-term commitment to the success of the enterprise, rather than a focus on short-term, speculative gain. German companies enjoy that benefit more than do British or American ones, as they have relied more on long-term bank finance and family ownership, and less on remote shareholders, both individuals and institutions (Vitols 2001; Jackson 2005; Lazonick and Sullivan 2002).

The link between ownership and training potentially involves three attributes of 'shareholder capitalism': first, the divorce in large listed companies between ownership and control, and the resulting scope for top managers to pursue their interests at the expense of owners' interests; second, the use of highly geared performance-related pay for top managers, as a way of inducing them to act in the interests of owners; and, third, the scope for 'earnings management' by senior managers, i.e., the shaping the company's accounts so as to improve the performance indicators on which managerial incomes depend (Murphy 1999; Coffee 2005; Cheffins 2008; Monks and Minow 2008).

In listed companies with dispersed ownership, these three attributes potentially create pressure to hold down spending on intangible assets in general, and on costly apprenticeship-type training in particular. Managers have discretion over both accruals (i.e., adjustments to cash flow, to allow for the non-instantaneous depreciation of assets, contracts for future sales, etc.) and real spending on intangible assets, and therefore have scope to increase the company's current reported earnings, for a given cash flow situation, and thus to increase its stock price (Bergstresser and Philippon 2006; Denis, Harouna and Sarin 2006). The key mechanism for our concerns is the manipulation of a particular category of real activities: viz., spending on internally generated intangible assets, including research and development, advertising, and employee training. Standard accounting conventions require companies to expense such spending fully on current account – i.e., treat it as an operating cost – rather than amortize it – i.e., treat it as an investment on capital account, to be depreciated across more than one period and included as an asset in the balance sheet, as applies to spending on plant and equipment. This convention reflects a key attribute of intangibles: the difficulty of valuing the asset. Training and skills stand out among intangibles for their exceptional measurement

difficulty, given that the costs of on-the-job training are difficult to separate from those of production (Flamholtz 1999).

These accounting conventions mean that, other things constant, a company that cuts spending on intangible assets reports higher profits without changing its balance sheet substantially. Top managers then potentially benefit in three ways. First, higher reported earnings increase managers' bonus pay. Second, to the extent that external investors rely on current accounting profits to value companies, the firm's share price rises, and with it the value of managers' stock options, which, if vested, can be sold at an inflated price. Third, the probability of hostile takeover, leading to job loss for top managers, falls. Managers can therefore gain by holding down spending on intangibles, particularly those with low external visibility, including training (Porter 1997; Gospel and Pendleton 2005).

The analysis applies primarily to listed companies with dispersed ownership. It should be weak or absent in other companies – notably listed ones with a dominant blockholder owner and unlisted ones, with family-owned firms featuring in both categories. In such companies, the separation of ownership from control is weaker, the use of incentive pay and stock options correspondingly muted, and there is less scope for managers to manipulate performance measures without detection by owners. Earnings management does indeed occur in such companies too, but the motive is rather to assure creditors and build pro-cyclical reserves rather than to maximise managerial income (Leuz, Nanda and Wysocki 2003; Graham, Harvey and Rajgopal 2005).

Even in listed companies with dispersed ownership, the power of the mechanism is open to question. One reason is the potentially complementary nature of the three components: if any is absent, adverse effects are not anticipated. Thus performance-related pay and stock options may be either absent or, if present, not highly geared to performance indicators. Similarly, to the extent that external investors see through accounting measures of corporate performance, the benefits of earnings management to top managers – or at least the benefits that accrue to them through the company's stock price – are weaker (Chan, Martin and Kensinger 1990; Green, Stark and Thomas 1996).

Considerable evidence has accumulated, primarily for the US, suggesting that earnings management is extensive in listed companies, particularly by way of curbs on R&D spending. The chief financial officers of large US companies tend to see the stock market as focusing more on reported earnings than on cash flow, and as punishing severely any fall in, or any failure to meet external analysts' consensus forecasts of, reported earnings. Most also state frankly their willingness to change expenditure on real activities in order to increase current earnings, when doing so allows the company to cross an earnings threshold, such as breaking even or beating analysts' forecasts, even if doing so means reducing future profits (Graham, Harvey and Rajgopal 2005).

Evidence on the association between corporate ownership and training activity is however scanty. One study found little relationship between HRM practices in general and

corporate ownership across British workplaces (Konzelman et al. 2006). Countries with larger equity markets have significantly smaller systems of initial vocational training, but other uncontrolled national attributes could lie behind that association (Black, Gospel and Pendleton 2007). The paucity of prior evidence on the issue provides one motive for this study.

Ownership attributes potentially affect apprentice training within as well as between countries, given that listed companies with dispersed ownership play an important role in all three countries. Their role is however more pronounced in some countries than in others – and in Britain than in Germany and Switzerland in particular (La Porta, Lopez-de-Silanes and Shleifer 1999; Barca and Becht 2001; Gospel and Pendleton 2005; Morck 2005; Cheffins 2008).

Table 35 shows the distribution of companies across the principal categories of ownership in national data. A notable difference is the higher share of Swiss companies that are public and listed (PLC, AG), and of British ones that are private and unlisted (Ltd., GmbH). These data are however weakened by not being weighted by size: public listed companies are a small minority in a headcount of employers but most are very large, in terms of employment and turnover. Moreover, for public listed companies these data do not distinguish between concentrated and dispersed ownership.

Differences between the three countries in the importance of listed companies with dispersed ownership have fallen in recent years, with the growth of shareholder-value orientation in several large German companies, associated partly with an increase in mergers and acquisitions, which may have tightened financial constraints on employers' provision of apprenticeship (Höpner 2001, 2003; Streeck 2009).

We sought therefore to include in our sample the entire range of corporate ownership, ranging from cooperatives through unlisted private companies to listed companies with dispersed ownership (i.e., no dominant shareholder). As within-country variation in ownership is substantial, we sought to include all types in both sectors and all three countries.

As it turned out, our sample contains only limited dispersion in terms of the distinction between 'listed, dispersed ownership' and 'other' companies (Table 36). Less than one quarter (11) of the 56 participating companies is 'listed with dispersed ownership'. In Britain, the share is close to one half (eight out of 19 cases), and in engineering a slight majority (five out of nine). But in our German and the Swiss samples only four employers have dispersed ownership, and none of them are in retailing.

Table 35: Share of companies by corporate form and country*Share of all companies in category*

		Corporate form				All	No. of companies
		AG/PLC ^a	GmbH/Ltd ^b	Cooperative ^c	Other ^d		
All sectors	GB	0.1	93.1	4.0	2.9	100.0	2,444,687
	DE	0.2	14.6	0.2	85.0	100.0	3,140,509
	CH	27.8	15.0	0.7	56.5	100.0	298,722
Engineering	GB	1.0	98.7	0.1	0.2	100.0	45,485
	DE	0.8	42.3	0.0	56.9	100.0	24,738
	CH	56.8	12.5	0.0	30.7	100.0	3,406
Retailing	GB	0.3	99.0	0.5	0.2	100.0	190,634
	DE	0.1	15.8	0.1	83.9	100.0	699,980
	CH	30.9	16.1	0.8	52.2	100.0	68,830

Sources. GB: FAME dataset (BvDEP 2009). DE: Statistisches Bundesamt (2007), *Umsatzsteuerstatistik 2007. Steuerpflichtige und deren Lieferungen und Leistungen 2007 nach Rechtsformen, VID/37331100*. CH: Bundesamt für Statistik (2007), *Marktwirtschaftliche Unternehmen nach Wirtschaftsabteilungen und Rechtsform, 2005*

Notes.

- Public company, listed or unlisted; includes *Aktiengesellschaft* (DE, CH) and PLC (GB)
- Private company; includes *Gesellschaft mit beschränkter Haftung* (DE, CH) and Limited company (GB)
- Includes in GB Industrial/Provident Associations and Companies Limited by Guarantee
- In DE, *Einzelgesellschaften, Kommanditgesellschaften, Betrieb gewerblicher Art von Körperschaft des öffentlichen Rechts, sonstige Rechtsform*; in CH, *Einzelfirmen, Kollektivgesellschaften, Kommanditgesellschaften, Andere*; in GB, unlimited liability companies and partnerships.

The composition of our sample may be shaped by both objective national attributes and selection biases. On the former, the rarity of classic stock market companies in German and Swiss retailing, which are both dominated by large family firms, is well known. On the latter, perhaps not surprisingly, we appear to have encountered more refusals to participate among classic stock market firms, including some with well known recent financial upheavals, than among other types of company.

Table 36: Ownership attributes of sample companies

		GB	DE	CH	All
Engineering	Listed, dispersed	5	1	2	8
	Other	4	7	7	18
	All	9	8	9	26
Retailing	Listed, dispersed	3	0	0	3
	Other	7	10	10	27
	All	10	10	10	30
Both	Listed, dispersed	8	1	2	11
	Other	11	17	17	45
	All	19	18	19	56

Note. 'Listed, dispersed': (ultimate parent) company is listed on any stock market and has no dominant (>20% of voting rights) shareholder.

Evidence: ownership and training intensity

Given the sample that resulted, we examine two ways in which any effects of ownership on initial training might be expected to show up. The first is the extent to which ownership attributes are associated with the intensity of training within particular product categories. The second is the association between recent financial shocks and changes in training.

The first issue is whether listed companies with dispersed ownership do more initial training than other companies. We compare apprentice ratios (i.e., the ratio of apprentices to employees in major occupations) across the two ownership categories. As the intensity of training is expected to vary also by technology (as a determinant of skill requirements) and country, we focus on two four-digit engineering categories: pumps, and turbines and compressors, and examine differences across countries. (We do not perform the same analysis for retailing, as the near-absence of apprenticeship in British retailing means that only a two country comparison is possible in that sector).

Table 37 shows that the five listed engineering companies with dispersed ownership have lower training intensities than do other companies, at 7.0 and 10.0 per cent respectively. (The difference reflects entirely that in pumps, at 2.1 per cent and 9.5 per cent respectively, as the intensities are almost the same in turbines and compressors, at 11.2 and 11.3 respectively.) To that extent, the evidence is broadly consistent with the hypothesis. It is however weakened by skewness in the distribution of ownership types across countries: our Swiss sample has no 'listed, dispersed' case in either sector; our German sample, only one, in turbines and compressors. Ownership effects cannot therefore be readily distinguished from sector and national effects.

The British pump companies do however comprise two in each ownership category. The two that are 'listed, dispersed' have lower apprentice ratios than their 'other' counterparts, at 2.1 and 9.0 per cent respectively. The difference is considerable, consistent with the hypothesis of financial effects on training activity, and not polluted by any country-specific effects.

Table 37: Apprentice ratios in engineering subsectors by country (%)

	All		GB		DE		CH	
	Listed, dispersed	Other	Listed, dispersed	Other	Listed, dispersed	Other	Listed, dispersed	Other
(1) Pumps	2.1	9.5	2.1	9.0	-	6.9	-	13.3
(2) Turbines, compressors	11.2	11.3	10.8	-	12.0	9.0	-	12.1
(1) + (2) Both	7.0	10.0	6.5	9.0	12.0	7.3	-	12.7
# firms (1)	2	9	2	2	0	4	0	3
# firms (2)	3	4	2	0	1	1	0	3
#(1)+#(2)	5	13	4	2	1	5	0	6

Notes:

unweighted averages of companies' ratio of stock of apprentices to employment (excluding apprentices) in production and maintenance departments, excluding the one (Swiss) company with no apprenticeships.

Dash: not applicable (no case in category).

Differences across companies are substantial, and even suggest that 'company' effects may dominate ownership effects. The four establishments (two in Britain, two in Germany) that have the highest apprentice ratios, taking pumps, turbines and compressors as a whole, are owned by two multinationals, each with a plant in both countries. The similarity of these establishments' training efforts is not however mirrored in their parents' ownership structures: both are listed companies, but one has dispersed ownership (largest stake well below 10 per cent), while the other has a dominant block-holder (more than 25 per cent).

This analysis cannot be extended to retailing, given the absence of apprenticeship in the British sample and of dispersed ownership in the German and Swiss ones. What can be said is that the evidence suggests an absence of an ownership effect in British retailing: none of our British retailers, not even a cooperative department store chain with a strong reputation for training, provides Apprenticeships. This aspect of British training practice appears to be independent of corporate ownership.

Evidence: financial upheaval and training

Our second source of evidence is the association between financial shocks and training. We investigate whether participating companies underwent any significant financial upheavals in the past decade. Our interviewees are asked whether those shocks had any significant effects on training, particularly through budget cuts in their area of responsibility. We obtain information about shocks and cost cutting efforts from public sources (internet, press) and from the interviewees themselves. We distinguish two broad categories of financial shock: firstly, any substantial takeover, merger, demerger, change of large owner, or large external investment; secondly, a major fall in the company's stock price. Both events feature significantly in the recent history of our companies, particularly Britain-based ones.

Table 38: Occurrence and content of financial shocks among sample companies

Type of financial shock ^a	GB	DE	CH	All
1. Ownership: takeover, merger/demerger, etc.	10	4	7	21
2. Major fall in stock price	7	2	4	13
Either	13	5	9	27
Both	5	1	2	8
Number of companies	19	18	19	56

Note:

- a. the occurrence during the past decade (in some cases, two decades) of (i) a substantial (as judged by the interviewer or the interviewee) fall in the (parent) company's share price, or (ii) a change of owner, through takeover, merger (or demerger), change of large owner, or large external investment (excluding acquisitions of other companies).

Around half of our companies (twenty-seven out of fifty-six) have experienced at least one financial shock, thus defined. The incidence is particularly high in Britain, at around two-thirds (thirteen out of nineteen), as compared to less than one-third (5 out of eighteen) in Germany and around one half in Switzerland (9 out of nineteen). Ownership change features more often than a fall in share price.

Table 39 shows that financial upheaval is the norm among participating companies with dispersed ownership: only one has not recently had such an experience. By contrast, only one-third (fourteen out of forty-two) in the 'other' category report a financial upheaval. Dispersed ownership companies experience a fall in share price more often than do 'others' – which is not surprisingly, as only a minority of the latter have a share price (i.e., are listed).

Less obvious ex ante is the substantial incidence of changes in ownership among 'other' companies, with one half (5 out of ten) 'other' companies in Britain experiencing such an event (Table 40). The substantial incidence of financial upheaval in Switzerland applies primarily to engineering, reflecting the extensive restructuring of the past decade.

Table 39: Experience of recent financial shock by ownership and country

	GB		DE		CH		All countries	
	Yes	No	Yes	No	Yes	No	Yes	No
Listed, dispersed	8	1	2	0	3	0	13	1
Other	5	5	3	13	6	10	14	28
All companies	13	6	5	13	9	10	27	29

Note:

Yes (no): occurrence of at least one (no) financial shock in company

Table 40: Incidents of financial upheaval by ownership category and country

	GB		DE		CH		All countries	
	Merger ^a	Share price	Merger	Share price	Merger	Share price	Merger	Share price
Listed, dispersed	4	6	1	1	1	1	6	8
Other	6	1	3	1	6	3	15	5
All companies	10	7	4	2	7	4	21	13

Notes:

only companies with financial shocks; some companies appear in both categories of shock.

a. The company was merged into or taken over by another company or had a change of majority ownership; its own acquisitions are not included

What effect do these financial changes have on training? We consider the issue firstly for all financial upheavals and secondly for the subset of shocks that involve a move between the 'listed, dispersed' and 'other' categories.

Table 41 shows that financial upheavals have affected training in seventeen companies, and more frequently in Britain (eleven out of thirteen cases) than in the other countries (four out of fourteen cases). Only in five cases has financial upheaval led to a reduction in initial training – over and above that generated by any fall in skilled employment, that is. The extreme case is a small Swiss engineering company, which abandoned its apprenticeship programme in the aftermath of its takeover by a multinational. Type of ownership does not however appear to be involved in that case, as the change was one closely held firm (family-based foundation) to another (foreign family), which is also based in a country with an extensive apprenticeship system.

Interest focuses primarily on apprenticeship training in engineering companies with dispersed ownership, for which costs to the employer are substantial. Given that training standards are externally regulated in all three countries, employers' choices concern the volume more than the content of training. Of the ten establishments (in six companies) in this category, nine report having had one or more financial upheavals. However, in only one company did a financial shock affect apprentice training significantly: a profitability crisis in the 1990s that led the company to suspend its intake of apprentices. Even that example has limited importance, however, as the resulting imbalance in the age and skill structure of the company's workforce led its management not to cut the apprenticeship programme in the two subsequent shocks. Otherwise

the only effects reported are secondary ones, including the recent postponement by a German pumps company of a planned refurbishment of its training centre, and the bringing in-house by a British engineering company of the Key Skills component of its Apprenticeship programme.

Table 41: Effects of financial upheaval on training in sample companies

Effect		GB	DE	CH	All
Initial training	Less	4	0	1	5
	More	5	0	0	5
Other training	Less	1	0	1	2
	More	1	1	1	3
HR centralisation		2	0	0	2
Other		1	0	0	1
None		5	1	6	12
No information		0	3	0	3
All		13	5	9	27

Note:

Effect on training: judgement by interviewee(s). Initial training: apprenticeship or other initial training. Data are confined to cases for which information was obtained. Cases in which training was cut as a result of a fall in expected future requirements for skilled labour are not included.

By contrast, the three British retailers that are listed companies with dispersed ownership have all experienced one or more sharp falls in their stock price, to which all responded with cutbacks in training. Those cuts involved the content of (non-Apprenticeship) training, the volume of which depends directly on labour turnover in sales occupations. The strongest response came from a retailer of electrical and electronic goods, which, in response to a recent drastic fall in profits and share price, reduced the content of training for store managers and sales staff, and converted training for sales staff from personal instruction by the store manager to self-instruction using in-store IT equipment. The HR manager anticipated adverse effects on training quality from both changes.

In response to similar difficulties, a second British retailer reduced the duration of initial training for sales staff from three days to two, while trying to strengthen the link between training and customer service, to give staff the skills and motivation to sell more. The third company cut off-the-job training for managers, which was seen as relatively expensive and of questionable efficacy. In all three cases, interviewees saw a conflict between financial pressures for cost reduction and a competitive need to maintain customer service through staff training. These cases suggest that in dispersed ownership companies even short, low cost training programmes can be prone to cuts as a result of cost pressure in a crisis.

Broader repercussions were reported in two other cases, both in Britain, in which the HR/personnel function was restructured. An engineering company not only centrali-

sed HR management from plant to company level, but also made the plant's apprenticeship manager redundant, a move that was seen as endangering training quality.

Not only are changes in training in response to financial shock a minority experience in our sample, but also, among companies with an induced change in training, roughly as many report an expansion (8) as a contraction (7) of training. The scenario typically involves a crisis-induced review of the company's activities, leading to the reformulation of corporate strategy focused on an increase in the quality of products or services, with more training and skills as part of the plan.

Finally, changes in ownership may have effects on training. Five companies changed (in either direction) between 'listed, dispersed ownership' and 'other' status. Three moved from listed, dispersed status: one engineering plant and two department stores, all in Britain. The engineering company reported that its new, foreign owner had not – at least not yet – attempted to influence its training decisions. The two retailers saw the change to private ownership by a hands-on individual as making possible their recent increases in spending on training – again consistent with the hypothesised ownership effect.

The two companies that moved to dispersed ownership were engineering companies, one British, the other Swiss. No adverse effect on the apprenticeship programme was perceived in either case. Managers attribute that in both cases to a high priority to skills and training on the part of the new owners, both of them multi-nationals, their dispersed ownership notwithstanding. These cases do not support the hypothesised ownership effect. Nevertheless, in the Swiss case, the HR manager feared adverse effects had the company's shares been bought up by an organisation intent on short-term financial gain or a private equity fund. A similar concern is stated in two further Swiss engineering companies whose ownership has been in flux. Their concerns may reflect a potential threat to the interviewees' own jobs, but training and skills could well have been jeopardised by a move to that particular type of dispersed ownership.

Hypothetical sale to private equity

Managers' views on the effects of a hypothetical sale to private equity were mixed. Some managers of British companies had personal knowledge of such events in competitor firms. A manager in a department store owned by an employee trust remarked that 'if we had to react in the way that some other retailers do to shareholder pressure, we would not be in the long term business that we are ... we're not subject to the same pressures'. Her counterpart in another privately owned company said however, 'it's hard to say ... some private equity funds have a long-term view.' Also valuable are the statements of a food retailer and a shoe retailer, both of whom had experience of private equity funding, the first by acquiring a company from such a fund, the second by having a fund invest in it. Neither change was seen as having any effect on training.

In Germany, two companies – an engineering one owned by a foundation and an electronics retailer owned by a family – stated that their low debt burden and high rate of re-investment of profits could not be expected to continue were private equity in charge, with potentially adverse implications for training. On the other hand, two Swiss retailing companies thought that an increase in apprenticeship training would be on the cards in a private equity scenario, as in their sector apprentices earn money for their employers, and a private equity concern would be expected to exploit that advantage more extensively.

Overall, of the thirty-two firms that gave a view on the effects a takeover by private equity, fourteen would expect no effect, fifteen would expect a cut in training, and two Swiss retailers would expect an increase. This evidence is also, albeit only weakly, consistent with the hypothesised effect of ownership on training.

Product market competition

More important for skills and training than financial market pressure may well be product market pressure. Although economic theory predicts that greater competition between companies in product markets means – under particular circumstances at least – that they supply less training, statistical evidence does not support that proposition (Görlitz and Stiebale 2008).

Our evidence also goes against it. Most interviewees described competition in the company’s product market(s) as strong; almost all of those companies saw product competition as requiring extensive training. As Table 42 shows, the tendency is particularly marked in retailing, where most companies see a high standard of customer service as essential for competitive advantage, and training in sales skills and product knowledge as essential for good customer service. Particularly striking in this respect are the two national affiliates of a discount food retailer whose initial business model had involved low service and low prices, but who now finds that improvements to customer service and, in Germany, higher pay for apprentices (in order to attract better applicants), are required in support the broadening of the range of products, including the introduction of perishables, on which its expansion increasingly depends.

Table 42: Product market competition and employee skills

Number of companies answering ‘yes’/number providing information

		Company faces strong competition in product market	Product market competition has a strongly positive effect on training
Engineering	GB	4/8	6/7
	DE	3/8	2/5
	CH	4/9	7/8
Retailing	GB	8/10	9/10
	DE	9/10	5/5
	CH	9/10	6/10
Both	All	37/55	35/45

The situation in engineering is similar, insofar as all of our companies produce at least some bespoke products, as one-offs or small batches. Design, production, sales and after-sales service involve increasing levels of customer contact, for which technical and social skills are important. At the same time, as these engineering companies specialise more by detailed product and face less intensive price competition than do retailers, it is not surprising that a smaller proportion rate product market competition and its effects on training as strong. The difference between the sectors is however less marked in British and Swiss than in German engineering, consistent with the more precarious situation of many British engineering firms and the upheavals experienced by some Swiss ones in the last decade.

In sum, the evidence is consistent with the proposition that listed companies with dispersed ownership do less training in normal times, and are more prone to financial upheaval, than are other types of firm, including unlisted and privately owned firms. At the same time, we do not find that those financial upheavals have systematically adverse effects on initial training; indeed, when associated with a new start for an ailing business, financial turbulence may be more frequently associated with the expansion or improvement of training rather than classical budget cuts and the retrenchment of training. The product market provides increasing buoyancy to corporate training effort, even in British establishments owned by listed companies with dispersed ownership.

8 Conclusions

This report documents considerable differences between initial training in engineering and retailing in Britain, Germany and Switzerland. Three topics feature: the sources of front-line and middle management skills, the setting, outcomes and effects of apprentice pay, and the association between corporate ownership and finance, on the one side, and apprenticeship training, on the other. Evidence is taken primarily from on-site interviews with managers in more than fifty establishments, divisions or companies in nine sub-sectors.

We find first that apprenticeship constitutes an important source, though far from the only one, of craft skills in engineering in Britain and Germany. In Switzerland, more active occupational labour markets are associated with a lower direct contribution from a company's own apprenticeship programme, and a larger one for the external recruitment of skilled workers. The traditional linkage of apprenticeship to occupational labour markets has been diluted in Germany in particular, with its high rate of retention after apprenticeship, particularly in large establishments and companies. Large employers, in Britain as well as Germany, seek instead to integrate apprenticeship into their internal labour markets, especially in terms of promoting career employment and middle-management development. Far from discarding apprenticeship in favour of full-time education, some companies, particularly in German retailing, have scaled back their attempts to recruit middle management skills from full-time graduates, in favour of upgrade training for their own ex-apprentices.

The major exception to the importance of apprenticeship for intermediate skill supplies is British retailing, where the Apprenticeship programme contributes only marginally to the training of sales staff. Employers derive those skills instead from short, informal and uncertified on-the-job training, given to unskilled recruits of all ages. At the same time, the integration of initial training into the firm's internal market is more pronounced in British retailing than in other countries and sectors. The problem is that limited training content contributes to high labour turnover, and thereby to the difficulty that companies face in identifying and retaining career employees in general, and potential middle managers in particular. From a social standpoint, the educational development that remains integral to apprenticeship in Germany and Switzerland has no analogue in British retailing. The problem in British retailing is illustrated by the experience of a large department store following the government's reduction in 2008 of the Value Added Tax rate from 17.5 to 15 per cent as part of its effort to boost economic activity. The weak mathematics skills of many staff and first line managers made it difficult to explain to customers how the tax change had affected prices – and specifically why prices did not fall by fully 2.5 per cent even though the entire tax cut was being passed on to the customer.

Our second topic is the setting and effects of apprentice pay. The higher pay of apprentices, relative to skilled employees, in Germany than in Switzerland is consistent with the greater role of employee organisation in Germany, in terms primarily of collective bargaining coverage and marginally of workplace representation. German apprentices benefit from pay rises under the umbrella of the Tarif system, whereas their Swiss counterparts, lacking bargaining coverage, cannot count on receiving even their company's standard pay increase, and many do not receive it in practice. (The low differentiation of pay among apprentices in German metalworking may also reflect trade union preferences and strength.) The difference between the two countries may however fall in future, with the growth of non-covered employment in Germany, and increased interest in apprentice pay as an organising issue – albeit one secondary to the supply of training places – in the largest Swiss union (Unia 2008).

An institutional interpretation of pay setting faces difficulty however when it comes to explaining differences between England and Germany. The decline of collective bargaining in Britain is well known, but a variation on the theme shows up here: although most of our British engineering establishments still negotiate pay with trade unions, in only one case does that apply to Apprentices as well as employees. Apprentice pay is nevertheless much higher in engineering in Britain than in Germany – despite lower rates of bargaining coverage. The situation may reflect inertia, as a hangover from an earlier epoch, in which unions showed great interest in apprentice pay and, in conjunction with apprentice militancy, pushed it to a peak in the early 1980s. Some British engineering employers have altered their apprentice pay scales little since then. But high apprentice pay appears also to reflect the limited supply of sufficiently able and qualified young people to apprenticeship, even to the well paid programmes of reputable engineering employers. This in turn reflects the low status of industrial skill, and the increased availability and appeal of full-time schooling as an alternative.

We do not find strong evidence that higher apprentice pay is associated with less training. Differences between the matched subsidiaries of international companies show no relationship, but few such observations are available. Only a minority of our interviewees have noted any such effect from recent changes in apprentice pay, or – in the absence of such changes – would expect a hypothetical change to have such an effect. At the same time, none suggests any mechanism through which increased apprentice pay might be expected to increase their company's training effort.

The third area of enquiry is corporate ownership and finance. Our evidence is consistent with two propositions. First, listed companies with dispersed ownership tend to do less training in normal times, as in the case of pump producers located in Britain. Second, such companies are more prone to financial upheaval, including changes of ownership and large falls in stock price, than are other types of company, including unlisted ones and listed ones with block-holder ownership. It may not be a coincidence, nor simply a bias in the composition of our sample, that none of the retailers in our Swiss and German samples are listed firms with dispersed ownership, as indeed are

only half of our British ones: any competitive advantages – e.g. in terms of employee loyalty and motivation – that are enjoyed by other types of ownership – cooperative, closely held in general, and paternalistic family in particular – may be particularly marked for sales work, in which face-to-face contact with customers plays a key part.

At the same time, we do not find that financial upheaval has systematically adverse effects on initial training. Indeed, in several cases financial turbulence in a struggling business has led to a new start, involving the expansion or improvement of training. Moreover, product markets appear increasingly important relative to financial markets when it comes to training activity. In retailing, the growing importance for competitive success of product knowledge and customer service has pushed many companies – listed ones with dispersed ownership and family controlled ones alike – to increase training.

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Appendix

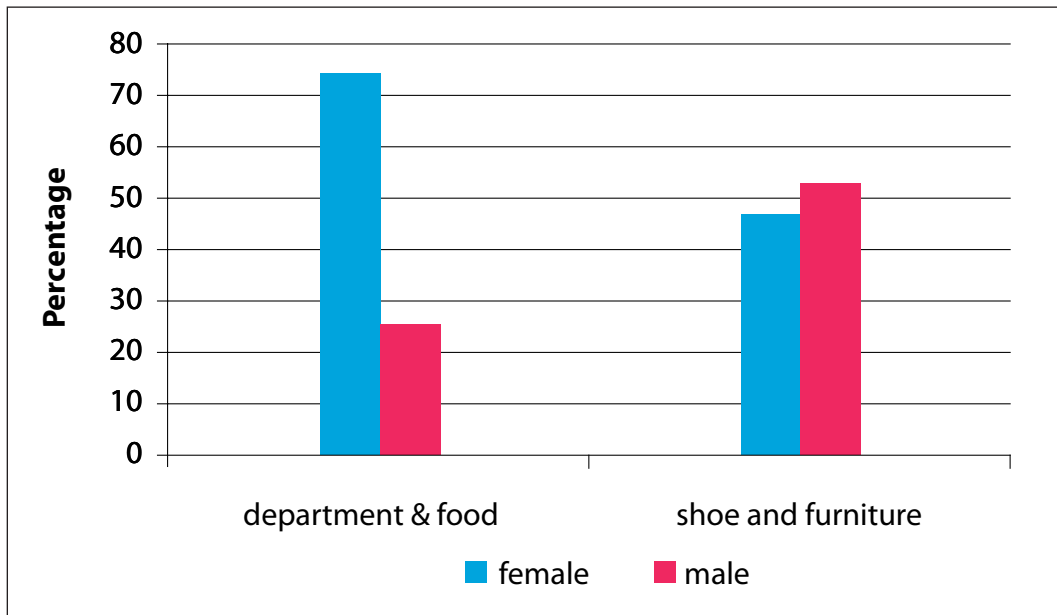
Findings from the employee questionnaire

In addition to interviews with managers, written questionnaires were distributed to employees in some of the companies in order to obtain information about the education and training paths they had followed. At the end of the interviews with managers we asked whether they would be willing to distribute and return a two page questionnaire to employees – in a production department in engineering companies, and in a particular store or department (according to store size) in retailing. We asked the manager to select as participants skilled production workers and their supervisors in engineering, and sales staff and department manager in retailing, and to include around 20 full-time staff in total.

Securing the completion and return of these questionnaires proved difficult. In engineering, around half of the managers we interviewed declined to organise the employee questionnaire. The other half initially agreed to do so, in Germany on condition of approval by the works council. In the end, no completed questionnaires were returned in engineering. In retailing the situation was better. In Switzerland, an electronic, a shoe and a food retailer returned between them 41 questionnaires. In Germany, two department stores, one shoe, one furniture and one food store returned a total of 79 questionnaires. In Britain, a single department store provided 21 questionnaires. Even though the sample is therefore limited, differences from the interviews with the managers were present and additional detail was provided on some issues.

The retailing sector provides predominantly employment for females. The share of female employees who answered our questions was 58% in Switzerland, 62% in Britain and 61% in Germany. These average ratios correspond to what we were told about differences in gender shares across stores, according to type of product. Among the two German shoe and furniture stores on the one hand and the three department and food stores on the other hand the share of female sales staff differed by 24 percentage points. The latter had 74% female employment whereas the former only showed a ratio of 47%. In our interviews the tendency to a more equal distribution of the sexes in shoe and more so in furniture stores has been explained by the desire of customers to be serviced and advised by staff who reflect their own mix in sex and age distribution (Diagram A1).

Diagram A1: Sex distribution in German retailing companies



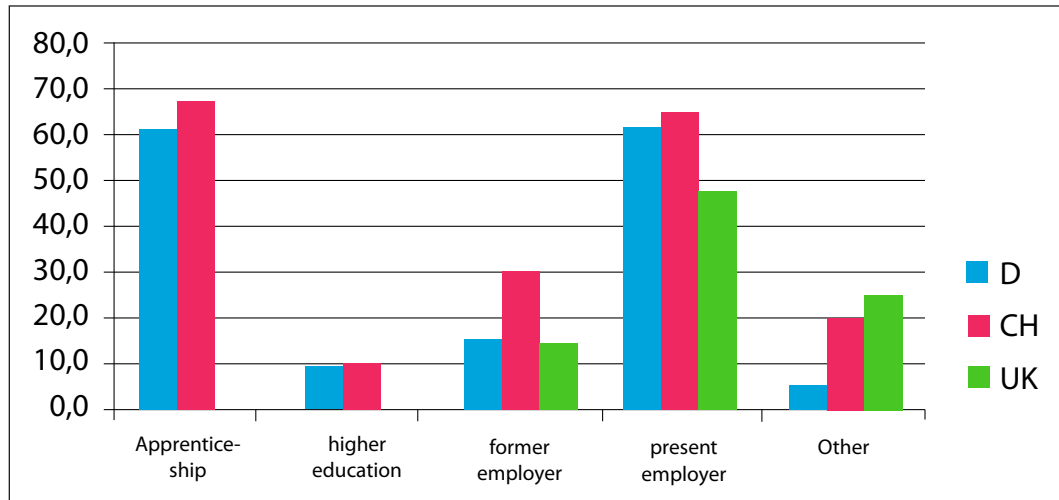
Source for all diagrams: employee questionnaires

Different educational and vocational systems are reflected in the training history of the employees who responded. 87% of the Swiss employees have gone through an apprenticeship in retailing or related occupations, which included banking, hairdressing, carpentry (for furniture), electrician or ICT. 3% have gone through higher education. The situation in Germany was very similar. In Britain 27% of the interviewees had achieved a NVQ certificate in occupations similar to the Swiss and German ones. With 12% more British employees had attained a higher education degree (Higher National Diploma or Bachelor degree). However, these degrees were not related to retailing but in areas such like forestry or health. Given the high share of young people who enter the university system in Britain we expected to find some graduates among the sales staff. However, as interviews with managers also showed, departmental manager positions are rarely filled with graduates.

In addition to formal training programmes, employees learn much from other sources. We asked, „where did you mainly learn the skills you use most in your current job?“ The question allowed for more than one answer. The large presence of retailing apprenticeships in Germany and Switzerland is reflected in the high share, more than 60%, of employees who perceived the dual system as a major source of their skills. A further important source of knowledge was attained within companies in all three countries: 48% of Britain, 62% of the German and 65% of the Swiss employees found that they had learnt a lot with their present employer. Fewer, namely between 15% and 30% in all countries, had gained valuable experience with their former employer. About 10% of the sales staff in Germany and Switzerland had gone through university or completed an advanced vocational training course (higher education) that leads to a nationally wide recognized certificate. Those who had a higher education certificate in Britain

did not view that as having helped them in their job. „Other”, which includes courses and experience outside the company is the largest in Britain company, followed by individuals in the Swiss companies (Diagram A2).

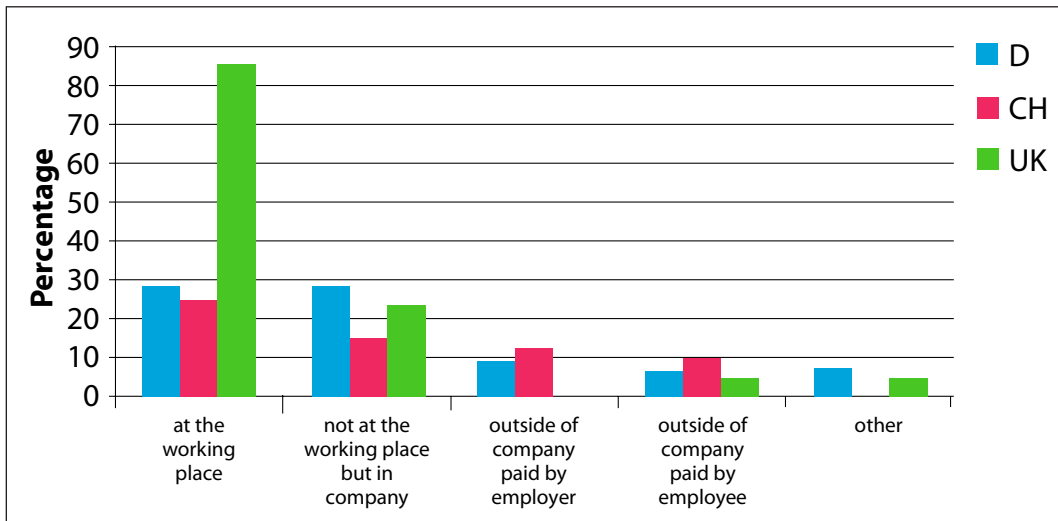
Diagram A2: Where did you mainly learn the skills you use most in your current job?



Note: more than one response possible

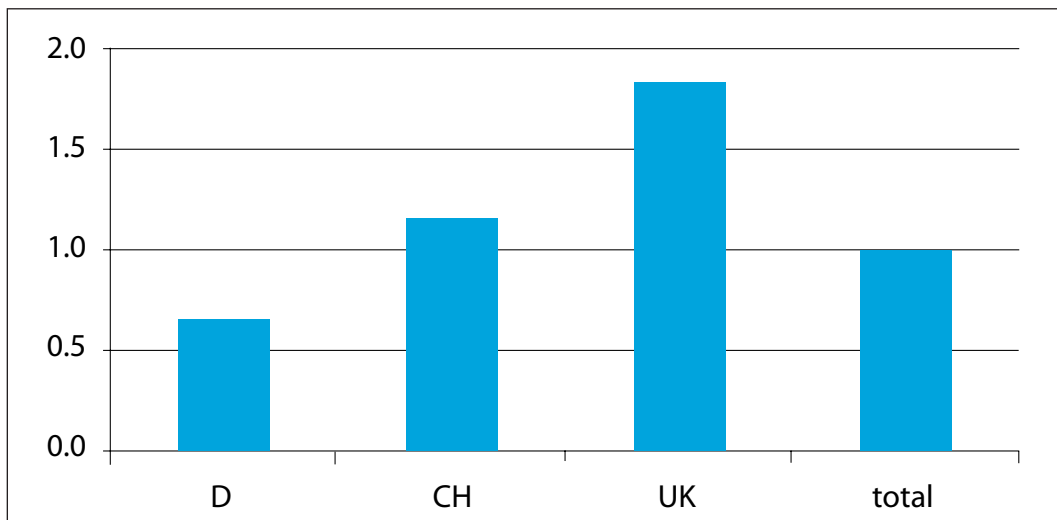
Further training is required in all occupations and its provision can vary greatly. It is interesting to see whether lower formal training in Britain is offset by a higher rate of further training. Not surprisingly, about 85% of the British employees had received further training at the working place once they had gone through the introduction period, and about a quarter of the employees received training in the company but not at the working place (Diagram A3). While the latter training was similar in the other two countries, training at the working place (on-the-job) was important only for less than 30% of the sales staff in Germany and Switzerland. In these two countries the organized and comparatively long apprenticeship training in the company reduces the need for additional on-the-job training. Training not at the working place but in the company often contains information about characteristics of products and customer service training. This was taken by about 15% (Switzerland) to almost 30% (Germany) of the sales staff with Britain taking a middle position. Courses outside of the company and paid by the employer were mentioned with less than 10% in the German and Swiss questionnaires and not at all in the British ones. The higher labour turnover of UK employees might mean that this type of training is not offered as widely. Engagement in courses outside the company and paid by the employee is done by a very small percentage of staff.

Diagram A3: Participation in Further Education



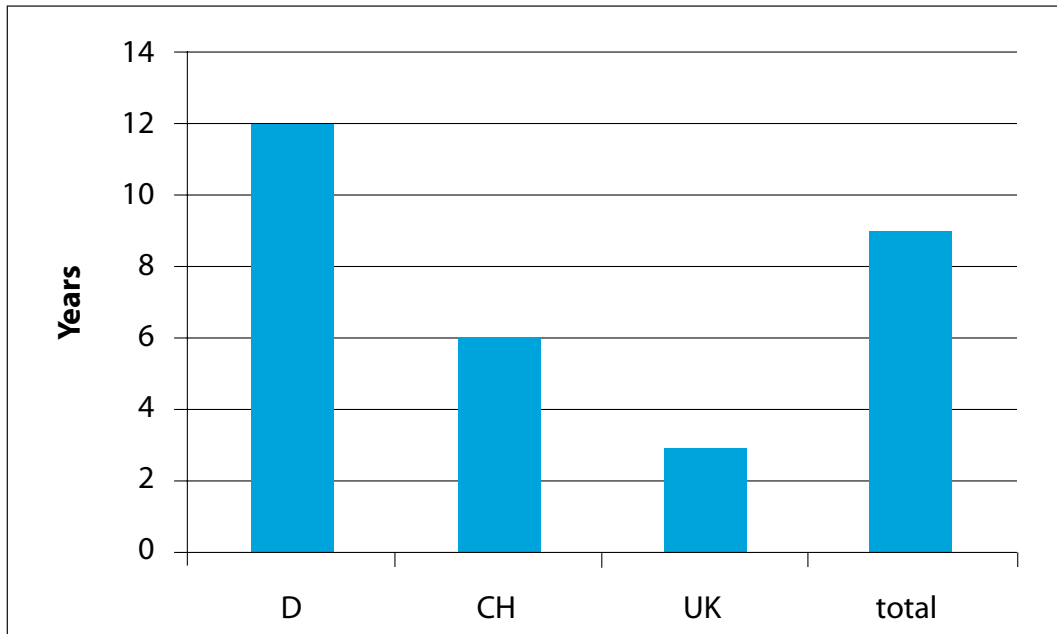
Given the different training experiences, age is an important factor. The average age of the employees is around 36 years in all countries. The younger age of employees in UK shops – which is often cited in literature (Mason et al, 2008, p. 135) – is largely the result of the employment of many pupils and students who work as part timers, and are not included in our survey.

An important fact which also affects the experience gained at a former employer is how often employees have changed their job in the last ten years. This is quite different across countries. German employees have the highest retention rate (Diagram A4). On average only half of them have changed the employer at least once. In Switzerland on average all employees have moved to a different employer at least once. This is quite consistent with the results from the managers' interviews, in which Swiss managers stressed that they value experience obtained at other firms and therefore keep a relatively small proportion of their apprentices after they finish training. Such workers are welcome to join the company afterwards again. Job changes are highest among UK employees, who on average changed employer nearly twice during ten years. This rate would increase tremendously if students and pupils were included, according to interviews with the managers.

Diagram A4: Change of employers in last 10 years

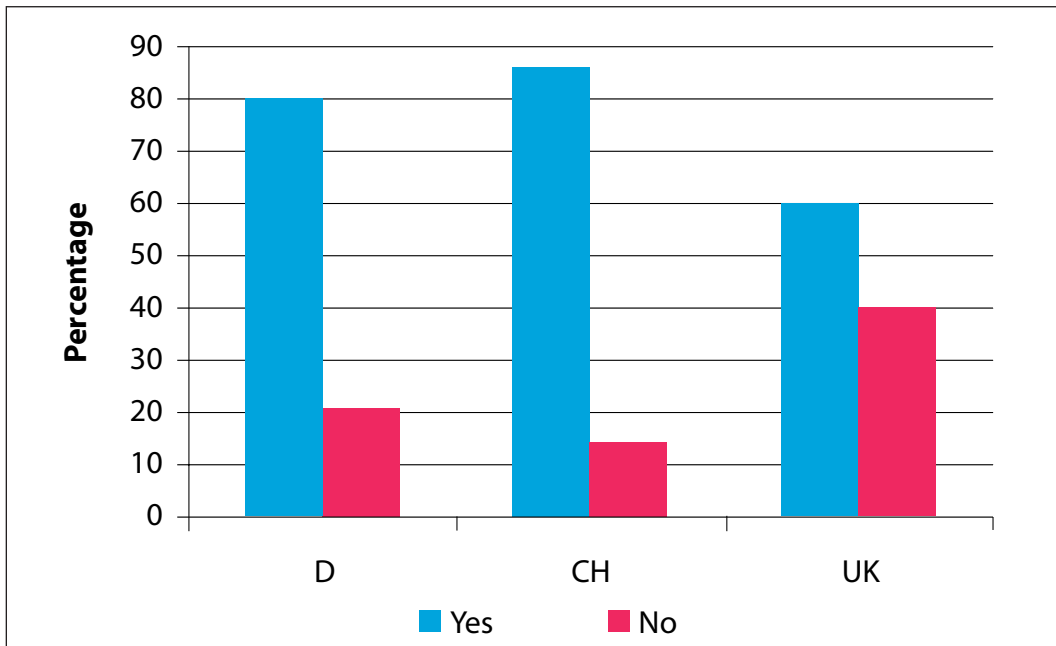
Closely connected to a change of employers is job tenure. The German employees had already stayed on average twelve years with their employer, which is twice as long as their Swiss counterparts and almost four times as long as their British colleagues (Diagram A5). The manager of a national food retailing chain in Germany gave reasons for this: on the one hand they like to retain the same staff in their shops, to provide customers with a comfortable feeling, as they can talk to and be serviced by the same sales person over time. On the other hand if their employees move to different locations they try to find a working place at a shop of theirs in the new district. The manager of the German furniture company stressed that he even tried to keep retired employees on a part-time employment contract, as they have experience in the business and the company knows that it can rely on them. Furthermore, it is hard to find well trained specialists for many departments and customers often like to be advised by a senior person.

Diagram A5: Length of employment period



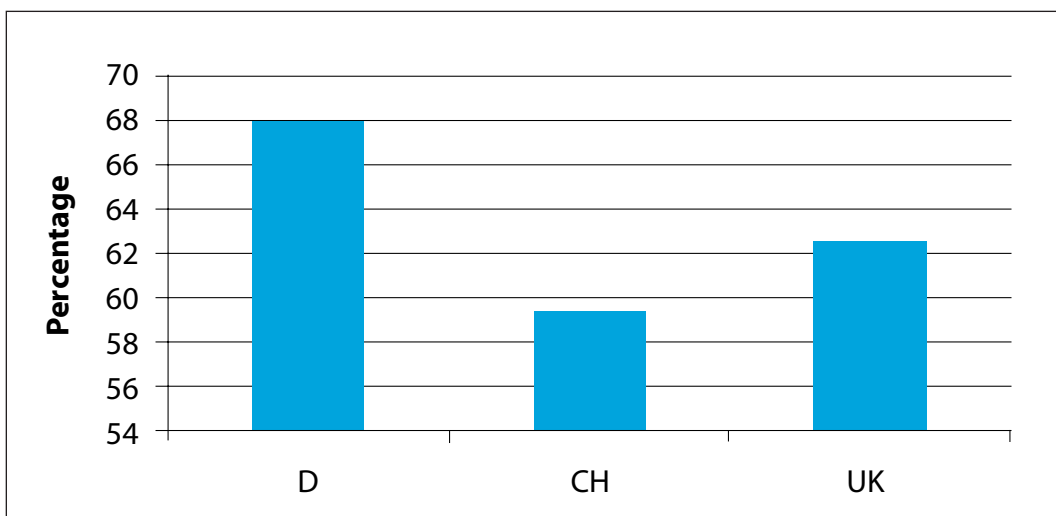
An important issue in this project is the financing of the cost of apprenticeship training. On the apprentice's side, low apprenticeship pay in Germany and Switzerland is not sufficient to cover rent for an apartment and living expenses if the apprentice had to live on his or her own. Not surprisingly, therefore, the large majority of Swiss and German ex-apprentices report they lived at (their parents') home during their apprenticeship. In Switzerland, where the ratio of apprentice wages to skilled wages is lower than in Germany, as many as 85% of the interviewees did so. Even in Britain (where we have asked about their location of living during the trainee period), 60% lived at home (Diagram A6). Another important reason for staying at home might of course be the relatively young age for apprentices in Germany and Switzerland. In Britain sales trainees are often adults.

Diagram A6: Did you live at your parents' home while during the apprenticeship?



If the apprentices/trainees lived at home during their apprenticeship a further interesting question is whether they contributed to the household budget during that period. Of those who stayed at home, about two thirds (between 59% and 68%) of the apprentices/trainees answered that they contributed an amount of between 50 and 200€ per month, to their parents (Diagram A7). That suggests that a large part of apprenticeship pay can be used by the young people for extras. The smaller share of apprentices who contribute in Switzerland is consistent with the low pay of apprentices.

Diagram A7: Did you while living at your parents' home during the apprenticeship contribute to the household budget?



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